

## GUEST EDITORIAL

### Qualitative Studies in Information Systems: A Critical Review and Some Guiding Principles<sup>1</sup>

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#### Introduction

Up until the mid-1990s, for a significant proportion of mainstream IS scholars, particularly those in North America and Asia, research meant *quantitative research*, and studies not using the so-called scientific methods were excluded from the definition of research itself (e.g., Lee and Liebenau 1997). Fortunately, due to the untiring efforts of a small number of leaders in the qualitative research community, and with support from broad-minded senior scholars of the discipline who saw value of diversity in the mainstream and recognized the fact that fast changing phenomena are difficult to investigate solely through the use of traditionally privileged methods, our discipline has moved beyond this distressing phase. Indeed, *qualitative research is now seen as a legitimate enterprise in much of the IS research community*, and this is evident from the representation of this form of research in leading, mainstream conferences and in prominent journals that had, in the past, been (or were seen to be) reluctant to publish this form of work.

The publication of the Special Issue in Intensive Methods (see Markus and Lee 1999, 2000) in *MIS Quarterly* may be seen as *one critical event* (although by no means the only one) that has contributed to the normalization of qualitative research in the mainstream community of the discipline. This has happened in two ways: first, the special issue provided the avenue for publication of a critical mass of qualitative studies in *MIS Quarterly*, widely considered to be one of the two elite journals in the discipline at that time, thereby institutionalizing the acceptability (and respectability) of qualitative research at the highest level of published scholarship; and second, it inscribed exemplars and criteria of excellence, certified by the leading qualitative scholars, into the literature that became a shared resource and offered a set of norms for the entire IS community.

Despite these developments and the gradual inclusion of qualitative work in high-profile mainstream outlets, in a recent *European Journal of Information Systems* special issue editorial, the guest editors expressed concerns about the “disproportionately low number of qualitative articles in top journals,” and attributed this to (among other reasons) “*perceptions of negative bias* against qualitative approaches from editors and reviewers in leading journals,” and also to challenges in “*transferring tacit skills*” and “*getting novice researchers to effectively conduct qualitative research*” (Conboy et al. 2012, p. 113). Our goal here is to address some of the issues raised by Conboy et al. (2012). In particular, we seek to highlight established practices in conducting and

<sup>1</sup>An earlier version of the material in this editorial appeared in the *Proceedings of the 33<sup>rd</sup> International Conference on Information Systems* (2012), Orlando, Florida.

presenting such research over the last decade or so since the publication of the *MIS Quarterly* special issue in 2000. Guided by the metaphor of anatomy to focus on the systems of components that often constitute a qualitative research paper, we analyze published qualitative research articles in the discipline to unearth patterns characterizing different aspects of the publications. Our intended contributions are (1) to offer an understanding of the state of qualitative research in the IS discipline; (2) to make emergent patterns reflecting the practices of successful qualitative researchers more visible; and (3) to offer some guidelines for authors and evaluators of qualitative research in the IS discipline. The rest of our editorial is structured as follows: first, we introduce readers to the key anatomical components of a qualitative research manuscript, and discuss the criteria we used to select the papers for review. Next, we highlight key findings and make some specific recommendations. Finally, based on the patterns that emerged, we offer some broader abstractions—a set of principles—for the authors as well as reviewers and editors of IS journals.

## **Anatomy of Qualitative Papers and Selection of Papers for Review**

Much has been written on the topic of qualitative research in the IS discipline. While some works (e.g., Benbasat et al. 1987; Klein and Myers 1999; Lee 1989; Urquhart et al. 2010; Walsham 1995, 2006) provide authoritative guidance and recommendations regarding how various types or aspects of qualitative research are to be conducted, others (e.g., Chen and Hirschheim 2004; Dubé and Paré 2003; Orlikowski and Baroudi 1991) offer reviews of methodology-related practices-in-use within the IS discipline. This editorial adds to the conversation in the second stream (i.e., the reviews) by providing a detailed, multidimensional view of the current state of qualitative research in IS as represented in publications between 2001 and 2012 in four of the leading IS journals. To facilitate our analysis, we use the notion of *anatomy*, which is defined as the “art of separating the parts of an organism in order to ascertain their positions, relations, structure, and functions” (Merriam-Webster’s Collegiate Dictionary 1993, p. 42). Based on a review of the literature, we determined that the anatomical components of published qualitative research papers typically include a **research focus**, **up-front theory**, **methodology** consisting of the philosophical stance, data collection, data analysis and criteria for rigor, and **contributions**. In addition, we incorporate the **nature of presentation**, since it helps communicate the other components to the reader (Conboy et al. 2012).

In order to investigate the current state of qualitative research in the IS discipline, we reviewed qualitative studies published between 2001 and 2012 in the following IS journals: *MIS Quarterly* (MISQ), *Information Systems Research* (ISR), *Journal of Management Information Systems* (JMIS), and *Journal of the Association for Information Systems* (JAIS). We selected these journals for two reasons: (1) they are part of the AIS Senior Scholars’ Basket of Journals with a global reach and reputation, and are considered among the *leading mainstream* journals in our field; and (2) they have historically shown *no particular preference* toward publishing qualitative research, unlike some of the leading European IS journals in the Senior Scholars’ Basket. Qualitative research has traditionally had a prominent place in the European journals, and there has been a strong expectation that “interpretivist and/or case study research will continue to represent something of a tradition in European IS research”<sup>2</sup> (Galliers and Whitley 2007). Our belief is that unearthing patterns in journals that do not have (or historically have not had) an openly favorable stance toward qualitative research, thereby posing greater, and sometimes unreasonable, challenges in publishing qualitative work, is likely to be valuable for aspirant authors, and also for reviewers who may feel unsure of the standards to which they need to hold authors.<sup>3</sup>

In our review, we excluded mixed-method/multimethod papers from these selected journals where quantitative analysis was used in addition to qualitative analysis.<sup>4</sup> Further, we excluded SIM “Best Papers” featured in earlier issues of MISQ.<sup>5</sup> And finally, we excluded action research and design research, given that they contain many elements in addition to (and distinct from) those core to the typical qualitative study (Baskerville and Myers 2004), rendering them beyond the scope of our review and analysis. In the end, we selected and analyzed 98 articles.

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<sup>2</sup>While undoubtedly the European journals in the Senior Scholars basket (*European Journal of Information Systems*, *Information Systems Journal*, *Journal of Information Technology*, and *Journal of Strategic Information Systems*) are open to all forms of research, including quantitative research, historically, they have been particularly welcoming of qualitative research, and qualitative researchers owe a great deal to these journals.

<sup>3</sup>We feel that an interesting follow-up study would be to compare the patterns evident in the four journals we have reviewed with patterns in the other four journals in the Senior Scholars’ Basket which are (or, in the past, have been) perceived as having a more favorable disposition toward qualitative work.

<sup>4</sup>This is the focus of Venkatesh et al. (2013).

<sup>5</sup>While SIM “Best Papers” are qualitative in nature and represented valuable contributions, we excluded them because they were generally written with the practitioner audience in mind, and thus do not emphasize methodological and theoretical aspects of the work. Indeed, such papers are now published in the elite practitioner-oriented outlet, *MIS Quarterly Executive*.

## Results

We present our key findings in this section. We start by examining the broad trends in the discipline, and then explore the patterns related to the anatomical components.

### Trends Related to Qualitative Research in the Chosen Journals

For the four journals reviewed, beginning with 2001, we note a somewhat steady increase in the number of qualitative papers published (see Figures 1 and 2). Figure 1 shows a sharp growth between 2001 and 2006, followed by what appears to be a stabilization period between 2006 and 2012. Figure 2 shows the proportion of qualitative research published by the four journals.

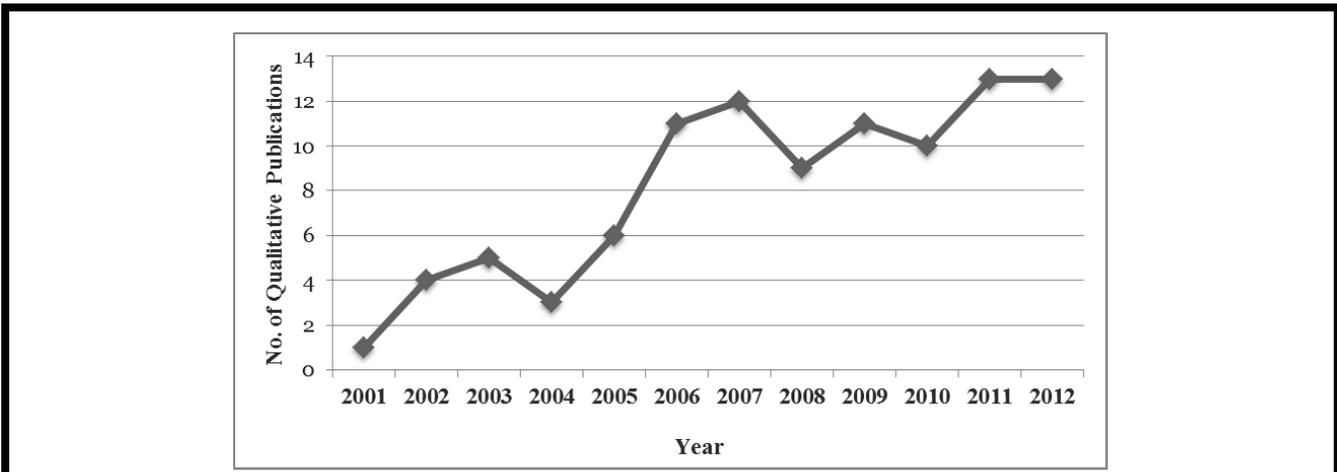


Figure 1. The Number of Qualitative Publications by Year

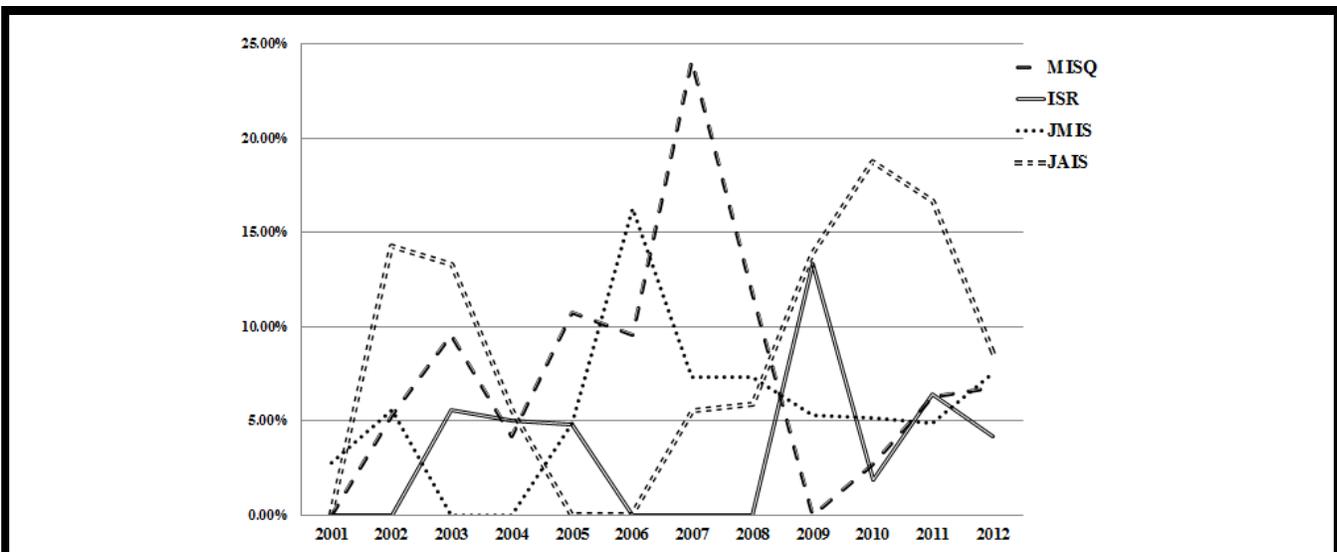


Figure 2. Percentage of Qualitative Studies Published in Each Journal by Year

## The Research Focus Component

Focusing the research paper is a critical first step in ensuring effective conduct and communication of research. Apart from choosing a relevant topic, this component includes articulating an *appropriate research question*, and ensuring a *prominent role of IT*.

How the problem is formulated directly impacts a study's design, data collection, and analysis (Van de Ven 2007). Explicit research questions provide the direction of inquiry, and enable a connection between the research and its practical and theoretical contributions (Dubé and Paré 2003). Yin (1994) suggests that case study research should generally be used to answer *how* and *why* questions. We found that about 67 percent of the articles with an explicit research question or research objective addressed *how* questions, and about 10 percent addressed *why* questions. Interestingly, our review also revealed a significant proportion (26 percent) addressed *what* questions. Also, a number of articles (27 percent) tackled multiple types of research questions in the same study.

The role of technology is a critical element in IS research, given that this characteristic is what separates IS research from research in other disciplines (e.g., Benbasat and Zmud 2003). This is of particular importance in qualitative studies where authors frequently focus on the human/social dynamics and implications and, thus, can end up with studies that treat IT as an “omitted variable” (Orlikowski and Iacono 2001). We reviewed each article with a critical eye toward its treatment of the IT artifact, using the classification scheme of the “IT artifact” proposed by Orlikowski and Iacono (2001). We found that about 16 percent of the papers adopt the “nominal view,”<sup>6</sup> often with technology merely serving as the context. Further, we found that even papers adopting an “ensemble view”<sup>7</sup> (about 57 percent) tend to be heavily focused on the social aspect, paying relatively little attention to technology. While we believe that the discipline needs to remain flexible on this issue, we also recommend that researchers be more conscious about including significant technology-related and/or information-related considerations in their research, as they design their study and craft papers from it for IS outlets.

## The Up-Front Theory Component

It is widely acknowledged that “if research consisted only of heaps of information, it would be no more than a chaotic bundle of statements, impossible to decipher or evaluate or apply to any meaningful purpose” (Harrington 2005, p. 5). Consequently, most editors of top journals emphasize the need to use theory, and see lack of theory as a key reason for rejecting a manuscript. In his MISQ editorial, Lee (2001) emphasized this same issue with respect to qualitative research. We found a wide variety of theories used up front (i.e., prior to data analysis/interpretation) in the reviewed papers, such as structuration theory, practice theory, institutional theory, and situated learning theory. A large proportion of the papers (49 percent) used a single core theory, while others (18 percent) used multiple theories. However, about 32 percent had no discernible up-front theory. Further, we found that when multiple theories were used up front, they could be positioned as being complementary (e.g., Pawlowski and Robey 2004), being in competition (e.g., Sarker and Lee 2002), or being used in piece-meal fashion (e.g., Nissen 2005). Further, theories played varying roles in the papers (e.g., Eisenhardt 1989; Walsham 1995). For example, theories were used as a source of hypotheses being empirically examined, particularly in positivist case studies (e.g., Dibbern et al. 2008). Second, some authors utilized theories to guide the data collection process, or to develop coding schemas for data analysis (e.g., Olsson et al. 2008). Third, theories were also employed in some interpretive case studies as a lens to examine the phenomenon or the case (e.g., Silva and Hirschheim 2007). Finally, few authors used theories or meta-theories as scaffolding to support their middle-range theory development (e.g., Sarker and Sahay 2003).

## The Methodology Component

The methodology section of a paper is where researchers explain the research approach used and its justification, given the ontological and epistemological assumptions underlying the study. “Method talk” has increasingly gained in importance, as qualitative researchers have strived to systematically demonstrate that they are not “lax, imprecise, or unsystematic” (Gubrium and Holstein

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<sup>6</sup>Nominal view: The IT artifact is in the background, but is not described in detail, nor does the IT artifact influence the research—IT is in “name only”; IT is the “omitted variable” (Orlikowski and Iacono 2001, p. 128).

<sup>7</sup>Ensemble view: This view focuses on the “dynamic interactions between people and technology” where “technology is only one element in a ‘package’” (Orlikowski and Iacono 2001, pp. 125-126).

1997, p. 12). Nevertheless, we found that only about 32 percent of the articles clarified their ontological and epistemological stance. Methodological details are important in that they (1) define how the study is to be conducted and presented by the researchers and (2) determine how the quality of the study is established by the audience, including the reviewers. About 5 percent of the papers did not state the particular methodology that was being used. For the remaining 95 percent, we found that authors used *30 different labels* to describe their methodological approach. This, we believe, can potentially lead to confusion due to the lack of correspondence of these labels with well-accepted types of qualitative methodologies in the discipline. Qualitative research studies based on grounded theory methodology, hermeneutics, or ethnography were generally labeled as such; however, in many other manuscripts (about 49 percent), the labels used were either too generic (e.g., case study, field study, qualitative case study, or even exploratory case study) or relatively unrecognizable (e.g., iterative qualitative data collection scheme).

Recognizable labels have the advantage of reviewers, authors, and readers having consistent expectations. We do not wish to imply that only certain traditionally recognized labels should be acceptable, but rather we want to emphasize that recognizable labels demand less explanation and justification. Our issue with the large array of labels is that it can lead to research being conducted and, more importantly, evaluated incorrectly (if authors and evaluators don't share the same understanding about the given approach), considering that different approaches to qualitative research do have different evaluation criteria associated with them.

It was also interesting to see how authors justified their choice of methods. We found that about 33 percent did not justify their use of a method, while 22 percent offered a generic justification (e.g., "case studies are considered highly appropriate for exploratory, theory-building research"). Some just mentioned that they followed the principles espoused by Klein and Myers (1999) without further explanation. There were, however, a significant number of papers (e.g., Day et al. 2009) that did provide a detailed explanation of how their chosen method was appropriate to the study.

### **Data Collection**

The main considerations in data collection include where to study the phenomenon of interest and how many (case) units to study (if relevant), when and how data is to be collected, and what type of data is to be collected (Patton 1990). We found that while the vast majority of the manuscripts reviewed were case-based (about 93 percent), some authors used a set of interviews from stakeholders involved in the phenomenon (e.g., Forte et al. 2009; Kolfshoten et al. 2012), and/or a collection of texts (e.g., Berente et al. 2011, Mueller et al. 2010) on a given phenomenon without a case context, which can be a useful strategy for some studies.

*Where and how many:* Sampling strategies apply not only to quantitative research but also to qualitative research. A number of sampling strategies are described in the qualitative methodology literature (e.g., Patton 1990). Indeed, a clear sampling logic can help ensure that the cases being studied are of "substantive significance" or "theoretical relevance" (Dubé and Paré 2003). While about 44 percent of the case-based studies had no mention of their sampling logic or reasoning for choosing certain case units, the majority provided some form of rationale/justification for sample selection. For example, Silva and Hirschheim (2007, p. 333) studied the implementation of an information system in Guatemala using a "revelatory" case sampling logic. As they note, "this case study presented us the *rare opportunity* of exploring the relationship between the deep structure of an organization and SIS implementation as well as expanding our knowledge of that subject matter in a developing countries context" (emphasis added). Similarly, Levina and Vaast (2008, p. 311) justified their case selection by noting that the site offered "a unique opportunity." Yet others used the typical or "representative" case selection logic (e.g., Sarker and Sarker 2009). Additionally, Koch and Schultze (2011) used a "theoretical" sampling strategy to select a company that represented their theoretical concept of the "conflicted-middle" in studying B2B e-Marketplaces.

For case-based research, *how many cases is enough?* This question often results in difficulties for researchers and evaluators. Eisenhardt (1989) has noted that "while there is no ideal number of cases, *a number between 4 and 10 cases usually works well*" (emphasis added). We found that studies used 1 case unit (52 percent), 2 case units (13 percent), 3 case units (9 percent), etc. Indeed, case study methodologists have insisted that a study involving just one case is acceptable (e.g., Lee and Baskerville 2003; Walsham 1995), although increasing the number of cases can increase the degrees of freedom and thus the rigor of a positivist case study (Lee 1989). We also encountered the practice of studying two polar cases and the related justification of ensuring a wider coverage and applicability of the findings in multiple instances (e.g., Eisenhardt 1989; Orlikowski 1993).

*When, how, and what:* About 40 percent of the papers we reviewed did not mention when the data collection happened. However, the others were quite explicit (e.g., "Data was collected over a seven-month participant observation period, between March and

September 2000” (Levina and Vaast 2006, p. 20)). Interviews were found to be the most common technique of qualitative data collection. The average number of interviews conducted was 40, with a maximum number of 175 and a minimum number of 6. However, of the papers reviewed, about 10 percent did not provide the number of interviews conducted. When it came to interview protocols, we found that about 12 percent of the papers merely mentioned the use of an interview protocol, while about 24 percent provided a more complete interview protocol or at least a high-level interview guide.

Recording and transcribing is often seen as essential for ensuring rigor of the study, yet scholars such as Walsham (2006) have expressed mixed feelings about the practice. About 64 percent recorded and transcribed (or partially transcribed) their interviews, and about 7 percent of the papers justified why they did not record their interviews (e.g., Silva and Backhouse 2003; Goh et al. 2011). In addition to the use of interviews, we found that about 62 percent of the papers we reviewed reported the use of some form of documents, about 57 percent reported the use of some level of observation, and about 45 percent reported the use of some type of field notes to supplement the interview data; however, the role of these supporting material was not sufficiently explained or illustrated in the majority of the papers.

### **Data Analysis**

Data analysis involves processing the empirical material collected to make contribution claims. Of the papers reviewed, we found about 8 percent adopted deduction. Some deductive approaches used include pattern matching to examine hypotheses (e.g., Harris et al. 2009) and framework guided coding process (e.g., Alavi et al. 2006). About 63 percent appeared to imply the use of induction. Common predominantly inductive approaches include GTM procedures of open coding, axial coding, and selective coding (e.g., Strong and Volkoff 2010), thematic coding (e.g., Oborn et al. 2011), content analysis (e.g., Charki and Josserrand 2008), and hermeneutics (e.g., Davidson and Chismar 2007). About 43 percent of studies reported the use of coding procedures, of which 31 percent made the process transparent through examples and appendices. Interestingly, only about 18 percent mentioned the use of software for coding purposes.<sup>8</sup> Some authors mentioned the role of abduction along with induction (e.g., Chakraborty et al. 2010). We also found that interpretive elaboration was adopted by some researchers in the form of theory-informed storytelling (e.g., Porra et al. 2005, Sarker et al. 2006). About 24 percent of the papers used some combination of induction, deduction, abduction, or elaboration.

Unlike in quantitative studies, researchers in qualitative studies are themselves the instruments for capturing data and for analysis (Sanday 1979), and it may sometimes be helpful to offer confessions to the reader (Schultze 2000) without overdoing it (Walsham 2006). We found that about 5 percent of the papers we reviewed offered clear confessions regarding possible bias in the data collection or data analysis process (e.g., Zahedi et al. 2006).

### **Methodological Guidelines/Criteria**

Perhaps one of the most challenging roles of a researcher is to ensure that appropriate guidelines/criteria of rigor are applied. We wish to emphasize that qualitative research is not one generic method, and that there are various forms of qualitative research—each with its own criteria for conducting good research (e.g., Markus and Lee 2000). Our review revealed some lack of clarity among authors (and probably among evaluators as well) on what criteria should be applied, and when. For quantitative researchers, there is often a clear recognition of the differences among approaches and related criteria; however, the distinctions among qualitative approaches are not so widely known or agreed upon. This is often due to the fact that the authors are not conscious of their own ontological and epistemological positions, or whether they adopted a predominantly data-centric or interpretation-centric approach (Alvesson and Sköldbberg 2009). Indeed, we found that some authors discussed/applied (positivist) criteria of validity and reliability (Yin 1994), while noting that their study was interpretive (Klein and Myers 1999).

We found various ways in which authors communicated the methodological criteria that guided their research. We found that about 33 percent of the reviewed papers lacked reference to any criteria used to guide their research. Others made minimal or generic comments (26 percent). A typical wording was found to be something like “our analysis used methodological principles of ethnography” without clearly specifying what these principles were and how they were adhered to. Another means for communicating criteria was what we characterized as being seamlessly weaved into the manuscript (12 percent), where the author noted

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<sup>8</sup>This is perhaps reflective of the skepticism of many qualitative researchers that such software “may somehow ‘take over’ the analysis, imposing a standard approach [on what they see as a craft] and employing conceded assumptions” (Fielding 2002, p. 162).

what specific criteria they were using and how it applied to a given section of the paper (e.g., Rivard et al. 2011). Others (about 19 percent) devoted a section of the paper to explaining all of the criteria used in their research. Finally, 10 percent used a table to list relevant criteria and show how the study satisfied them.

We also examined which qualitative methodologists have had significant impact on the methodological practice in the discipline, based on citations in the reviewed papers. The top eight methodologists (in alphabetical order) whose work seemed to have significantly guided the studies we reviewed were Benbasat, Goldstein, and Mead; Dubé and Paré; Eisehnardt; Klein and Myers; Miles and Huberman; Strauss and Corbin/Glaser and Strauss (taken together); Walsham; and Yin.

## The Contribution Component

In the contribution component, the researcher brings together the up-front theory (if relevant), the data that was collected, and the analysis into a culmination. Within this component, the researcher provides an answer to the research question (Patton 1990), often offering some abstractions that are potentially transferable to other contexts.

We were interested in the state of theory development in qualitative studies, and consequently sought to assess the nature of theory offered as a contribution. We acknowledge there are many definitions of theory (e.g., Gregor 2006; Sutton and Staw 1995; Weick 1995), and consequently, we adopted an inclusive approach. Borrowing from Gregor's (2006) classification scheme, we can say that papers generally resulted in a form of theory that may be characterized as theory for analyzing or theory for explaining. However, as many as 24 percent of the total papers reviewed did not offer a conclusion in the form of theory, nor was it apparent that they were engaging in "theorizing" (Weick 1995). These papers merely summarized the empirical findings of their case or highlighted practical lessons in common-sense terms.

Critics of qualitative research often point to the issue of generalizability of contributions as a limitation of qualitative research (Conboy et al. 2012), and indeed much has been written on this topic (e.g., Lee and Baskerville 2003, 2012; Walsham 1995; Yin 1994). We found that about 65 percent of the publications discussed generalizability of their research, referring either to analytic generalization (Yin 1994), one of Walsham's (1995) four concepts of generalization including development of concepts, generation of theory, drawing of specific implications, and contribution of rich insight, or to one of the four types of generalization (Type I through Type IV) proposed by Lee and Baskerville (2003). Authors typically handled generalizability concerns somewhat apologetically, as noted by Lee and Baskerville (2003), by stating that (1) findings are not generalizable, but the theory or the concepts can be applied to other settings; (2) generalizability is limited, but is balanced against other advantages of qualitative studies; (3) future research is needed to enhance generalizability.

## The Presentation Component

According to Conboy et al. (2012, p. 115), "writing succinct and persuasive papers remains a challenge for most qualitative researchers. As compared with quantitative studies, there is arguably less structural support...for writing qualitative papers." Qualitative research often involves presenting a case to the reader, and hence the manner in which a case is presented can be important. Most (about 93 percent) case study papers provided a case background before the interpretation/analysis. Quotes can be an effective way to augment the case narrative and enhance its authenticity and credibility. Interestingly, we found that 84 percent of the papers we reviewed included quotes, in contrast with patterns observed by Dubé and Paré (2003), who found that only one-third of the cases included quotes (we note that they reviewed positivist cases alone). While we found that quotes are sometimes used to support a fact (e.g., Vidgen and Wang 2009), they can be used more effectively to transport the reader to the context (e.g., Day et al. 2009) or to involve the reader emotionally (e.g., Sarker et al. 2006). Also, we found that the average number of quotes per paper was 24. Interestingly, we found no article that used first person narrative in its presentation, which is possibly indicative of the authors' perceptions that reviewers/editors expect "scientific distant" reporting (e.g., Harvey 1997). Further, we found that authors used several strategies to present their findings: in table format (30 percent) (e.g., Backhouse et al. 2006), in the form of a model (36 percent) (e.g., variance (Kankanhalli et al. 2006), and process (Goh et al. 2011)), as propositions or abstractions (9 percent) (e.g., Vlaar et al. 2008; Sarker et al. 2006), as a map (5 percent) (e.g., Levina 2005), and as text (21 percent) (e.g., Ren et al. 2008).

Next, we present a table (Table 1) summarizing the patterns discussed above, along with some recommendations.

**Table 1. Selected Patterns Observed and Some Provisional Guidance for Qualitative Researchers**

Patterns Observed	Suggestions with Sample Exemplars
<b>Research Focus</b>	
<p>What, how, why, when, whether and which questions (and combinations) can effectively guide qualitative research.</p> <p>About 16% adopted a “nominal view” of the IT artifact. In general, we observed that there was an over-emphasis on the social part, and IT was usually treated as the context.</p>	<p>Research questions (RQs) or at least research objectives should be explicitly stated, and researchers should not be obliged to restrict their RQs to why and how questions (Yin 1994). In fact, 26% of the published articles addressed what questions.</p> <p>The IS community needs to be conscious of the situations where IT is the omitted variable (Orlikowski and Iacono 2001). However, the discipline needs to be flexible on this issue, and emphasis should be not just on the IT artifact, but on the IS artifact (Lee 2010) and/or on “value creation with information, design processes, design products, and designed systems” (Nunamaker and Briggs 2012). [Exemplars: Leonardi 2011; Oborn et al. 2011; Strong and Volkoff 2010]</p>
<b>Theory</b>	
<p>Theory used as a source of hypotheses, for guidance, as lens, or as scaffolding.</p> <p>About 49% of the articles adopted one core theory, and about 18% had multiple up-front theories, using them in complementary, competing, or a piece meal fashion. About 32% did not have up-front theory.</p>	<p>Theory can have different legitimate roles in the manuscript.</p> <p>Single or multiple theories can be profitably utilized. [Exemplars: Dibbern et al. 2008; Mähring et al. 2008; Oborn et al. 2011] It may be advisable not to use multiple theories in bits and pieces without a clear justification. In most cases, some up-front theory is advisable; the nature of up-front theory would, of course, be different depending on the nature of the study.</p>
<b>Methodology (Overall)</b>	
<p>Less than a third of the articles (32%) provided a clear idea of the underlying ontological and epistemological assumptions.</p> <p>Authors used 30 different labels, many generic and in some instances somewhat unrecognizable, to refer to their methodology. Notably, 5% did not even state what type of qualitative research was being undertaken, and 49% used fairly non-specific labels such as “case study.”</p> <p>About 33% did not provide any methodological justification, and about 22% only provided generic justification; the rest provided detailed justification.</p>	<p>It is usually helpful to clarify the underlying philosophical assumptions. [Exemplar: Ravishankar et al. 2011]</p> <p>While the use of new qualitative methodologies is to be encouraged, it is important that authors refer to their methodology with the precise label, and with appropriate qualifications. For example, the use of the label “interpretive case study” along with a citation of Walsham (1995, 2006) tells the audience what kind of study to expect and what the appropriate methodological criteria may be.</p> <p>It is sometimes helpful to justify the use of methodology in a specific manner. Sometimes questions such as “why positivist case study” and “why not GTM” do arise in the reader’s mind. [Exemplars: Day et al. 2009; Sarker and Lee 2002]</p>
<b>Methodology (Data Collection)</b>	
<p>About 44% did not mention their sampling logic.</p> <p>About 52% used one case, and about 22% used 2 or 3 cases.</p> <p>Average number of interviews was about 40, and the minimum number of interviews was 6. About 10% did not report the number of interviews. About 65% did not provide or discuss their interview protocols.</p> <p>About 64% mentioned that their interviews were at least partially recorded and transcribed. Interestingly about 7% justified not recording the interviews.</p> <p>About 62% used documents as a source of information, about 57% used some level of observation, and about 45% used field notes.</p>	<p>Sampling logic can be useful in establishing if the study is being conducted in an appropriate context, and the limits of applicability of the findings. [Exemplars: Chua and Yeow 2010; Levina and Vaast 2008]</p> <p>A single case study is absolutely acceptable, if done well. Using a large number of cases in a study, in itself, does not imply that the study is of high quality.</p> <p>There is no recommended number of interviews, but we suggest that the number of interviews be reported. In addition, providing an interview guide/ outline is recommended.</p> <p>Recording and transcribing can increase the credibility and auditability of a study, and should be done if possible. If not done, authors should provide a clear justification. [Exemplar: Silva and Backhouse 2003]</p> <p>The use of multiple data sources and collection methods is encouraged. It is however important to specify how exactly the multiple sources were used. [Exemplars: Hanseth et al. 2006; Nidumolu et al. 2001]</p>

**Table 1. Selected Patterns Observed and Some Provisional Guidance for Qualitative Researchers (Continued)**

Patterns Observed	Suggestions with Sample Exemplars
<b>Methodology (Data Analysis)</b>	
About 63% used induction, about 8% used deduction, and about 24% used multiple approaches (e.g., induction and deduction sequentially).	There is a need for clarity in the logic underlying data analysis. [Exemplars; Chakraborty et al. 2010; Rivard et al. 2011]
About 43% of studies reported the use of coding procedures, of which 31% made the process transparent through examples and appendices. About 18% mentioned the use of software to facilitate the coding process.	While explicit coding is encouraged (and even required) by certain qualitative approaches (e.g., GTM studies), others (e.g., interpretive case studies) do not require it. Providing sufficient coding details which can occur using well-designed appendices to enhance transparency is valuable. [Exemplars: Olsson et al. 2008; Strong and Volkoff 2010; Ravishankar et al. 2011]
About 5% offered confessions about possible flaws/bias in data collection and analysis.	Confessions may add to the quality of some papers; however, the authors should avoid the "twin dangers of over-modesty and self-aggrandizement" (Walsham 1995).
<b>Methodology (Criteria)</b>	
About 33% did not specify what methodological guidelines/criteria they used, and about 26% only gave a generic statement of how they followed guidelines/criteria.	Making explicit the appropriate criteria for a study helps the researchers focus on the important methodological issues and helps the readers to understand how well the study has been conducted. [Exemplars: Davidson 2002; Sarker and Sarker 2009; Walsham and Sahay 1999]. As has been argued in the past, we believe that without such criteria being articulated in the paper, the reader is free to apply any set of criteria (i.e., own favorite criteria), which may or may not be appropriate for the study.
<b>Nature of Contribution</b>	
About 24% did not offer a resulting theory or did not move toward theorizing; they merely focused on empirical findings.	While we do not see the type of theory produced as critical, top-tier scholarly journals do require theoretical contributions. [Exemplars: Lyytinen and Rose 2003; Strong and Volkoff 2010]
About 65% discussed generalizability of their research.	There is no need to be apologetic or defensive. Guidance on generalizability can be found in Yin (1994), Walsham (1995), and Lee and Baskerville (2003, 2012). Some authors explicitly illustrate analytic generalization [Exemplar: Silva and Hirschheim 2007]
<b>Nature of Presentation</b>	
About 84% used quotes when presenting their cases and an average of 24 quotes were presented per paper. Quotes were used to support facts, transfer the reader to the context, or evoke emotional responses.	The use of quotations appears to be valued by the qualitative research audience, because it is seen to impart a level of "richness" not usually achievable with quantitative approaches. To make effective use of space, sometimes quotations may be placed in tables or the appendix. [Exemplar: Lapointe and Rivard 2005]
No instance of the use of first person narrative.	First person narrative is appropriate for some types of studies.
Contributions were presented in the following ways: table (30%), model (36%), propositions (9%), text in the analysis/discussion/ contribution/conclusion (21%), and map (5%).	Making the contributions explicit in any of the mentioned ways can enable effective conveyance to the reader. [Exemplars: Kankanhalli et al. 2006; Levina and Vaast 2005; Sarker et al. 2006]

## Principles

Up to this point, we have presented our view of the state of qualitative research as reflected in the four selected journals. We have highlighted some of the patterns that we believe are of interest, and have also offered some specific recommendations (see Table 1). We believe that the nature of qualitative research is such that specific guidelines, while undoubtedly useful, cannot address the breadth of concerns that a qualitative researcher or a reviewer/editor of a qualitative manuscript faces. Drawing again on the metaphor of anatomy, we note that just as the principles of good nutrition and exercise ensure a healthy, well-functioning body, we believe there are overarching principles that ensure a healthy, well-functioning qualitative research environment. To

this end, we offer eight principles that we believe can provide holistic guidance to both researchers and evaluators. While some of the principles were derived directly from our findings in Table 1 (e.g., the *principle of variety*), others were broadly suggested based on our reading of the articles and our own experiences as authors, reviewers, and editors (e.g., the *principle of charity*). Principles 1, 2, 3, 4, 5, 7, and 8 are useful for authors, while 1 and 6 are *particularly relevant* for evaluators. Admittedly, some of these principles may be applicable to quantitative research. However, we feel they are of even greater significance for qualitative research, given the higher levels of flexibility authors have in conducting/crafting the work, and the existence of fewer widely agreed-upon standards as compared to quantitative research.

## 1. The Principle of Variety

The literature shows that there is a variety of qualitative methods available for the researcher. Trauth (2001) indicated that “qualitative research in [the] information systems field represents the importation of several different methodological traditions” (p. 277). Along similar lines, Markus (1997) observed that “there are qualitatively different types of qualitative research in terms of philosophy, technique, and output” (p. 14). In the IS discipline, common types include interpretive case study (Walsham 1995, 2006), positivist case study (Dubé and Paré 2003; Lee 1989), hermeneutics (Boland 1991; Sarker and Lee 2006), ethnography (Myers 1999; Schulze 2000), grounded theory (Birks et al. 2013; Sarker et al. 2001; Urquhart et al. 2010), critical realist case study (Wynn and Williams 2012), and so on. Different types of qualitative research are associated with different types of research questions, different conceptions and roles of theories, different sets of data collection procedures, different data analysis approaches, and different types of findings that are generated (e.g., Gubrium and Holstein 1997). Even though researchers in the role of evaluators may be intellectually aware of these different types of qualitative research, in practice, on many occasions, they tend to expect their own preferred type and impose the assumptions and criteria related to their preferred types (Markus 1997).

The principle of variety suggests that evaluators need to be conscious about the different types/genres of qualitative research, and go beyond just espousing openness by *actually practicing openness*. Further, *the authors have an obligation of placing their work within a particular methodological tradition* (e.g., Straussian variant of “grounded theory methodology” (Strauss and Corbin 1998)), and being true to the tradition. Of course, the use of new combinations and innovative styles of qualitative approaches are always welcome, but in such cases, the authors need to clearly outline for the audience what the essential features are, and what the methodological expectations or criteria associated with the new approach might be (e.g., with less known approaches such as virtual ethnography or discourse analysis).

## 2. The Principle of Internal Coherence

Closely related to the principle of variety is the principle of internal coherence. Just as various systems must work together coherently in an anatomy, so too should different components of a research manuscript work in an internally consistent manner (e.g., Alvesson and Sköldbberg 2000; Creswell 1998). For example, in an explanatory case study, one might expect the authors of a manuscript to ask what and why questions, adopt an ontology of realism and a causal epistemology (positivism), be data-centric rather than imaginative in conducting the analyses, use criteria of rigor such as internal validity, construct validity, and reliability, adopt the logic of deduction, claim falsification of an EP theory (theory of explanation and prediction) as part of the contribution, and have a neutral scientific presentation style. We note that innumerable valid (or invalid) combinations exist in the way the anatomical components work together, and it would be pointless to try to develop a comprehensive list of valid (or invalid) combinations. The goal of this principle, then, is to sensitize authors and evaluators so that a high degree of coherence across the manuscript’s anatomical elements is ensured.

## 3. The Principle of Relevance

The principle of relevance is applicable at many levels. First, the *relevance to discipline* requirement signals the fact that the role of IT must be significant in an investigation within the IS field. Qualitative researchers tend to focus on the social and behavioral issues, often with technology being no more than the context, as in IS offshoring or virtual team development. Failure to focus on the unique contributions associated with technology can lead IS researchers to lose their comparative advantage as compared to other social science researchers (Markus 1997). Consistent with Markus’ view, Orlikowski and Iacono (2001) urged researchers to be wary of studies where IT is the omitted variable, and Benbasat and Zmud (2003) cautioned researchers about the errors of exclusion. Nunamaker and Briggs (2012) take a more tolerant approach and urge researchers to investigate value

creation enabled by IT as well as design of IT products and IT-enabled processes. Whatever the specific position of a researcher is on this issue, the principle of relevance signals to qualitative researchers the need to focus on the sociotechnical interactions (e.g., Lee 2001), not just the social or the technical. The second aspect is the *relevance of methodology*, that is, what the chosen methodology brings to the table compared to other methodologies in the investigation related to a particular problem. Depending on the nature of the problem being investigated, authors should choose an appropriate qualitative research approach (e.g., Trauth 2001). Yet another aspect of relevance is *practical relevance*. Van de Ven (2007) highlights the increasingly widening theory–practice gap, noting that many scholars conduct their research without the benefit of discussion and interaction with other stakeholders. This often leads to research that is not grounded in reality, and in findings that are unrealistic, trivial, or irrelevant. Many qualitative research approaches, owing to the fact that they require intensive engagement of researchers with the experiences, actions, dilemmas, and views of study participants in natural settings, hold the potential for ensuring practical relevance.

#### 4. The Principle of Theoretical Engagement

Harrington (2005, p. 5) elegantly paraphrases the 18<sup>th</sup> century philosopher Immanuel Kant’s ideas as follows: “*Theories without data are empty; data without theories are blind.*” In other words, Harrington suggests that without theory, data lacks “order, sense, and meaning.” To emphasize the critical role of theory in the qualitative research arena, we propose the principle of theoretical engagement. Theoretical engagement is the means by which the author adopts and integrates *up-front* theory into the study, and/or develops theoretical contributions as “output” of the study. We emphasize that even in grounded investigations, it is advisable to use general theories to enrich the understanding derived from empirical data (Walsham 1995). In fact, Suddaby (2006, pp. 634-635), a noted grounded theory methodology (GTM) scholar, labels as myth the belief that “researchers [must] enter the field with a blank mind or researchers must defer reading existing theory” so as not to “contaminate” the researchers’ perspective. When utilizing theory up front, researchers need to be aware of the different roles theory plays depending on the nature of the study (Eisenhardt 1989; Walsham 1995).

In addition, researchers need to ensure that they offer theoretical abstractions resulting from the analysis/interpretation of the data. Further, it is often advised that the resulting abstractions be “discussed in the context of other theories” (Urquhart et al. 2010, p. 376). Simply reporting lessons learned from a common-sense perspective or providing a summary of the case and the empirical findings is widely considered insufficient for high quality research outlets in the discipline.

#### 5. The Principle of Transparency

Qualitative research is often criticized as being subjective, biased, or unscientific (Gubrium and Holstein 1997; Lee and Liebenau 1997). While subjectivity, bias, and lack of correspondence with the natural science model are not a legitimate criticism for some types of qualitative approaches, it is generally valuable for qualitative researchers to ensure the accountability and auditability of their work. For example, even for ethnographic research and interpretive case studies, disciplined pursuit and analysis of data is considered advisable (e.g., Golden-Biddle and Locke 1993; Walsham and Sahay 1999). We propose the principle of transparency to urge qualitative researchers to provide details about where, when, how, and from whom data was collected, and how data was analyzed and inferences were made, and to demonstrate a systematic approach in deriving their conclusions from the data. Essentially, we are calling for tacit methodological assumptions and procedures to be made as explicit as possible, while noting that *the nature of and expectations regarding transparency can vary depending on the type of methodology*. Also, since authors often have to struggle with limited page requirements, the use of methodological appendices with details about data collection and data analysis processes is strongly advised (e.g., Dibbern et al. 2008; Levina and Vaast 2008).

#### 6. The Principle of Charity

When one reads and seeks to understand the work of others, it is natural for the interpreter to bring some of his or her own prejudices into the interpretation (Sarker and Lee 2006). However, this can potentially lead to a failed understanding, with the interpreter imposing his/her own pre-understanding without being sufficiently open to the meaning of the work (Alvesson and Skoldberg 2009). The principle of charity is based on the premise that “successful interpretation necessarily invests the person interpreted with basic rationality” (Davidson 2001, p. 211). The principle implies that before a new idea can be judged, the interpreter should “seek to understand that view in its strongest, most persuasive form before subjecting the view to evaluation” (Oriental Philosophy 2003-2009). We hasten to add that we do not mean to imply that reviewers and editors should not judge,

or be critical to authors' work; we merely offer a position from which to judge. In the end, the goal for evaluators is to provide a fair hearing to new ideas or alternate ways of looking at a phenomenon, and the principle asks evaluators to guard against the tendency to be dismissive without giving a work careful thought.

## 7. The Principle of Self-Criticality

This principle suggests that qualitative researchers have a questioning attitude regarding their data, data sources, analytic tactics, and/or interpretation of the data. For example, just as quantitative researchers subject their data to tests of normality, identify outliers, ensure reliability of instruments, and so on, positivist qualitative researchers should also be vigilant regarding the sources of bias in their data, potential flaws in their data analysis techniques, etc. Likewise, interpretive case researchers should guard against accepting their first impressions as their conclusions, consistent with Klein and Myers' (1999) principle of suspicion and principle of hermeneutic circle. Specifically, interpretive researchers should analyze the data in an iterative way to ensure that the understanding penetrates below the surface of the text and that anomalies between the data and the understanding are eliminated to the extent possible (e.g., Alvesson and Sköldbberg 2000; Sarker and Lee 2006).

## 8. The Principle of Dignity

In the past, not only in IS but also in related disciplines, "misinformed criticism [has alleged] that qualitative research is little more than a set of subjective impressions, unsubstantiated by rigorous research procedures or 'hard evidence'" (Gubrium and Holstein 1997, p. 12). Thus, it is not surprising that qualitative researchers have felt belittled, disrespected, and put on the defensive. However, as qualitative research is finding its rightful place in the mainstream IS literature and in the IS community, we believe that there is no need for qualitative researchers to be defensive, apologetic, or aggressive about issues such as lack of objectivity, lack of generality, lack of causal explanations, or, more broadly, not being sufficiently rigorous. In this sense, it is time for qualitative researchers to liberate themselves from the sense of being oppressed and excluded, and approach their qualitative work with dignity. This, we believe, will lead to fresh and creative ideas, and the confidence to express interesting views, that arise from scrutinizing the world of IS "comprised of meanings, interpretations, feelings, talk, and interaction...on its own terms" (Gubrium and Holstein 1997, p. 13) in an ethically sensitive manner (Walsham 2006).

To summarize, in this section, we have presented eight principles, some of which are directly indicated by our review and the others broadly implied. For example, the principle of variety is directly evident from our review, wherein we encountered a large number of types of qualitative research. The principle of internal coherence was suggested by the logical coherence most authors ensured among the various anatomical elements and the discomfort we felt as readers when the different anatomical elements of a paper did not quite line up. The principle of theoretical engagement was introduced based on our observation that while some of the articles reviewed effectively demonstrated the theory–data interaction and also offered strong theoretical contributions, others were not as successful. The principle of transparency emerged in our minds due to the fact that there were a number of articles with elaborate appendices explaining the data collection and data analysis procedures, and this seemed to contribute to the credibility of the study. The principle of relevance emerged from our observation that not all studies were mindful about the role of IT, the role of the specific methodology chosen, or the contribution beyond academia. The principle of self-criticality was inspired by evidence of authors' confessions regarding perceived imperfections in data collection and analysis, and their efforts to continually engage in an iterative process of interpretation, where breakdowns in understanding led to richer and better interpretations (e.g., Trauth and Jessup 2000). The principle of charity was suggested by the fact that there is great variety of qualitative research and there are few universally accepted practices for researchers to follow or criteria for evaluators to apply. It is, therefore, important for readers to be especially open and to suspend the need to judge a qualitative work until they have given the work a fair hearing. And finally, the principle of dignity reflects the historical context of exclusion of qualitative work from leading outlets in the discipline, which, by many accounts, has led to deep scars on some members of the qualitative research community. This is perhaps reflected in an overly apologetic tone, and the constant need to argue for the merits of qualitative research. The principle suggests that it is time to adjust to the new reality and approach qualitative work with confidence.

## Concluding Thoughts

Through our review presented in this editorial, we believe we have provided a comprehensive overview of patterns associated with the anatomical components of qualitative research papers in four highly visible IS journals. We would like to emphasize

the point that the specific patterns unearthed through the review should be seen as descriptive rather than as normative, given that many of the patterns, even in leading journals, are not necessarily justifiable philosophically or methodologically. Nevertheless, some potentially useful guidelines for qualitative researchers do emerge, and researchers, especially those in the early phases of their careers, may find some of the reported patterns (e.g., average number of case units, average number of interviews) helpful in formulating, justifying, and legitimating their own methodological choices. In addition, the eight proposed principles offer broader guidance. While our results and recommendations, as in the case of most qualitative *and* quantitative studies, are provisional and subject to future revision, we hope this editorial can serve as a useful resource for both novice and experienced researchers, in their roles as authors as well as evaluators.

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