

Crossing the Great Divide: a first step toward bridging the gap between Academia and Industry

Fiona Darroch

Assoc Prof Mark Toleman

University of Southern Queensland

University of Southern Queensland

Department of Information Systems

University of Southern Queensland

Toowoomba, Queensland

Email: darroch@usq.edu.au

Department of Information Systems

University of Southern Queensland

Toowoomba, Queensland

Email: markt@usq.edu.au

Abstract

Debate has persisted over the raison d'être of the Information Systems (IS) discipline. There are many facets to this complex issue, including two closely linked ones, namely rigour versus relevance, and the relationship between academics and professionals. While there has been much introspection from IS researchers as to the apparent state of play, there has been no empirical research conducted to illicit the practitioner perspective. Based on a framework of the current literature, this paper explores the situation from the practitioner perspective through in-depth interviews. The findings provide new insights into the academic-practitioner relationship, highlighting aspects of the existing understanding and extending it in ways that will prove critical in assisting the resolution of this long-term problem.

Keywords

IS Research, Rigour, Relevance, IS Theory, IS Practitioner

INTRODUCTION

The so-called 'IS crisis' has been under scrutiny for decades, almost as long as the discipline itself. There are many facets to this topic, ranging from the issue of a philosophical base to that of rigour versus relevance, referred to as the 'crisis of relevance in IS' by Robey and Markus (Fallman 1999). Many IS researchers such as Benbasat and Zmud (1999) have added their voices to the chorus that academia does not serve practice. Benbasat and Zmud (1999) raised many important issues in their examination of IS research relevance from the perspective of the IS research community. This generated further lively debate on many of those issues from Applegate and King (1999), Lee (1999), Lyytinen (1999), and Davenport and Markus (1999). It is almost impossible to discuss research relevance without considering the relationship between academia and industry. The definition of relevant research will be based on Benbasat and Zmud's (1999) which is 'one that is potentially useful for, as well as accessible by, its intended audience'.

The import of this topic is reflected in its having been the focus of special issues of top journals such as Management Information Systems Quarterly (MISQ) in 1999 and the Communications of the AIS in 2001 (where Gray (2001) described it as a 'raw nerve'), as well as a special panel topic at the International Conference on Information Systems (ICIS) 2002 and the Australasian Conference on Information Systems (ACIS) 2003. It also surfaced at a Pacific-Asia Conference on Information Systems (PACIS) 2004 panel session, wherein the Korean delegate, Jae Kyu Lee, summed up his concerns with the statement 'Research should not be an intellectual hobby'. The fact that the ACIS conference and MISQ journal have a criterion for acceptance of 'significance for practice', adds weight to the importance of resolving this issue. While there have been many conference papers and journal articles examining various aspects of the topic, it is far from resolved. Furthermore, despite having a stated mission of appealing to MIS Managers, MISQ has seen a decline in the practitioner component of its readership (Benbasat and Zmud 1999).

Moody (1999) also broached the topic, but somewhat more from the perspective of practitioners. He argues that IS is an applied, rather than a pure discipline, and proffers a view that medicine could act as a useful role model

on which to base the development of stronger links between academia and industry. Moody (1999) describes the current situation as 'a major "disconnect" between research and practice'. Glass (1998) refers to it as the 'Communication Chasm', and states that 'Research in the computing field is all too often focussed on theory to the exclusion of practice', and goes on to point out that 'there is a great deal that theory can learn by studying practice, and computing theorists are not taking advantage of that possibility', thus, affirming the potential benefits of a closer alliance.

One significant problem that is yet to be addressed is that the analysis has been overwhelmingly from the academic perspective, leaving a serious gap as there has been no direct appeal to the practitioner community for their input. To take Moody's (1999) medical metaphor further, it would improve the diagnosis if the patient was examined and interviewed about their symptoms, and possible courses of treatment discussed with them. If we do not get explicit input from practitioners, we may end up solving the wrong problem. Hence, it is considered that it would take the issue a step forward to explore IS research relevance and the relationship between academia and industry, from the practitioner perspective, as has been begun in this paper. This research also acknowledges Lee's (1999) call for empirical evidence of the relevance of IS research.

Another concern that is addressed by this research is that when discussing relevance to practice, many (such as MISQ) seem to only consider the concerns of CIOs, which miscasts the problem. The majority of practitioners (future CIOs) fall in ranks below the CIO level, and they play an enormous role in how the industry is conducted. Davenport and Markus (1999) suggest that students (future practitioners), should also be considered. The role textbooks play in teaching future practitioners, also mimics the problem relationship in that they too, are quite divorced from IS research (Lyytinen 1999).

Much of the debate has centred on whether IS research emphasis should be on rigour *or* relevance. It is interesting to note that rigour has been claimed to be the defining and respected differentiator between consultant and academic output (Benbasat and Zmud 1999). Moody (1999) discusses the issues of excessive rigour whereby it has become 'the primary measurement of the quality of IS research' and relevance which 'should be determined by the needs of practice and society rather than driven by theory'. Applegate's (1999) stance of a 'strong plea for more relevance' while not 'abandoning rigour' would be the most desirable outcome.

The paper is structured as follows: the next section describes the methodology used in this study; followed by evidence of the divide, the conclusions; implications of the study and finally, future research directions.

METHODOLOGY

This research employs the case study technique. It is a pilot study which will inform a further more extensive, exploratory study. As Cavaye (1996) points out, a case approach allows researchers to examine a phenomenon more deeply, resulting in richer information. The use of qualitative methods to study software development issues allows the researcher to study selective issues, without the pre-determined constraints of 'categorised' analyses. Semi-structured, in-depth interviews were conducted with four industry professionals. This approach enabled the development of a deeper understanding of the issues as they emerged, and suited the exploratory nature of this research.

The interviewees were chosen as being proactively interested members of diverse organizations, the overall aim being to explore the practitioner perspective as broadly and as inclusively as possible (within the constraints of the number of interviews). Interviewee roles cover senior application developer, team leader and CIO; and their organizations range from large to small in the public or private domain. The interviews formed the main source of evidence for the case study. Being an exploratory study, the interviews, while based on a guideline, were allowed to follow-up on other themes that emerged. Interviews were transcribed and reviewed for accuracy by the interviewees, thus enhancing the internal validity of the researchers' accounts of the interview in accordance with Yin (1994). Quotations or indented text presented throughout the rest of this paper are verbal statements from these primary data sources (denoted in the text as *I1*, *I2*, *I3*, and *I4*).

EVIDENCE OF THE DIVIDE

The discussion that follows is an analysis of the case study interview material within two parts, viz: a framework based on the work of Benbasat and Zmud (1999), and secondly, issues that emerged from the interviews, some of which were supported by the literature. Inspiration for the questions was drawn from the literature, as well as from the personal experience of the researcher.

Benbasat and Zmud's major challenges for IS research

In introducing an important Issues and Opinions paper by Benbasat and Zmud (1999), Applegate (1999) gave prominence to four questions they formulated which were essentially raised as the major challenges for the IS

academic community regarding the relevance of their research. These questions were incorporated into the interviews as a means of exploring the practitioner perspective, and overwhelmingly affirmed Applegate's (1999) assertion that the response to them would largely be "no". This section is structured around a framework of these four pivotal questions, with evidence drawn from the interviews.

1. Does IS research produce the knowledge that today's IS professionals can apply in their daily work?

Evidence from the interviews supported Applegate's (1999) abovementioned assertion. One of the problems for practitioners is that research findings are not presented in a form that can be readily implemented, and it does not take account of their domain:

I4 'Indirectly it must, but part of the problem is that we don't feel it directly enough.'

I4 'And I understand that it is sometimes coloured by the 'purist' perspective of the area rather than the practical perspective.'

I2 'Surveys can be inaccurate... focuses more on the larger organizations'.

The problem manifests itself in practitioner ignorance as they are often not aware of what research has been done, which has the serious and unfortunate consequence of lost opportunity. It also indicated a strong relationship with the accessibility issue addressed in question 4, below (Applegate 1999).

I1 'I can't really comment because I don't really know'.

I3 'No, I've not come across that'.

A contribution to an ISWorld discussion group (Glass 2001) echoes this sentiment 'I never read a journal when I worked in industry, and I honestly don't know anyone who did'.

2. Does it address the problems or challenges that are of concern to IS professionals?

Again the response tended to be in the negative. Seemingly the research and practitioner foci do not often converge, and not surprisingly a major contributor to this is the lack of direct communication:

I4 'In my role at the moment I'm mainly interested in ... and a lot of that comes out of the consultancy areas. What academia probably needs to do is gain a bit of a better perspective of say trends and issues across the sector. We probably don't have enough direct communication.'

I1 'researchers seemed to be more interested in the latest technologies, in reality in practice we aren't always using the latest technologies'.

This sentiment is echoed by Paper (2001) who raises the concern that rigour should not be only concerned with measurement but also the research question, where it is often lacking.

3. Does it focus on current technological and business issues?

The overall perception was that academic research was in touch with current technologies, but not business issues. Again, it seems that the common denominator here is a lack of awareness by researchers of the real problems and needs faced by business, and such an appreciation can only really be addressed by direct communication and a will to do so. Another common issue is the compromise it represents in producing research outputs that are useful to industry:

I4 'They (the academics) can give you all the technical advice in the world but they haven't been through the business perspective side of it. The practicalities and budgets etc. It's (academia) not governed by real-life every-day business life.'

I4 'isn't normally a business case ... a lot of research comes from interests and gaps in knowledge. Find the gap and fill it. The question was never asked when I was doing my PhD, Does that gap need to be filled, or is it going to be of any use? Maybe if it came from looking at problems in industry...might be a more appropriate way.'

4. Are IS research articles accessible to professionals?

This proved to be a major stumbling block with serious implications. It is clear that if information is not readily available through easily accessed, suitably formatted, and identified channels, then it effectively precludes dissemination to that audience. It is interesting to note that practitioners see this as a loss of a potentially valuable resource and influence in their practice-based implementations.

I3 'I'm not aware of how to access that sort of thing. It's not readily available to me where I am. It's a problem in that it keeps me out of current areas that are being developed'.

I1 'I don't know. Amongst my peers at work, I don't know anyone that's into it'.

I4 'I imagine there is a wealth of research that is going on, but finding the work that is relevant...'

Practitioners access many resources such as online special interest groups, but not academic literature.

I3 'Just haven't been exposed to it.'

I1 'I haven't had any positive experience where it has given me any benefit. It seems to me that there is masses of it ... to find the relevant thing it would be more effort than reward'.

Issues that emerged from the interviews

A number of important themes emerged from the interviews (some echo the literature), that have serious implications for the academia-practice relationship, and the issue of relevance.

'Them and Us': All interviewees strongly identified academics and practitioners as being from distinctly different groups. These differences culminated in perceived barriers by practitioners between the two groups:

I1 'there would be a different style of people in academia. People in the real world would feel that they (academics) are living in the clouds and we are at the coal face'.

I2 'different types of people. The more academic they are, they very often don't consider where the rubber hits the road'.

I3 'Probably because there is such a division between us, that we in business quite often look at the academic as being pure science ... not in the real world'.

*I4 'The ivory tower thing, there is a perception that academics study a very purist discipline ... doesn't really cover enough **relevance** to the real world'.*

This is reflected in a statement on an ISWorld discussion group (Glass 2001) 'Academics and practitioners have a different world view'.

Desirability of a closer association: The interviewees were emphatic that it would be beneficial to industry if there was a closer association and better communication channels with academia:

I4 'I'd love to see more interaction ... to have some more formal means of communicating. I think it would be great if we knew more of what was happening in that area ... letting the people in academia know what we're doing. It's a two way thing.'

I1 'absolutely, I'm a strong believer in best practice ... academia would have widespread tentacles into all parts of the industry ... so to tap into academia would give you a different view. There is the other benefit of information coming into academia from the real world'.

I2 'would we have had a better result if there had been more contact? I'd have to say yes!'

I3 'I think so. If my employer was more aware ... he would probably move away from what we are doing toward new technologies, new ways of doing things.'

Information overload and time constraints: Another pervasive theme was that information overload and time constraints were both serious problems that limited the prospects of accessing and using academic research:

I1 'It is difficult, people are swamped with so much information and it needs to be summary. And then you can drill into what you are interested in'.

There are several mechanisms in the medical model proposed by Moody (1999) that provide systematically reviewed, quality assessed, collated and Internet-delivered information to practitioners from medical researchers. This closely aligns with a comment from *I4* when referring to an IS practitioner-equivalent service:

' It's crucial, there's a zillion and one articles. I had a pile two foot high in my in-tray. It's information overload. Some of these services that basically categorize it for you, and tell you what conferences are coming up.'

Rigour prevails over relevance: Another salient issue that was also raised by Applegate (1999) is that the influence of political power in institutional practices in academia has led to a situation which has tended to sacrifice relevance whilst simultaneously becoming almost dysfunctionally obsessed with rigour. This was also reflected by one of the interviewees:

14 'At the time I was doing my PhD I probably didn't have enough exposure to the real world. I was governed or cocooned by the academic department and all the advice I received was from my supervisor and other academics'.

CONCLUSIONS

There has been extensive debate in the literature about the IS academic-practitioner relationship and research relevance. This paper has started a journey of explicitly exploring the practitioner perspective. Whilst such exploratory research cannot be the basis of conclusions, it informs us that there is indeed a 'communication chasm' between the two sides, as described some time ago by Glass (1990). In fact, it would seem to be even more serious than previously envisaged, to the extent that practitioners appear to accept the 'otherworldliness' of academia, and struggle to articulate the role research academics do, or should undertake, to support industry requirements.

Based on the first three interviews, the two outstanding issues that came to the fore were: Firstly, that practitioners have little if any idea what constitutes academic research, or how to access it. When the last interviewee was asked if this is a problem, the response was *'I'd agree, it shows that something is not right.'* It is notable that from a practitioner perspective, the relationship is so divorced that many cannot even comment in an informed manner on the situation. Secondly, and of perhaps even more concern, is that the divide is seen as normal, and no one expected it to be any different. Furthermore, they view the two groups of people as being fundamentally different, a 'them and us' situation, but interestingly, without any evidence of the apparent enmity shown in a comment on an ISWorld discussion group: *'Practice don't respect us because we don't respect them.'* (Glass 2001). Again, when asked to comment, the last interviewee stated: *'it's a common perception, and they accept it as being reasonable. While people may wish that it was different, that's the way it is. It's a bit of a concern, that the fact that it is just the way things are'.*

Indications from this pilot study are that incorporating the practitioner perspective is important to this debate. This was highlighted in testing Applegate's (1999) claim regarding the likely negative response to the four key questions. Despite the problems identified, practitioners desire a closer association, and recognize the potential benefits of having access to relevant research.

EPILOGUE

While the 'relevance' criterion in MISQ and ACIS is a laudable move, until there is a better appreciation of the problem by academics and a significant upsurge in interest from practitioners, the impact will be similar to a sort of yet to be enacted equal opportunity legislation. Perhaps the situation requires some sort of affirmative action in order to really achieve a significant paradigm shift. Constructive communication between the two sides would be a positive start.

The current academic career progression and tenure processes and the lack of academic involvement in industry have been identified by many in the debate as being a serious impediment to relevance of IS research, as the emphasis is almost solely on getting publications, regardless of relevance (Applegate and King 1999; Davenport and Markus 1999; Moody 1999; Borchers 2001). "The impact frontier" is a positive and *inclusive* concept wherein researchers may contribute to both business and academic communities (Davenport and Markus 1999). In determining a way forward, many have advocated what Borchers (2001) terms the "practitioner scholar" or the medical (or law) disciplines as being an appropriate model for IS (Davenport and Markus 1999; Moody 1999; Borchers 2001). If this is a good idea, then what will it take to see it implemented? As Davenport and Markus (1999) ask 'What will it really take we have only ourselves to change'. It is no use coming up with sound resolutions if they are never acted upon.

Glass (1989;1990) started raising the issue at least 15 years ago, and lamented the resulting lost opportunities for both sides. It is disappointing to reflect that it is now five years since Applegate (1999) described this as a *'timely and important issue'* and Benbasat and Zmud (1999) identified as an important piece of work. In summing up, Gray (2001) noted that the issue is a recurring one, but stopped short of addressing the real question of whether the debate was really moving forward and prescribing an achievable plan of action. When Davenport and Markus (1999) stated 'We strongly agree with Professors Benbasat and Zmud.... However, we believe that (they) have not gone far enough in their recommendations for change.', maybe they should have added a loud call for action. Lee's (1999) observation that a change in direction for the IS Research community is something that is more likely to be achieved by (and therefore the responsibility of) its senior members should serve as a serious challenge to those who are empowered.

FUTURE RESEARCH DIRECTIONS

Glass's (1998) statement that 'he loved having his Head in the academic side of software engineering, but his Heart in its practice.' is a good metaphor to take this situation forward, and harness the synergy that should be forthcoming from such a union.

The title of this paper is about a step forward. The expression 'one step at a time' implies both purpose and direction. This research is part of a larger research project which will take the form of steps with the purpose of assisting the resolution of this long standing issue. Our future research plans include: following on from this pilot study with further exploratory, in-depth interviews and focus groups aimed at exhausting the main perspectives of practitioners and confirming the issues from the academic perspective. This will be followed by a synthesis of the findings aimed at realizing Glass's (1998) abovementioned philosophical stand. Potential methodological considerations include Avison et al's (1999) promotion of action research as a uniquely appropriate tool to capture the synergy between research and practice, as well as Markus and Lee's (1999) ethnographic case study.

REFERENCES

- Applegate, L. M. (1999). "Rigor and Relevance in MIS Research - Introduction." *MIS Quarterly* **23**(1).
- Applegate, L. M. and J. L. King (1999). "Rigour and Relevance: Careers on the Line." *MIS Quarterly* **23**(1): 17-18.
- Avison, D. E., Lau, F., Myers, M. D. and Nielsen, P. A. (1999). "Action Research." *Communications of the ACM* **42**(1): 94-97.
- Benbasat, I. and R. W. Zmud (1999). "Empirical Research in Information Systems: The Practice of Relevance." *MIS Quarterly* **23**(1): 3-16.
- Borchers, A. (2001). "Adding Practitioner Scholars to our Faculties." *Communications of the AIS* **6**.
- Cavaye, A. L. M. (1996). "Case study research: a multi-faceted research approach for IS." *Info Systems Journal*: 1-16.
- Davenport, T. H. and M. L. Markus (1999). "Rigor vs. Relevance Revisited: Response to Benbasat and Zmud." *MIS Quarterly* **23**(1): 19-23.
- Fallman, D. (1999). "Towards a Richer Model of Rigor and Relevance: Applying Rigor and Relevance in IS Research." *MIS Quarterly* **23**(1).
- Glass, R. L. (1989). "The Temporal Relationship Between Theory and Practice." *Journal of Systems and Software* **10**: 65-7.
- Glass, R. L. (1990). "Theory versus Practice - Revisited." *Journal of Systems Software* **12**: 81-2.
- Glass, R. L. (1998). *Software Runaways*, Prentice Hall.
- Glass, R. L. (2001). "Rigor vs. Relevance: A Practitioner's Eye View of an Explosion of IS Opinions." *Communications of the AIS* **6**.
- Gray, P. (2001). "Introduction to the Special Volume on Relevance." *Communications of the AIS* **6**.
- Lee, A., S. (1999). "Rigor and Relevance in MIS Research: Beyond the Approach of Positivism Alone." *MIS Quarterly* **23**(1): 29-34.
- Lyytinen, K. (1999). "Empirical Research in Information Systems: On the Relevance of Practice in Thinking of IS Research." *MIS Quarterly* **23**(1): 25-28.
- Markus, M. L. and A. Lee, S. (1999). "Special Issue on Intensive Research in Information Systems: Using Qualitative, Interpretive, and Case Methods to Study Information technology-Forward." *MIS Quarterly* **23**(1): 35-38.
- Moody, D. L. (1999). *Building links between IS research and professional practice: improving the relevance and impact of IS research*. Proceedings of the 21st International Conference on Information Systems pp. 351-60.
- Paper, D. (2001). "IS Relevance: Are we Asking the Right Questions?" *Communications of the AIS* **6**.
- Yin, R. K. (1994). *Case Study Research: Design and Methods*. Thousand Oaks, CA, Sage Publications Inc.

ACKNOWLEDGEMENTS

We wish to thank our IS professional colleagues who gave freely of their time in helping us understand this issue by exploring it with them from the practitioner perspective.

COPYRIGHT

Fiona Darroch and Dr Mark Toleman © 2004. The authors assign to ACIS and educational and non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The authors also grant a non-exclusive licence to ACIS to publish this document in full in the Conference Papers and Proceedings. Those documents may be published on the World Wide Web, CD-ROM, in printed form, and on mirror sites on the World Wide Web. Any other usage is prohibited without the express permission of the authors.