

# COMPETING DICHOTOMIES IN IS RESEARCH AND POSSIBLE STRATEGIES FOR RESOLUTION

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## Abstract

The debate between “hard” positivist and “soft” interpretivist research approaches has been the subject of much discussion in the IS field. Typically, the debate is framed in issues central to the philosophy of science, an area where relatively few IS researchers are truly competent. This paper attempts to illuminate the issue, particularly for students and researchers not entirely familiar with the arguments. The opposing positions are caricatured in two anecdotes which illustrate the futility of research conducted at the *cul de sac* extremes of each approach. The main dichotomies characteristic of each research tradition are then summarized and categorized according to various levels, namely, paradigmatic, ontological, epistemological, methodological, and axiological. Finally, the paper considers a number of strategies for resolving the debate.

**Keywords:** IS research, IS research frameworks, IS research agenda, IS research issues.

## 1. INTRODUCTION

The debate between “hard” positivist and “soft” interpretivist research traditions is an ongoing one in the IS field and it is one that has received much attention to date (e.g., Dickson, Senn and Chervany 1977; Galliers and Land 1987; Hirschheim 1985; Jarvenpaa, Dickson and DeSanctis 1985; Landry and Banville 1992; Lee 1991; Mumford et al. 1985; Nissen, Klein and Hirschheim 1991; Orlikowski and Baroudi 1991; Walsham 1995). This paper provides a brief overview of a number of dichotomies that characterize both the hard and soft approaches as a means of framing the debate (section 2). Many researchers tend to view these camps as mutually exclusive and logically incompatible. However, both approaches have strengths and limitations and, indeed, some researchers have combined different approaches meaningfully. Thus, the debate should be recognized as being somewhat vacuous, since if it could be resolved, it would have been long ago. The paper identifies four possible strategies for advancing the debate: namely, *isolationist* adoption of a single approach to the exclusion of all others; *supremacy* of one approach; *integration* of dichotomous approaches; or *pluralist* accommodation. However, the paper begins with two tales which illustrate the futility of research informed by positions at each *cul de sac* extreme of the continuum between hard and soft research approaches:

### The Tale of P. O'Sitivist

P. O'Sitivist was a researcher with a problem: excessive rejection of the papers he submitted to journals and conferences, often with stinging criticism from reviewers. Believing that there must be a scientific explanation for this, and unwilling to entertain the possibility that his work was inadequate, P decided to investigate the matter scientifically. This is the story of his endeavor.

Confident that the content of his papers could not be the reason for rejection, P wondered if the core of his rejection problem might be that his paper titles have been lacking in some way. Pulling down a set of conference proceedings from which his work had recently been rejected, P scanned the table of contents. Suddenly, insight flickered—there was *something*. Moving quickly to the shelf which contained his copies of the top journal in the field, P scanned the tables of contents swiftly. Yes, the pattern seemed to be definitely confirmed—the majority of published papers had a *colon* in their title. Consulting his stock of rejected papers, P could feel the onset of a hypothesis. A quick perusal confirmed his intuition—his paper titles were almost entirely bereft of colons. Returning to the journal and conference proceedings, P began to note other aspects of these “successful” titles. For example, there were many words in the titles which he did not understand. The term *esotericity* could be coined for this. Also, there were many long words. This could be characterized as *polysyllabicity*. He allowed himself a brief but triumphant *Eureka*—the structure of the paper he must write on the matter was suddenly very evident. He was now in the comfortable zone of hypotheses and their corollaries.

- Hypothesis 1: Paper titles that contain a colon are more likely to be accepted by reviewers.
- Hypothesis 2: Paper titles high on polysyllabicity are more likely to be accepted. The construction of a polysyllabicity index (p-ind) was required to operationalize this. This was achieved simply by calculating the total number of syllables in the title and dividing by the total number of words.
- As a corollary of this, P felt that the construction of new terms through hyphenated concatenation was worthy of investigation.
- Hypothesis 3: Paper titles high on esotericity are more likely to be accepted. This was operationalized by creating an esotericity index (e-ind). This involved calculating the number of words in the title that do not appear in the concise Oxford dictionary as a proportion of the total number of words in the title.
- As a corollary of this, an exclamation mark connotes journalism, and thus titles with these are less likely to be accepted.

P was now ready to consider data analysis. The colonicity hypothesis lent itself readily to a Chi-square analysis of independence, and the results are contained in Table 1.

Given that the samples were quite small, P considered using the *t*-test to compare for significant differences on the other hypotheses. Strictly speaking, this would have still required that those pesky restrictions to do with normality of distribution and homogeneity of variance requisite for parametric tests be satisfied. P was a little ashamed that he had ignored these restrictions in the past, but his former computerized statistical package didn't provide non-parametric tests. Anyway, they made it more difficult to find significance. However, now that he had installed SPSS, which included non-parametric tests, he felt he could really make progress as an academic. A sneak preview in SPSS showed that even when using the non-parametric Mann-Whitney test, the values still fell within the required significance level. Therefore it was chosen (see Table 2).

**Table 1. Colonicity Analysis**

	<b>Journal/Conference Published Papers (n=61)</b>	<b>P's Rejected Papers (n=24)</b>	<b>TOTAL</b>
Colon in Title	54	5	59
No Colon in Title	7	19	26
<b>TOTAL</b>	61	24	85

Chi-square = 37.77;  $p < .00001$

**Table 2. Analysis of Polysyllabicity and Esotericity**

<b>Dimension</b>	<b>Journal/Conference Published Papers (n=61)</b>	<b>P's Rejected Papers (n=24)</b>	<b>Significance</b>
Polysyllabicity (p-ind) mean value	3.7	2.1	<u>Mann-WhitneyU</u> *
Esotericity (e-ind) mean value	0.27	0.22	**

\* p less than 0.1

\*\* p less than 0.2

P happily found that all his hypotheses but one were strongly supported at the .05 level. The esotericity hypothesis was not as malleable. He toyed with the idea of dropping it, but he really liked it. Anyway, a significance level of .19 wasn't all that bad. He decided that he would render this obscure with a double asterisk footnote, explaining that this was merely significant at the .2 level.

P was now ready for conclusions. His research showed that colonicity is certainly important. Polysyllabicity and esotericity were also definitely significant. Unfortunately, this would be hard to achieve without much investment in reading peripheral literature. A pragmatic alternative in P's view would be to concatenate words through hyphenation, thus achieving the desired effect. For example, *Romeo and Juliet* would clearly not be an adequate title in today's academic publishing rat-race. However, *A Tragi-Comic Account of Inter- and Intra-Familial Strife in a Southern-European Context: The Pre-Modernist Perspective* would be a reasonable substitute.

Further examination of the data had revealed that high scores on polysyllabicity and esotericity were positively correlated with paper title length (thus resolving the debate as to whether size matters, mused P). This was where he felt another flash of insight. Given that many journals and conferences impose restrictions on paper length but not title length, it might be advisable for authors to create longer titles, maybe even up to 6,000 words. This would allow one to achieve high polysyllabicity and esotericity index scores, and from P's study would have to be successful. Yes, he would indeed make a significant contribution to the field with this paper.

Finally, P gave thought to possible outlets for publishing his work. He was still wary from his previous experiences of rejection. However, he had noticed a *Call for Quantitative Research* papers for one of the major journals in the field—a lamentable state of affairs for P, who could remember the good old days when this only occurred in the case of qualitative, interpretivist research. Yes, he thought triumphantly, this paper could be submitted with impunity to the top organ in the field.

### The Tale of Ethna O’Graphy

Ethna O’Graphy was a researcher with a problem. As a trained anthropologist, she desperately wanted to work on serious and meaningful research projects that contributed to the betterment of the human condition. Unfortunately, there were limited opportunities for anthropologists who weren’t prepared to travel, and Ethna wasn’t prepared to travel. However, she was aware that some of her anthropological colleagues had been able to find employment in the IS field, which apparently had no barriers to entry. Indeed, these colleagues seemed to be extremely well-respected in the field, as their findings were well-received and unchallenged even though they quite often represented fairly mundane and almost “old hat” aspects of the field of anthropology. Thus, Ethna had found it quite easy to obtain a position as an IS researcher in her *alma mater*.

After a number of months in the position, however, she was becoming extremely frustrated with what she perceived as the excessively shallow positivistic research traditions in the IS field. Ethna thought it imperative to always look beyond superficial cause-effect relationships to consider the deeper meaning underpinning all human activity. She subscribed completely to Oscar Wilde’s philosophy that “anyone who calls a spade a spade should be forced to use one,” and considered Freud’s concession that “sometimes a cigar is just a cigar” to be a shameful betrayal of all that was rich and useful in psycho-analysis. Fortified by these beliefs, she was looking forward with enthusiasm to a research project which her department had undertaken—that of designing a computer-based information system for a video rental store. Ethna’s specific responsibility on the project was to determine the information requirements.

Dimly aware that requirements determination was identified in the IS literature as a problematic issue, Ethna felt this must be due to narrow ontological and epistemological assumptions about the nature of requirements which inevitably resulted in failure to cater for the needs of all relevant stakeholders to an adequate extent. However, her rather primitive terms of reference, viz., that “*the information requirements for the video store be captured with a view to designing a computer-based information system,*” was a source of dismay for Ethna. Fully aware of the dehumanizing potential of technology, Ethna resolved that the self-actualisation needs of all stakeholders, both staff and customers, would be adequately represented in this project. She would be especially vigilant for any emerging technological determinism. She would keep extensive case notes on the process and was jubilant about the research monograph she would write after the successful completion of what she was sure would be the perfect requirements determination exercise.

Ethna decided to adopt a grounded theory (GT) approach that would allow the requirements to “*crawl in by themselves*” into the specification document. Ethna desperately wanted to infuse her work with metaphors, considering the absence of metaphorical anchors to be the principal weakness of most IS research. She quite liked the naturalistic insect metaphor implied by requirements crawling in by themselves. Another couple of metaphors like that and her monograph would be “sorted” she concluded, allowing herself a brief relapse into the vernacular.

Ethna had never actually rented a video and was completely unaware of what the process entailed. She was aware that some researchers might view this ignorance of the application domain as a disadvantage, but she took heart from the counsel of the great pioneer of grounded theory, Glaser (1992):

There is a need *not* to review any of the literature in the substantive area under study. This dictum is brought about by the desire not to contaminate....It is vital to be reading and studying from the outset of the research, *but in unrelated fields*.

Thus, her state of ignorance was an advantage in that she was not bringing the legacy of preconceived biases to the situation. Since she was currently rereading Margaret Mead's (1928) classic, *Coming of Age in Samoa*, she adjudged herself to have adequately satisfied the dictum of reading in unrelated fields. Nevertheless, she decided to spend some time in deep immersion in the video store to assess the vital cultural nuances. Browsing as inconspicuously as possible with her video camcorder, Ethna began to build up a profile of the intervention situation.

Six months later, armed with well over 1,000 pages of field notes, 200 hours of video-taped interviews with customers, including their responses to Rorschach ink-blot tests, and also some interesting eye-blinking behavior which she was keen to analyze as it could lead to a useful conceptual lever, Ethna felt suitably prepared to accomplish a successful intervention. One year later, she delivered the preliminary specification document, entitled *Preliminary Requirements Denouement*. This, she felt, was justified in that she had peeled away the superficial veneer (again, a nice metaphor was slotting into place), and uncovered the source of what the desirable requirements would be. But, the work was preliminary and many, many more years would be necessary to arrive at anything like a definitive position. However, she was shocked at the reaction of the owner of the video store who, after no more than two minutes of superficial perusal of her *Denouement* document, threw it forcefully on the table and stormed out muttering something about "bloody academics."

Ethna was dismayed at first. Disconsolately retreating to her office, she pondered her next step. Her monograph seemed to be a distant dream now. Once at her desk, she opened her diary to check for any appointments that might distract her. *And there it was!* The quotation for the day read: "*A failure is an opportunity, the full benefit of which has not been turned to your advantage.*" The quote was from Ed Land, founder of Polaroid—Ethna would have preferred an obscure Eastern mystic, but one couldn't have everything. Nevertheless, it illuminated the path she would take. She would write up the project as a tale of failure. Obviously, she would need to embrace another new paradigm to explain this failure. That wasn't so bad, as she had never been convinced by grounded theory anyway—a positivist wolf in interpretivist sheep's clothing, in fact. However, in truth, Ethna had been so desperate that she would have even embraced positivism, and all the statistical analysis it seemed to imply, if the sight of those Greek statistical symbols didn't elicit panic attacks. Encouraged anew, she quickly perused a set of recent conference proceedings. She noticed that actor network theory (ANT) appeared to be becoming quite popular. Briefly reading a couple of papers, she abstracted a couple of likely looking constructs. ANT certainly acknowledged the complex alignments and inseparable nature of the social and technical factors that influence the introduction of technology. Also, she was particularly taken with the concept of inscription—the notion that inanimate objects can be used to inscribe the interests of humans. Certainly, the manner in which the owner of the video store had dashed her *Preliminary Requirements Denouement* to the ground had all the hallmarks of inscription. Beaming triumphantly, the outline of what would once again be a hallmark research monograph began to take shape.

These (fictional!) tales have a moral in that they are intended to underscore the fact that neither the hard nor the soft approach has exclusive monopoly on poor research. They illustrate the futile phenomenon of researchers who adopt or inherit unquestioningly a particular mode of research. In the first tale, it is important to bear in mind that a chain is only as strong as its weakest link. Thus, while P. O'Sitivist's research exhibited great rigor, it is of a spurious nature, since the hypotheses are clearly not worthy of rigorous testing. Similarly, the relevance of Ethna O'Graphy's research objective, that of representing all stakeholder interests adequately, is beyond question. However, the manner in which metaphors are forced into the research at all costs, the luxury of spending an excessive time on the preliminary document, the dilettantesque flitting from one paradigm to another, and the use of esoteric data collection mechanisms all contribute to a kind of means-ends inversion as she loses sight of the realities of the research situation.

**Table 3. Summary of Soft vs. Hard Research Dichotomies**

<b>PARADIGM LEVEL</b>	
<p><b>Interpretivist</b> No universal truth. Understand and interpret from researcher’s own frame of reference. Uncommitted neutrality impossible. Realism of context important.</p>	<p><b>Positivist</b> Belief that world conforms to fixed laws of causation. Complexity can be tackled by reductionism. Emphasis on objectivity, measurement and repeatability.</p>
<b>ONTOLOGICAL LEVEL</b>	
<p><b>Relativist</b> Belief that multiple realities exist as subjective constructions of the mind. Socially-transmitted terms direct how reality is perceived and this will vary across different languages and cultures.</p>	<p><b>Realist</b> Belief that external world consists of pre-existing hard, tangible structures which exist independently of an individual’s cognition.</p>
<b>EPISTEMOLOGICAL LEVEL</b>	
<p><b>Subjectivist</b> Distinction between the researcher and research situation is collapsed. Research findings emerge from the interaction between researcher and research situation, and the values and beliefs of the researcher are central mediators.</p>	<p><b>Objectivist</b> Both possible and essential that the researcher remain detached from the research situation. Neutral observation of reality must take place in the absence of any contaminating values or biases on the part of the researcher.</p>
<p>Emic/Insider/Subjective Origins in anthropology. Research orientation centered on native/insider’s view, with the latter viewed as the best judge of adequacy of research.</p>	<p>Etic/Outsider/Objective Origins in anthropology. Research orientation of outside researcher who is seen as objective and the appropriate analyst of research.</p>
<b>METHODOLOGICAL LEVEL</b>	
<p><b>Qualitative</b> Determining what things exist rather than how many there are. Thick description. Less structured and more responsive to needs and nature of research situation.</p>	<p><b>Quantitative</b> Use of mathematical and statistical techniques to identify facts and causal relationships. Samples can be larger and more representative. Results can be generalized to larger populations within known limits of error.</p>
<p><b>Exploratory</b> Concerned with discovering patterns in research data, and to explain/understand them. Lays basic descriptive foundation. May lead to <i>generation</i> of hypotheses.</p>	<p><b>Confirmatory</b> Concerned with hypothesis testing and theory verification. Tends to follow positivist, quantitative modes of research.</p>
<p><b>Induction</b> Begins with specific instances which are used to arrive at overall generalizations which can be expected on the balance of probability. New evidence may cause conclusions to be revised. Criticized by many philosophers of science, but plays an important role in theory/hypothesis conception.</p>	<p><b>Deduction</b> Uses general results to ascribe properties to specific instances. An argument is valid if it is impossible for the conclusions to be false if the premises are true. Associated with theory verification/falsification and hypothesis testing.</p>
<p><b>Field</b> Emphasis on realism of context in natural situation, but precision in control of variables and behavior measurement cannot be achieved.</p>	<p><b>Laboratory</b> Precise measurement and control of variables, but at expense of naturalness of situation, since real-world intensity and variation may not be achievable.</p>
<p><b>Idiographic</b> Individual-centered perspective which uses naturalistic contexts and qualitative methods to recognize unique experience of the subject.</p>	<p><b>Nomothetic</b> Group-centered perspective using controlled environments and quantitative methods to establish general laws.</p>
<b>AXIOLOGICAL LEVEL</b>	
<p><b>Relevance</b> External validity of actual research question and its relevance to practice vital, rather than constraining the focus to that researchable by “rigorous” methods.</p>	<p><b>Rigor</b> Research characterized by hypothetico-deductive testing according to the positivist paradigm, with emphasis on internal validity through tight experimental control and quantitative techniques.</p>

## **2. COMPETING DICHOTOMIES IN THE IS RESEARCH DEBATE**

The literature on research approaches is a broad and contentious one which is concerned with fundamental research philosophies that are often seen as dichotomous to each other (e.g., Guba and Lincoln 1994; Lee 1989; Morey and Luthans 1984). A number of dichotomies have been proposed in the literature, including the following:

- positivist vs. interpretivist
- realist vs. relativist
- objectivist vs. subjectivist
- emic/insider/subjective vs. etic/outsider/objective
- quantitative vs. qualitative
- exploratory vs. confirmatory
- induction vs. deduction
- field vs. laboratory
- idiographic vs. nomothetic
- relevance vs. rigor

This list, while identifying a large number of dichotomies, is by no means exhaustive. Several additional dichotomous terms are discussed in the literature (e.g., Gable 1994; Guba and Lincoln 1994). However, it should be noted that these dichotomies are not all at the same level of abstraction, as some are more overarching than others, and some are almost synonymous. For example, interpretivism and positivism operate at the level of overall research paradigm;<sup>1</sup> realism and relativism are ontological positions; subjectivism and objectivism are concerned with epistemology; the idiographic vs. nomothetic issue is a methodological one; while relevance vs. rigor is perhaps best characterized as an axiological issue. It is beyond the scope of this paper to discuss in detail each of these dichotomies and their assignments to the various levels. However, they are summarized briefly in Table 3, with the soft positions in the left-hand column, and the hard in the right. Also, it must be acknowledged that a simple dichotomous categorization does not adequately reflect the further nuances on each side. For example, realism can be contrasted with both anti-realism and relativism, yet relativism and anti-realism are in no way synonymous. Further, phenomenology and constructivism can be differentiated, but both would be classified under the soft approach. Justification for such a dichotomy may be drawn from Morey and Luthans (1984, p. 28), who point out that the terms on each side of these dichotomies are often characterized by subtle shifts in terminology, and thus choosing “any term in the set often conjures up all the implications the others have.”

## **3. POSSIBLE STRATEGIES TO FACILITATE RESOLUTION OF THE DEBATE**

Morgan (1983) argues that it is wrong to condemn any research perspective. Clearly, the research perspectives on both sides of Table 3 have strengths and weaknesses. Indeed, if either of these research approaches could be proven to be universally applicable, the debate would have been resolved long ago. The essence of the problem is that researchers, rather than choosing a research approach appropriate to the research question being asked, actually tend toward geographic polarization as they inherit unquestioningly their research methods from those dominant in the institution or region they happen to inhabit. This becomes dogmatic orthodoxy and there is a desire to denigrate the opposing perspective, with criticisms characterized by excessive one-sidedness. Given that both positions have limitations, there is no point in replacing one approach with the other. However, rather than rejecting the other side from a position of knowledge—similar, say, to Picasso dispensing with conventional artistic perspective—researchers from each perspective are often relatively ignorant of the strengths of the other.

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<sup>1</sup>This is a somewhat contentious issue. While some researchers locate positivism and interpretivism at the paradigm level and subjectivism/objectivism at the epistemological level (e.g., Guba 1990), others would reverse these positions, placing subjectivism/objectivism at the paradigm level and positivism/interpretivism at the epistemological level (e.g., Burrell and Morgan 1979; Hassard 1991; Walsham 1995).

There has been a tendency in the literature to view these research approaches as mutually-exclusive opposites, characterized by “disinterested hostility” between the camps (Burrell and Morgan 1979, p. 36). The essence of this is captured by Guba and Lincoln (1994), who state that interpretivism and positivism “cannot be logically accommodated anymore than, say, the ideas of a flat versus round earth can be logically accommodated.”

However, some researchers have taken a more ecumenical stance, arguing that these positions should not be viewed as mutually exclusive (e.g., Firestone 1990; Gable 1994; Iivari 1991; Jick 1983; Morey and Luthans 1984; Patton 1990). For example, qualitative techniques can complement quantitative ones in that they can help to interpret and illuminate empirically-determined statistical relationships. This latter was a feature of a successful and widely-cited research study by Kaplan and Duchon (1988). Similarly, a successful multi-paradigm research study was conducted by Hassard (1991).

Given this tension between those who view the various research approaches as incommensurable, and those who appear to have combined them successfully, it is worth discussing the various strategies that might facilitate resolution of the debate. Four different strategies are possible, namely, isolationist, supremacy, integrationist, and pluralist. Again a full discussion of each is beyond the scope of this paper, but references are provided. These strategies are discussed briefly below:

- First, an *isolationist* strategy could be adopted, whereby researchers operate strictly according to a particular paradigm and ignore other alternatives, thus opting for paradigm closure. This is consistent with the position of Burrell and Morgan. However, this implies some Archimedean point from which one can declare the paradigms identified to be mutually exclusive and exhaustive. Some IS researchers have argued that such isolation is inappropriate and untenable (Landry and Banville 1992). Also, isolationism could force researchers to focus solely on issues that are “researchable” under their chosen paradigm. However, in practice, Hassard has conducted research using the paradigms identified by Burrell and Morgan, and his research indicates that complementary insights are provided by each.
- Second, each research approach could strive to achieve *supremacy*. However, this would imply that the debate can be resolved and this has not been the case in any research field. Also, given that both approaches have strengths and weaknesses, there is little point in an imperialist strategy that would strive to replace one limited approach with another. In the relatively short history of the IS field, the positivist approach has been effectively the supremacist one. However, the recent emergence and growing interest in the interpretivist position would suggest that positivist research has been found somewhat wanting in providing the coherent theory its own axioms would desire.
- Third, the goal could be to achieve *integration* of the competing approaches. Lee (1991) has proposed a framework to help achieve such integration. However, the integration strategy is problematic (Newman and Robey 1992; Walsham 1995). Also, given the cogent arguments have been made for paradigm incommensurability (Jackson and Carter 1991), this strategy would be difficult, if not impossible, to achieve, and could indeed lead to each approach sacrificing its particular strengths.
- The remaining alternative is to adopt a *pluralist* strategy. This would allow for different paradigms to be applied in a research situation—as already mentioned, an example of such a multiple paradigm approach is provided by Hassard. It would also allow for a contingent tool-box approach where different methods with complementary strengths could be used as appropriate (Landry and Banville 1992; McGrath 1984, pp. 31ff).

Thus, while there may be incommensurability at the paradigmatic level, some ecumenical accommodation may be possible at the lower ontological, epistemological, methodological, and axiological levels (see Table 3 ). Indeed, as mentioned above, several studies have done this to a greater or lesser degree (e.g., Firestone 1990; Kaplan and Duchon 1988). As Firestone (p. 123) points out, in the practice of research, “walls between paradigms break down,” as it is not possible to remain in the philosophical heights avoiding methodological specifics. Thus, methodological pluralism has been recommended as an appropriate strategy in practice (Landry and Banville 1992; Iivari 1991; Nissen, Klein and Hirschheim 1991). Clearly, combining diverse research methods with a view to maximizing their complementary strengths is worthwhile. However, conceptually such a strategy can be supported also. Indeed, Iivari makes the point that epistemological monism can coexist with methodological pluralism. Similarly, the critical theory paradigm has been cast as combining an essentially realist ontology with a subjectivist



epistemology<sup>2</sup> (Guba 1990), while a paradigm like functional contextualism implies a relativist ontology allied to an objectivist epistemology.

#### 4. CONCLUSION

The authors fundamentally believe that the world is best characterized by an interpretivist view—thus, reality is socially constructed, multiple realities exist, and what constitutes “scientific research” is both time and context dependent. However, when it comes to the stage of communicating research results where papers are written for publication, the research process becomes inherently positivist: typical papers are by necessity structured in a linear fashion; the research data gathered is unitized and categorized to a greater or lesser extent; reductionism is present to the extent that choices have to be made as to what should be included or omitted; some explanation and interpretation of the findings will be included, implying some degree of cause-effect; and some degree of objectivity will be affected in so far as political and polemic tirades will be avoided. The interpretivist tragedy is to fail to recognize that research communication, in the traditional form, is positivistic. On the other hand, the positivist tragedy is their endeavor to operate on the assumption that the world is also positivist.

Interestingly, identical debates on the merits of hard and soft approaches have been conducted, *without* resolution, in many other fields—marketing (Kavanagh 1994) and educational inquiry (Smith and Heshusius 1986), for example. Thus, polarization into entrenched camps, both of whom arrogantly see their research approach as the true one, is a fundamental problem in the IS field. Paradigms should serve as a lens to illuminate research issues, not as blinkers to help achieve closure. Yet, researchers continue to operate in blind and slavish adherence to the extreme poles of their particular research approach, all too similar to the caricatures depicted in the opening tales of this paper.

However, the debate has been significant for a number of reasons. First, it is important that researchers be consciously aware of these issues. After all, everyone operates on the basis of some epistemological assumptions, whether they know it or not! The debate is therefore a good training ground for academic researchers, but they should realize the futility of trying to resolve it, and achieve a healthy respect for a variety of research paradigms, rather than arrogant hegemony and condemnation of all alternative approaches. An interesting question is to what extent the debate has contributed to the IS field thus far. This can be answered if we consider whether the research being conducted at present is better than that in the past, and whether the field as a whole has advanced. The answers to both are probably in the affirmative.

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<sup>2</sup>Again, this is a contentious issue. Hassard, for example, would not characterize critical theory in exactly this way.

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