

Communicating to Practitioners through IS Research: a Descriptive Review

Full Paper

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Abstract

Though IS researchers are continuously being encouraged to make their research more relevant for practitioners, there are still relatively few studies that have empirically assessed how relevant, and thus useful, IS research is to practitioners. The goal of this study is to assess the practical relevance of IS research now and over time to understand how contributions are presented to practitioners and whether the field has improved in addressing practitioner needs for consumable research. This descriptive review assesses 258 empirical studies published in MISQ and EJIS across three periods (1993–94, 2003–04, and 2013–14) to answer three research questions: (i) What are the major types of practical contributions in IS research; (ii) How are practical contributions structured in IS research; and (iii) Has the nature of practical recommendations changed over time? This study provides four learning lessons for IS researchers, reviewers and journals on communicating effectively to practitioners.

Keywords

Relevance, Practical Contribution, Implications for Practitioners, Information Systems, Applied Research, Descriptive Literature Review

Introduction

Since being established in the 1970s, the IS field has faced many struggles in establishing itself as a credible, independent and referent discipline of applied science. One such struggle is the recurring rigour-relevance debate. As an applied field, a primary goal of the IS discipline is to produce knowledge that is applicable to practical problems. Recognizing this, most IS journals include advising practitioners within their editorial statements, and most academics recognize this obligation by including a separate section containing key findings addressed to practitioners such as Implications for Practitioners or Contributions to Practice. Unfortunately, despite these efforts practitioners tend to refer to practitioner-based magazine articles and websites (i.e. Gartner) rather than referring to the field's top journals (Beer, 2001, Huff, 2000 and Lundberg, 2001 as cited by Pandaa et al., 2014). The reason for this lies in the fact that practitioner-based articles are written with practitioners in mind; the logic of the arguments positioned and the presentation of the findings are aligned with the unique assumptions and frames of reference of practitioners (which are notably different than those of researchers). Conversely, academic research is primarily ascribed to academic researchers who “seem to be ‘out-of-touch’ with the language, problems, and concerns of the business world and practitioners” (Pandaa et al., 2014).

In 1998, Robey and Markus appealed to the IS field to generate more ‘consumable’ research, a term they coined to denote research that was both academically rigorous and practically relevant. Based on Benbasat and Zmud (1999) who defined practical relevance along four dimensions (interesting, applicable, current, and accessible) this study adds to the definition of ‘consumable’ research by

positioning ‘relevant research’ as research which is willingly and easily absorbed by a practitioner with the intent for practical business use (in addition to being academically rigorous). This conceptualization implies that if researchers want to support and influence practitioners through relevant contributions, they must ensure that their arguments are not only present in the text, but that they are easy to absorb (applicable and accessible) and that they are persuasive (they incite action). By assessing the practical relevance of practitioner-oriented contributions in terms of these dimensions, rather than focusing on the more studied dimension of ‘topical’ relevance (current and interesting) this study endeavours to provide new insight into effectively communicating with practitioners through relevant contributions.

In this study, a sample of 258 empirical studies published in two of the field’s top journals (MISQ and EJIS) was studied in order to answer three research questions: (i) What are the major types of practical contributions in IS research; (ii) How are practical contributions structured in IS research; and (iii) Has the nature of practical recommendations changed over time? The remainder of this paper is structured as follows. The next section discusses the framework that motivates this literature review. The following section presents our research methodology and elaborates on the high-level results. The subsequent section discusses our interpretations of the findings. We conclude with a discussion of study limitations, and future research, and a brief discourse on the value of relevant research in an applied field of science.

Research Questions and Conceptual Framework

Insofar as researchers derive theories and conclusions regarding phenomena (contributions) which they communicate to others through the written word, it may be said that each published journal article contains a series of arguments which the researcher puts forward to support their findings. Thus, the manner in which contributions are structured and linguistically styled is critical not only to the clear communication of these ideas, but also to persuading the reader of the strength of the arguments, the legitimacy and utility. Dating back 2500 years, Aristotle emphasized the importance of rhetoric as a means of persuasion. According to Aristotle, there are three modes of persuasion (i.e., *ethos*, *pathos*, and *logos*), referred to as rhetorical appeals. These rhetorical appeals are used to classify and assess the persuasive value of the argument to the audience. *Logos* reflects an argument’s logical appeal. *Ethos* refers to the words a speaker uses to convey credibility, reliability and competence. *Pathos* relates to emotional appeal; the feelings evoked in an audience by the words of the speaker. Aristotle’s Logos-Ethos-Pathos paradigm serves as the conceptual framework for our research questions.

RQ 1: What are the major types of practical contributions in IS research? Our first objective is to classify IS research findings based on its type of contribution. We conceptualize a ‘practical contribution’ as any explicit statement and argument directed to a practitioner which advances their understanding of concepts and interrelationships pertaining to a particular phenomenon. It is often used interchangeably with “practical implications”. The first research question aims at understanding the basic topic of the researcher’s argument. For example: Is the researcher’s argument a fact? Is the researcher advocating a particular action? Using Aristotle’s framework, this question relates to Aristotle’s *Logos*, or logical process. While we do not evaluate the quality of the argument’s logic, or the relevance of the research topic and contribution, we seek to categorize the output of the *Logos*. We refer to this output as the ‘type of contribution’.

RQ 2: What are the major components of practical contributions in IS research? After classifying the types of contributions, we assess how contributions are communicated. More specifically, we seek to understand how IS researchers use both (i) instructive and (ii) substantive devices to persuade practitioners of the research’s value. Using Aristotle’s framework, the second research question explores how IS researchers structure their contributions using instructive devices to support their contribution as feasible, credible and reliable (*Ethos*). Examples of such devices include providing illustrations of findings; or framing an argument in the context of a practitioner’s organizational setting. Such devices enhance the feasibility, credibility and reliability of contributions and, by extension, should increase the willingness and ability for practitioners to absorb and act upon the contributions. We also explore what words a researcher uses to evoke feelings in the audience (*Pathos*). We propose that researchers use certain linguistic devices to enhance the appeal of the contribution to the audience, which thereby increase the audience’s willingness and ability to absorb and act upon the contributions. As it is not possible to directly assess the feelings evoked within readers, we rely on linguistic indicators with clear, well-established connotations as a proxy.

RQ 3: Have the types and structure of such practical contributions changed over time?

Finally, given that the relevance debate is a chronic debate in the IS field, our third objective is to examine how the nature of research contributions have changed over time following the history of the rigor and relevance debate within the IS field. Thus, the third question seeks to understand if the type arguments and the rhetorical structure and language of these research contributions have changed over time as more attention has been given to the issue of practitioner relevance.

Methodology

To answer our research questions, we conducted a systematic, descriptive literature review. This review type seeks to “determine the extent to which a body of empirical studies in a specific research area supports or reveals any interpretable patterns or trends with respect to pre-existing propositions, theories, methodologies, or findings” (King & He, 2005 as cited by Paré et al., 2015, p. 186).

Searching & Screening: Our sample was collected from two journals, Management Information Systems Quarterly (MISQ) and the European Journal of Information Systems (EJIS). We chose these journals based on their status in the IS Basket of Eight, under the assumption that they exemplify the mainstream writing conventions of the discipline in North America and Europe. More importantly, given that our research is concerned with the communication of research findings to practitioners, it was also necessary to choose journals whose editorial missions seek to contribute knowledge to both academics and practitioners. Three periods corresponding to the rigour-relevance debate were chosen: 1993–94, 2003–04, and 2013–14. The first two periods correspond to the debate’s emergence (early 1990s) and its subsequent resurgence in the early 2000s, while the final period allows for an analysis of the current state of affairs. A total of 384 research articles were manually retrieved from journal archives (excluding editorials and book reviews). Non-empirical papers such as literature reviews, opinion pieces, and theoretical papers were excluded given our decision to focus on how researchers communicate *scientific findings* to practitioners. The final sample contained 258 empirical articles ($n_{\text{MISQ}} = 141$; $n_{\text{EJIS}} = 117$).

Data Extraction: Our unit of analysis is a ‘practical contribution’ which can take the form of either single phrase or (more often) a passage containing multiple phrases. To locate contributions, we focused on meaningful explicit statements which included clear contextual indicators such as “our study has three implications for practice ...” and “our results suggest that managers should...”. The decision to limit our focus to ‘explicit’ statements has two benefits: (1) it reduces subjectivity in the coding and interpretation process; and (2) it ensures that our analysis focuses on the contributions which are most referred to by practitioners since explicitly stated recommendations are easier to locate (Bartunek & Rynes, 2010). While our approach may omit implicit contributions, as well as practical contributions embedded in figures and tables, we believe our approach is an improvement over similar studies whose units of analysis were significantly broader. For instance, Bartunek and Rynes (2010) referred only to the Implications for Practitioners sections whereas this study searches beyond explicit separate sections to locate explicit contributions in the form of single phrases and passages. Similarly, a study conducted by De Vaujany et al. (2010) used abstracts only to assess writing norms and rhetoric of IS researchers’ arguments.

To begin, we sought to identify the number of practical contributions within an article by reading all of the sections following the Results section (e.g., Discussion, Implications, and Recommendation). In doing so, we screened each paragraph for an explicit practitioner-oriented statement. To facilitate our analysis, we presumed writers to express a single idea (and thus contribution) per paragraph. In the event that an author indicated multiple ideas (contributions) within the paragraph by using phrases such as “Firstly we find that ... secondly ... thirdly” we separated the paragraph into multiple contributions that were each coded separately. A total of 420 explicitly stated *contributions* were extracted.

Pilot Test & Training: We began with an initial review of studies concerning how to communicate research contributions to practitioners (e.g. Corley & Gioia, 2011; Straub & Ang, 2011). Such studies suggested focusing on tone, structure and semantics (Benbasat & Zmud, 1999) while others suggested providing specific recommendations with practical contexts (Adams & White, 1994). This review yielded a list of 43 initial criteria to guide further inquiry using open, axial and selective coding techniques. After eliminating irrelevant items (e.g., suggestions targeting purely theoretical contributions) and consolidating similar items, we derived a set of 13 criteria. Using this set, a pilot test was conducted using

35 randomly selected articles from the sample pool. Each team member independently coded the articles using the 13 criteria. The criteria were assessed for fit, clarity, independence, and completeness. Over the course of multiple training sessions, the criteria were refined and articles were recoded to validate revised coding forms (available upon request). After six sessions, no new themes emerged and the boundaries between the existing themes were deemed to be sufficiently clear. The final coding form contained 11 criteria which were grouped into three different clusters reflecting: (1) the contribution's key argument (Logos); (2) its rhetorical structure (Ethos); (3) and the supporting rhetorical language (Pathos). While the existence of categories beyond our 11 criteria is possible, for the purposes of our study they are deemed to be sufficient given our ability to attribute at least one criterion to each contribution identified.

Label	Description	Example
Group 1: the 'What' aspect of the contribution		
Knowledge	Paraphrase the findings to inform practitioners. The objective can be indicating practical usefulness of the findings; showing practical originality of the findings; calling for awareness.	"Third, our paper highlights the need for organizations and management to develop interventions that handle both types of information that have been identified in this work. Our work illustrates that, at least in the short-term, it is the software side of the ES that is most important and on which an employee should seek to gain advice.(p.67)" (Sykes et al., 2014)
Application	Indicate the potential application options of the findings. It can be a generic suggestion without detailed guidance, or simply describe the existing potential for actions.	"Our model can, therefore, act as an analytical toolkit for practitioners to (1) pinpoint missing content functions and delivery dimensions for existing e-government websites, and (2) decide whether the inclusion of these omitted components can overcome service inadequacies given the nature of the governmental transactions. (p.103)" (Tan et al., 2013)
Recommendation	Provide detailed guidelines or actionable suggestions, advice, recommendations.	"Training programs should be geared to hands-on use of GSS to expose participants not only to the commands and functions, but also to new GSS processes. (p.316)" (Dennis & Garfield, 2003)
Decision-Making	Help practitioners make decisions when applying the research findings.	"Therefore, we suggest that trading partners evaluate which interfirm coordination modes are more relevant to them based on their position in the supply chain. If upstream in a long supply chain characterized by stable market demand, they can rely more on IT-based planning to coordinate supply chain activities. Alternatively, if they are closer to a more volatile end market, then they require mutual adjustment capabilities in addition to IT-based mechanisms.(p. 167)" (Wang et al., 2013)
Group 2: the 'How' aspect of the contribution		
Contextualization	Contextualize the scientific findings in practical settings.	"Rather than highly formal and analytical approaches that typify IS strategy development <u>in traditional markets</u> (Ward & Peppard, 2002), <u>in turbulent markets</u> managers must set a clear vision and allow e-business strategy to develop in a more emergent way. (p.293)" (Daniel & Wilson, 2003)
Problematization	Indicate potential challenges/problems Showing the gaps where need the actions.	"However, a mismatch between the symbols and those that their audience expects could make them look incompetent or uncaring and matching features that are technically advanced or patented may be more expensive. (p.319)" (Winter et al., 2003)
Illustration and Examples	Provide illustrations after the generic statements; or provide concrete examples	"As an illustration, in applying our theoretical model to analyze the electronic tax filing (e-Filing) websites of Singapore and the United States, we discovered

	to show the applicability of the findings.	functional discrepancies between the two... (p.103)” (Tan et al., 2013)
Outcome	Indicate the outcomes if certain recommendations/ guidelines are applied (or not applied).	“Thus, governments, at early stages of e-business development in an economy, could accelerate its diffusion by establishing supportive business and tax laws to stimulate firms’ adoption...Once the diffusion reaches a certain level of critical mass, network effect would kick in to speed up e-business diffusion. (p.265)” (Zhu et al., 2003)
Group 3: Rhetorical features		
Tentative Language	The use of terms such as “appears”, “seems”, “likely”, “may”, etc.	“However, a mismatch between the symbols and those that their audience expects could make them look incompetent or uncaring and matching features that are technically advanced or patented <u>may be</u> more expensive. (p.319)” (Winter et al., 2003)
Prescriptive Language	The use of terms such as “should”, “must”, “need to”, etc.	“in turbulent markets managers <u>must</u> set a clear vision and allow e-business strategy to develop in a more emergent way. (p.293)” (Daniel & Wilson, 2003)
Contingencies	The use of terms such as “depends on”, “on the other hand”, etc.	“Recognizing that work increasingly is performed not by isolated workers but by cross-organizational project groups and that sustainable knowledge creation and business innovation <u>depend on</u> mixing input from a variety of competencies... (P. 28)” (Lindgren et al., 2003)

Table 1 - Descriptions and Examples of the Coding Criteria

We would like to draw attention to two key features regarding our contribution-type criteria. Firstly, practical contribution types are not mutually exclusive given that the contributions were often presented as passages containing several phrases pertaining to one idea. Secondly, these criteria can be viewed hierarchically based on their level of communicative and absorptive complexity. For example, “knowledge” is a basic criterion which forms the foundation of most practical contributions. However, “Decision-making” is a higher order criterion, as it is more complex to convey (from the writer’s standpoint) and to absorb/enact (for the reader). Thus, decision-making contributions may include knowledge contributions. In cases of ‘nested’ contributions, the highest-order contribution was coded.

Formal Coding: Following the pilot tests and training, the remaining 228 papers were separated into five groups of approximately 40 papers each. The batches were coded and cross-checked in teams of two. Team members were assigned groups of papers in such a way so as to ensure that no pair coded more than one group of papers together. An inter-rater reliability of 80% was achieved for the contribution-level coding. Inconsistencies between coders were resolved during the individual cross-checking meetings.

Analysis and Results

An analysis of both journals at the article level indicated that approximately 70% of the 258 articles sampled contained at least one explicit statement (contribution) directed at practitioners over the three periods. In the sub-sample of papers containing at least one practitioner-oriented contribution (n=180), we found an average of two practical contributions per article. Furthermore, we found that slightly more than half of these articles included a separate section addressed to practitioners (n=92). Table 2 summarizes these findings as well as the increasing trend in these figures over the years. (Note: The percentages are calculated per column based on the total number of empirical articles per year).

Subsequent to the article level analysis we conducted an analysis of explicit contributions. Descriptive statistics for the sample of explicit contributions (n=420) are found in Table 3 on the following page. The results of this analysis are discussed according to the research questions.

	MISQ			EJIS		
	1990s	2000s	2010s	1990s	2000s	2010s
Total number of empirical articles	25	29	87	29	32	56
Empirical articles with explicit statement	19	20	69	11	18	43
	76%	11%	38%	6%	10%	24%
Empirical articles with separate practical section	10	10	41	2	6	23
	40%	34%	47%	7%	19%	41%

Table 2 - Article Level Descriptive Information

Results for RQ1: What are the major types of practical contributions in IS research? Based on our sample, the most common form of practical contribution is *Knowledge*. Approximately 90% of all contributions consisted of paraphrasing findings to practitioners by making a call for awareness, or with the intent of demonstrating the utility or novelty of their findings. *Recommendation* is the second most frequent type; approximately 50% of practical contributions provided advice, suggestions and/or specific guidelines pertaining to actionable recommendations. *Application*, demonstrating the potential uses of the findings accounted for approximately 30% of the practical contributions. Finally, *Decision-making* was the least common type of contribution with less than 5% of contributions containing logic aimed at helping practitioners make decisions when applying research findings.

	MISQ			EJIS			All		
	90s	00s	10s	90s	00s	10s	90s	00s	10s
Argument Type (Logos)									
Knowledge	95%	98%	92%	91%	94%	78%	94%	96%	87%
Application	37%	14%	42%	23%	7%	37%	32%	10%	40%
Recommendation	46%	58%	43%	55%	48%	56%	49%	53%	47%
Decision Making	2%	5%	5%	0	2%	2%	2%	4%	4%
Rhetorical Structure (Ethos)									
Contextualization	71%	65%	56%	63%	65%	62%	68%	65%	58%
Problematization	20%	9%	16%	27%	9%	22%	22%	14%	18%
Illust. & Examples	24%	23%	37%	32%	26%	57%	27%	25%	44%
Predict Outcomes	17%	16%	25%	27%	20%	37%	21%	18%	29%
Rhetorical Language (Pathos)									
Tentative Lang.	39%	37%	48%	36%	39%	33%	38%	38%	43%
Prescriptive Lang.	34%	61%	46%	73%	63%	58%	48%	62%	50%
Contingencies	5%	5%	6.7%	0	7%	4%	3%	6%	6%

Table 3 – Types of Contributions, Rhetorical Structural and Rhetorical Language (n=420)

Results for RQ2: How are practical contributions structured in IS research? Four types of rhetoric structure devices were identified: contextualization, problematization, illustration and examples, and outcome prediction. As previously mentioned, the four criteria can be thought of as instructive devices that are used to describe, clarify or exemplify the researcher's findings. These devices make contributions more convincing and/or more easily understood. In our sample, 80% of the practical contributions (n=420) had at least one instructive component, while 46% of contributions had at least 2 instructive components, and less than 2% employed all four types.

As shown in **Figure 4**, the most commonly used instructive device (for all types of arguments) was the provision of *contextual information* (62%). The second most frequently used devices were *illustrations and examples*, followed by *outcome prediction*. *Problematization* was the least used. The rank order distribution of instructive devices was generally constant across all contribution types. Knowledge is most

often paired with contextualization and illustration, with proportions of around 64% and 32%, respectively. Application was mostly paired with contextualization as well, with a proportion of around 70%. Decision-making and outcome prediction were rarely paired with other elements. Conversely, recommendations employed the highest amount of instructive devices per contribution with nearly 30% recommendations in the final period employing at least three instructive rhetorical components.

Finally, three types of rhetorical linguistic terms were identified: tentative language, prescriptive language, and contingency language (Bartunek & Rynes, 2010). Overall, both tentative language and prescriptive language were used in relatively equal frequencies to describe a contribution. Prescriptive language (which includes the use of terms such as “should”, “must”, “need to”, etc.) was used 52% of the time. Tentative language (which includes the use of terms such as “appears”, “seems”, “likely”, “may”, etc.) was used 41% of the time. Finally, contingency language (which includes the use of terms such as the use of terms such as “depends on”, “on the other hand”, etc.) were used only 6% of the time.

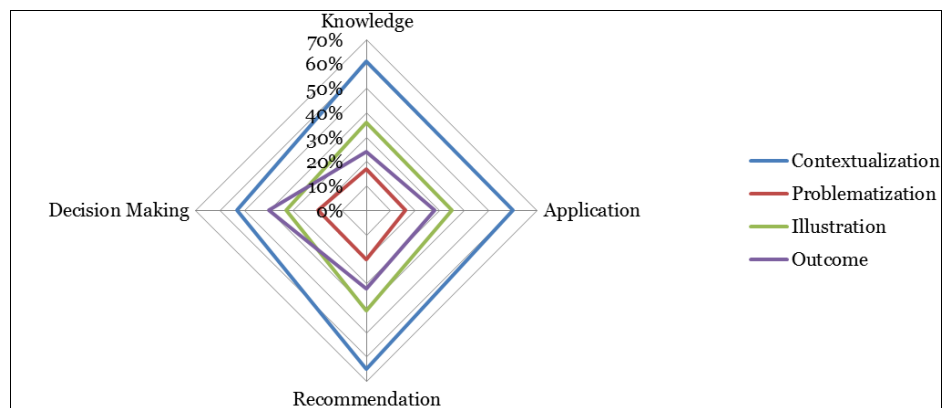


Figure 4 – Comparison of Contribution Type & Rhetorical Structure

Results for RQ 3: Have the types and structure of such practical recommendations changed over time? With respect to provision of practical contributions, our results show that the two journals reviewed have significantly increased the frequency of explicit practical contributions provided over the past twenty years especially for EJIS (as shown in Table 2). In assessing the overall growth rates of the four contribution types over the time periods, we see that knowledge (above 90%) and recommendation (around 50%) are relatively stable with a slight decrease in the final reference period. Conversely, application has a modest overall growth rate, while decision-making increases substantially. Overall, there are no discernable trends with respects to the use of rhetorical language (as shown in Table 3).

Discussion

In this literature review we: (1) classified IS research based on its type of contribution; (2) investigated how contributions are rhetorically communicated in order to maximize a practitioner’s willingness and ability to absorb and act upon the researcher’s arguments; and finally (3) we examined how the nature of research contributions has changed over time as more attention has been given to the issue of relevance. Preliminary analysis indicated that IS contributions to practitioners are sparse (when present) and are not well-highlighted. We were surprised to find that *30% of the articles sampled (n=258) lacked any explicit practical contributions*. Furthermore, in analyzing the data over the three time periods, we found that only half of all articles published in MISQ and EJIS with explicit statements (n=180) included a separate section addressed to practitioners. It is not uncommon for practitioners to default to an article’s practitioner oriented sections for insight into the author’s arguments and conclusions, rather than read lengthy articles in academic journals. Thus, these findings suggest that IS journals fall short in providing sufficient contributions to practice, and in structuring their studies to make it easier for practitioners to identify contributions that are relevant to them.

Learning Lesson 1: Providing Diversity in Contribution Types. We identified four types of contributions that researchers use: knowledge, recommendation, application, and decision-making (listed

in order of frequency). We invite readers to recall that Knowledge is the most basic form of contribution to practice in that it does not elaborate how (and in what circumstances) findings should be applied; nor does it provide logic for practitioners who may need to take decisions regarding the adoption/implementation of such research findings. While Knowledge contributions are likely the least burdensome for researchers to construct, they provide limited value to practitioners when they are not supplemented by other contributions types. One may compare this notion to the age-old adage: “Give a man a fish and feed him for a day; teach a man to fish, and feed him for a lifetime.” When researchers provide knowledge and recommendations, they provide practitioners with a fish. However, if they demonstrate when and how such knowledge and recommendations should and should not be applied, they arm the practitioner with vital tools that enable them to understand and extend the utility of practice-oriented contributions to a multitude of different practitioner situations. In this respect, we encourage researchers to make more use of the Decision-making and Outcome prediction combination.

Learning Lesson 2: Constructing more accessible and credible contributions. Researchers wishing to impact practice must ensure that their arguments are both easy to absorb (accessible and comprehensible) and that they are persuasive (they incite action). In order to do so, researchers must provide sufficient instructive devices to encourage a practitioner to understand, as well as confidently adopt and implement the findings. Unfortunately, our study finds that researchers make little use of instructive devices to delineate and support their practical findings. Moreover, we found that 20% of the practical contributions do not use any of these techniques, while 33% of the practical contributions have used only one rhetorical structure. Keeping in mind inherent differences in logic, knowledge and vernacular between academics and practitioners, we encourage researchers to support their research findings using practitioner-oriented language and contexts while using more instructive devices to ensure the clarity of reported relevant findings.

In doing so, researchers must bear in mind the complexity of their findings. Moreover, given that the types of contributions provided are hierarchical in nature and therefore may be more (or less) complex for a practitioner to understand, more complex contribution types may require additional types and levels of instructive devices. Unfortunately, our findings indicate that researchers fail to offer more than the basic level of instructive support (providing context). For example, while researchers did a good job in framing their arguments in practitioner contexts (contextualization), researchers fail to link these contexts with problems that are relevant in work-related contexts (problematization). This is problematic, since researchers who appropriately identify a real-world challenge facing practitioners gain credibility as an expert source with relevant, practical knowledge. At the same time, the information provided to the practitioner is more tangible and actionable since the practitioner understands the contribution within their own situation, therefore increasing the potential impact to practice. Additionally, while researchers make use of illustration and outcome prediction, they are not used as often as one might expect given their power to clarify, convince and assuage apprehensions in adopting research findings.

Learning Lesson 3: Communicating convincingly and confidently. Given that prescriptive language is most easily understood as an explicit instruction, it is surprising that prescriptive language is used only half of the time to support key findings directed at practitioners. Conversely, given the speed at which technology moves in the IS field, we are not surprised to find that researchers rely on tentative language as often as they do (41%). Moreover, given the nature of scientific inquiry (and the impossibility of ‘proving’ something) it is understandable that researchers refrain from making absolute certainties in their findings. In our sample, we note that contingency language is used minimally in discussing a contribution (6%). While this is not surprising, since contingency language can denote complexity and qualifications (Bartunek and Rynes, 2010) which may dissuade a reader from accepting and/or trying to apply the researcher’s suggestions/findings, it is interesting to note that Bartunek et al., 2010 suggest that “mentioning contingencies might be positively regarded by practitioners, given their sensitivity to context and the ‘uniqueness’ with which they regard their own situation” (Gephart, 2000; Highhouse, 2008; and Johns, 2001, as cited by Bartunek et al., p. 107, 2010). Thus it is possible that language may in fact increase the persuasive impact of an argument.

Learning Lesson 4: Recognizing the role of the IS academic community. While the two journals displayed some similarities (particularly in later years) there were stark differences between the two journals over (and across) certain time periods. While these differences led to richer data analyses, they suggest key differences in the journals’ historic trajectories. MISQ and EJIS were founded almost 15

years apart, with differing *raison d'être* and epistemological predilections. MISQ was founded nearly 15 years prior to our study's first assessment period. As a mature and established journal, MISQ paid close attention to practitioners over all three periods of assessment and its relative maturity (as compared to EJIS) is demonstrable in the stability of its trends. On the other hand, EJIS was established in 1991, a mere two years prior to our first assessment year. EJIS evolved dramatically over the three periods of assessment with respect to its focus on practitioners. Given their status in the Basket of Eight, it seems reasonable to assume that they are representative of best practice in the field. It is also safe to speculate that these journals are likely the standard to which emerging journals aspire. In this way, we recognize the importance of journal reviewers, editors and its board members in shaping the journal's mission and the standards of publication that the journal adheres with respect to addressing practitioners.

Given the page limitations placed on academic publications, it is plausible that the provision and distribution of practical contribution types and supportive instructive devices is a zero-sum game wherein adding more of one particular type of contribution and/or instructive device must be offset a reduction of another contribution type and instructive device. This logic may account for the decreases in knowledge and recommendation and the concomitant increases in application and decision-making found in the two journals between the second and third reference period. In making decisions regarding the types of contributions, instructive devices, and rhetorical language used to communicate findings, we advise researchers to reach out to practitioners for advice on how to maximize the impact of their findings within a limited page setting. Practitioners can aid researchers to identify the aspects of their research most valuable to practice. In 2008, Rosemann & Vessey suggested applicability checks as a means of evaluating the practical relevance of IS research findings. An applicability check is a systematic review of a study conducted by an external group of practitioners familiar with the IS object or phenomena of interest. Since the check is conducted as an additional step (either at the start or finish of the research lifecycle) it does not compromise the rigour of the research process. Thus we encourage academic journals to explore the potential of incorporating well-respected practitioners into the review process as assessors of the practical importance, understandability and suitability of the researcher's findings.

Concluding Remarks

A key limitation of our study (beyond those cited in-text) is our sample's restriction to two journals. Although the decision was justified given the novelty of our study, we believe that journal maturity plays a key role in how journals addressed the practitioner audience. For future research, other key journals with varying levels of maturity should be added to the sample (e.g. JIT, ISJ, JSIS). By assessing additional, international journals from the Basket of Eight, we hope to gain new insight into the best practices of academic writing in the field and across borders. Similarly, we believe it may be interesting to review IS articles published in journals such as *Managing Information Systems Executive* (MISQE) and *Harvard Business Review* (HBR) whose primary audience is practitioners. By comparing practitioner-oriented journals and scientific journals, we can gain insights into how different writing styles and structure are employed to communicate knowledge between these two groups. Given that our study focuses exclusively on contributions for practitioners, another interesting avenue for future research would be to replicate this study to assess contributions for academic researchers. Such a study would allow a direct comparison of whether academics generate more theoretical contributions than practical contributions, and whether they are more adept at presenting contributions to fellow academics than to practitioners. In light of the oft-heard claim that IS research is written for other IS researchers, an assessment of theoretical contributions would be valuable in understanding differences in rhetorical approaches as well as understanding researchers' strengths and weaknesses in generating and structuring contributions.

The IS domain lies in the realm of practice which values knowledge that can be directly applied to business and professional practice. Unfortunately, our study demonstrates that practitioners are still underserved by IS academics, with almost one-third of empirical studies lacking any explicit contribution to practice. There are grave implications for the IS field, if researchers continue to view rigor and relevance as mutually exclusive strategies; as an 'either/or choice'. Among these consequences are reduced credibility and the withdrawal of corporate financial support to universities and research endeavours. More importantly, both academics and practitioners will suffer. Like Robey & Markus (1998) we do not believe that valuable IS research must be either practical or scientific. It is our belief that the future of IS research depends on balancing the two facets of IS research in order to provide mutually

beneficial research that is consumable (i.e. rigorous and relevant to both key stakeholders in the IS field). Thus, we advocate a strengthening of the relationship between IS-researchers and practitioners in the pursuit of knowledge generation and dissemination. Moreover, we believe that producing truly 'consumable research' will foster a symbiotic relationship between practitioners and researchers that will enable IS to further mature into a powerful, independent and referent field.

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