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Information Systems: To Be, or Not To Be, a Science? Is that the Question?

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Abstract:

In this commentary, we complement McBride's (2018) paper by setting the debate in its historical context and building on the "rite of passage" notion that Chughtai and Myers (2017) introduced to denote the process of researchers entering a field of practice. We first summarize McBride's (2018) main point concerning whether or not IS *is* a science and pick up on the systemic nature of IS. In doing so, we incorporate how researchers have historically treated the debate and distinguish science *per se* from the *scientific method*. We turn then to reflect on the point that this debate apparently refuses to die. We conclude with a forward-thinking section in which we consider the implications of our considering the topic not for the field as a whole but for individual IS researchers. We end with our own modest call for action in terms of focusing on the everyday practices of IS researchers— specifically, the rites of passage or transitions (and lack of them) we (should?) go through in *how we practice our research*.

Keywords: IS field, Practice, Rigor, Relevance, Rite of Passage.

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1 Introduction

In this paper, we respond to McBride (2018). McBride claims that the common view that the information systems (IS) field¹ “is a science in which general laws can be developed by applying statistical surveys and running laboratory experiments has negatively affected the development of the discipline” (p. 163). He proposes “that it is time to reignite the debate on the nature of information systems research and the underlying philosophy that drives information systems researchers” (p. 164).

In this commentary, we complement McBride’s (2018) paper by 1) setting the debate in its historical context and 2) building on the “rite of passage” notion that Chughtai and Myers (2017) introduced to denote the process of researchers entering a field of practice. In doing so, we set the scene for further developments in the IS field given that we may see McBride’s paper as providing a relatively contemporary discussion on a debate that we can readily trace back some 40 years or so. Additionally, in commenting on the issues raised, we deem it important to advance the debate.

Thus, we first summarize McBride’s (2018) main point concerning whether or not IS *is* a science and pick up on the systemic nature of IS. In doing so, we incorporate how researchers have historically treated the debate and distinguish science *per se* from the *scientific method*. We turn then to reflect on the point that this debate apparently refuses to die and on the implications for the field given developments in the technological artefacts we study and their impacts on the kind of research that we undertake both in terms of method and topic. We conclude with a forward-thinking section in which we consider the implications of our considering the topic not for the field as a whole but for individual IS researchers. We do so in a way that concurs with the interdependence of IS research and practice (Galliers, 1995, p. S50) and the “practice turn” that has received considerable attention of late in the wider strategic management field (e.g., see Jarzabkowski, 2005; Vaara & Whittington, 2012) and that has growing influence in IS strategy research (e.g., Arvidsson, Holmström, & Lyytinen, 2014; Henfridsson & Lind, 2014; Marabelli & Newell, 2012; Peppard, Galliers, & Thorogood, 2014; Whittington, 2014).

2 IS is not a Field of “Science”, More a Field of the Humanities

In plain terms, McBride (2018) argues that IS is not a science and that one should not perceive and treat it as such because it deals with humans whose behavior and ideas one cannot measure like the movement of planets or growth of cells. In his view, following natural science methods and assumptions “drive the IS discipline to express everything in numbers” (p. 169), which creates boring, sterile research. Instead, we should think of the IS field as a field of the humanities (like dance) and “return to the primacy of narrative” (p. 169). Citing our recent *EJIS* article (Stein, Galliers, & Whitley, 2016) that reviews the first twenty years of ECIS, he suggests that IS “has drifted into a cul-de-sac...[and has failed to bring] leading-edge ideas, insights, and wisdom to academics and practitioners” (. #). He mentions “the predominance of positivist frameworks...[and] researchers’ reluctance to pursue new avenues and take a systemic view of information systems” (p. 164).

3 Systems Thinking and its Consequences

Picking up on the latter point, we now reflect on the systemic nature of IS by recalling discussions that took place at the IFIP WG 8.2 Colloquium “Information Systems Research—A Doubtful Science” held at Manchester Business School in September, 1984 (Mumford, Hirschheim, Fitzgerald, & Wood-Harper, 1985)—note the title by the way. This colloquium was perhaps the first to bring together IS researchers from around the world to discuss their approaches to undertaking research in IS and uncovered very different mindsets—from experimentalists to phenomenologists and more (e.g., Hirschheim, 1985; Lyytinen & Klein, 1985; Dickson, Senn, & Chervany, 1977). Pointing out that many authors had critiqued the use of the scientific method in IS research at the colloquium (e.g., Antill, 2015; Klein & Lyytinen, 2015), the first author pointed to Peter Checkland’s (1981) seminal work in noting the failure of the scientific approach to IS research (Galliers, 1985). Noting that Checkland (1981, p.13) identifies three major characteristics of the scientific method as repeatability, reductionism and refutability, we now consider each in turn.

¹ We prefer to use the term IS “field” rather than IS “discipline” given its evolving trans-disciplinary nature (Galliers, 2003).

Following Heraclitus (in not being able to step into the same river twice), Checkland (1981) makes the point that the very act of installing an information system changes the situation into which it is being installed. Thus, no particular experiment can be repeated in our context (See also Galliers, 1985). Checkland also argues extensively against reductionist thinking in our context. Based on Descartes' second rule (namely, to divide problems into manageable parts), reductionism assumes that "this division will not distort the phenomenon being studied...; that the components of the whole are the same as when examined singly as when they are playing their part in the whole" (p. 59). While one can argue this assumption is reasonable in the natural sciences, it is much less self-evident in the social sciences when taking the systems view that "the whole is greater than the sum of the parts" since systems theory has its foundations in "two pairs of ideas, those of *emergence* and *hierarchy* and *communication* and *control*" (pp. 74-75, emphasis in original). Refutability is also problematic in our context: "predictions of the outcome of observed happenings in social systems may change the outcome. *Physical systems cannot react to predictions made about them; social systems can*" (p. 70, emphasis added).

More recently, we have seen the debate continue with various subsequent IFIP WG 8.2 conferences (e.g., Kaplan, Truex, Wastell, Wood-Harper, & DeGross, 2004; Nissen, Klein, & Hirschheim, 1991) and in the excellent book that John Leslie King and Kalle Lyytinen (2006) edited on the state of the IS field. This collection arose from Benbasat and Zmud's (2003) paper in *MIS Quarterly* that called for a return to a focus on the IT artefact and other similar papers (e.g., by Weber, 2003) and counter arguments that, for example, Hirschheim and Klein (2006), Robey (2006) and Galliers (2003) made. We have also seen the role that PhD programs in IS might play (Galliers & Huang, 2012) in favoring quantitative methods as against qualitative and interpretivist approaches (see Myers & Avison, 2002; Walsham, 1995).

Thus, we make the point, like McBride (2018), that the use of scientific methods in the IS field does come with challenges but note that researchers have extensively covered this issue over the years. Additionally, we note that we need more nuanced approaches and reflection if we are to move the field forward—especially given the dramatic developments that have been and are taking place, the need to better understand actual practices, and the societal and ethical impacts of emerging technologies on work and on society in general (e.g., Baptista, Stein, Lee, Watson-Manheim, & Klein, 2017). Given that researchers have repeatedly pointed out these challenges and that the debate has continued for four decades, what have we learned?

4 A Debate that Refuses to Die

As its phenomena of interest develop rapidly, so has the IS field developed at a similar rate over recent decades. Yet, what remains unclear is whether, together with the field (not discipline) itself, the debate about it and its methods has moved forward over the years. While the debate refuses to die, has it become "undead" (Su, King, & Grudin, 2017)? Has it become an artificially inflated squabble over token diversity, while the practice of IS research continues to evolve in its multiple tracks, it is entrenched by how we educate our PhD students (Galliers & Huang, 2012), how we learn to publish in top journals, how we learn to "play it safe" or, perhaps, how we learn to "break the mold" (Avital, Matthiassen, & Schultze, 2017)?

For example, calls for papers with "less theory and more data" (Avison & Malaurent, 2014) echo the trend of big data and algorithmic decision making (Galliers, Newell, Shanks, & Topi, 2017). The phenomenon of algorithmic discrimination (Ebrahimi, Ghasemaghaei, & Hassanein, 2016), as another example, has no less color (McBride, 2018) for its quantitative numeric nature: numbers are beautiful but do not speak for themselves (Frenkel, 2013). Rather, the abundance of numerical data comes together with an abundance of new modes of storytelling that people are experimenting with: from the increasing importance of visual communication, such as "memes" and corporate analytics dashboards, to bite-sized mini-stories on Twitter and distributed, collectively created narratives such as fan fiction, independent media (indymedia), or other forms of digital storytelling. Our methods continue to advance accordingly (e.g., consider neuroscience (Dimoka et al., 2012), visual ethnography (Schultze, 2017) and computational social science (Chang, Kauffman, & Kwon, 2014) methods).

Debates over the status of the IS field as a science (or not) and over its methods seem to do little in terms of helping the field produce exciting research and rather feed our collective anxieties about irrelevance. Yet, exciting IS research out there exists—so where does it come from? A story is not inherently exciting just as numbers are not inherently boring. Science or humanities or their respective methods do not produce interesting (or boring) research; rather, researchers and their practice of research do. With this

point in mind, how can we reimagine this old debate in such a way as to feed the creative genius of IS researchers rather than our collective anxiety?

5 Moving Forward: “Rite of Passage” or the “Making of” Creative Researchers

We believe that one way to take the debate forward involves further pondering not on the field itself or its institutional constraints but on the *practice* of IS research and its *practitioners* (IS researchers). Turning the perspective of a “rite of passage” (Van Gennep, 1977) on ourselves, we can make sense of our research as a series of rites of passage, as transitions between phases and statuses. We can make sense of being thrown into new situations, into a temporary “limbo” and emerging as something different on the other side. Usually, we think of these transitions in terms of moving from a PhD student to a post-doctoral researcher to an assistant professor to a tenured professor. These transitions require one to perform acts of courage and pass milestones (PhD defense, tenure committee assessment) that create anxieties and rewards for the people involved and manifest in a corresponding collective anxiety in the field (e.g., skewed incentives that lead to boring and sterile research). However, we rarely think of the transitions (or lack of them) we go through in *how we practice our research*.

Many IS researchers follow the path of learning the ropes and the rules; that is, of proving themselves and then mastering their craft. Some then also break the rules and reinvent our craft, but they rarely think of that as something that should be part and parcel of the continuous path to becoming researchers, a source of exciting research and renewal in the field. So we end this reflection with our own modest call for action not in terms of changing tenure criteria, journal policies, or the status of the IS field but something rather smaller, yet very important in our view. We propose that we turn our focus to our everyday practices as IS researchers—the practices of designing studies, writing papers, editing papers, reviewing papers, rejecting and accepting papers, giving feedback to colleagues, and the like. So, we want the reader to imagine the IS field if one of our accepted rites of passage in doing research involved breaking the rules a little, challenging the received wisdom, and doing the unexpected. What might the impact be? A caveat, however: wait till you get tenure first!

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