

# Communicating Academic Research Findings to IS Professionals: An Analysis of Problems

**Michael Lang**  
*National University of Ireland, Galway, Ireland*

[Michael.Lang@nuigalway.ie](mailto:Michael.Lang@nuigalway.ie)

## Abstract

Because research findings often do not have direct or immediate relevance to IS professionals in industry, the question arises as to how those findings should be disseminated to them in a suitable form at such time as they do become relevant. A central argument of this paper is that the traditional mechanisms whereby academic researchers disseminate their work are prone to numerous communication breakdowns, and that much work which could potentially make valuable contributions to practice is helplessly lost within the vaults of academia. Using the well-known Shannon & Weaver communication model, three major problems are analysed: the choice of dissemination channels, language barriers, and the alienation of academia from industry.

**Keywords** : IS Research Relevance; Communication of IS Research

## Introduction

**academic** / adj. & n.

*“4. Not leading to a decision; unpractical; theoretical, formal, or conventional.”*

*“5. Conforming too rigidly to the principles of an academy; excessively formal.”*

- Oxford English Dictionary (<http://dictionary.oed.com>)

It is often interesting to observe how the meaning of a word as ascribed to it in everyday use may over time gradually but radically diverge from its etymological origins. As the above excerpts reveal, the term “academic” is now unfortunately laden with negative connotations of being distant, impractical and irrelevant. Of course, this complaint is not levied at IS academics alone, but as IS is an applied discipline it becomes a more pressing concern. Indeed, it is ironic that at a time when computing is at the centre of innovation and is profoundly impacting so many areas, IS research is being slammed as mostly irrelevant (Pike, 2000; Westfall, 2001). If this were to lead to a loss of practitioners’ respect, the implications would be serious because access to essential commodities such as funding and research sites could be threatened.

IS academics have two primary objectives; firstly, to build new knowledge, and secondly, to disseminate

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that knowledge and raise awareness of its potential applications. Knowledge created but not shared has no value (Kavan, 1998). Ultimately, IS research should lead to practical outcomes that are useful to the IS profession and society at large. Thus, for academic researchers, the issue of relevance is very much linked to one’s sense of social purposefulness. Unfortunately, much of what IS academics have to say never reaches the ears of practitioners for a variety of reasons. This paper

analyses difficulties in communicating academic research findings to IS professionals in industry. As a starting point, relevance is defined and the importance of timeliness is stressed. Using Shannon & Weaver's (1949) theory of human communication, problems relating to communication channels, language barriers, and the distance between academic and professional environments are then discussed.

## A Definition of "Relevance"

Amidst all the recent flurry of discussion surrounding IS research relevance, few authors have attempted to explicitly define what is meant by "relevance". It is far too elusive a concept merely to assume that it is self-explanatory in a given context. Generally, it seems that relevance is taken to imply 'immediate and direct applicability to', 'acceptance by', 'use by', 'or intelligibility to' IS professionals in industry. For example, Moody (2000) defines relevant research as that which "addresses a practical need", and goes on to state that relevance and utility can only be evaluated by practitioners. Hanseth & Monteiro (1996) assert that "the relevance of ISD research is intrinsically connected to influencing [i.e. improving] the practice of ISD", while Saunders (1998) also defines relevance in terms of usefulness to IS professionals: "*When research is relevant, managers can use its results to successfully solve critical problems with which they are faced and to use information technology to reshape the environments in which their organizations operate.*"

However, these definitions are flawed in two significant regards. Firstly, IS professionals are not the sole consumers, often not the primary consumers, and frequently not even intended to be consumers at all, of academic research outputs. Secondly, it is inconceivable that relevance can be defined without reference to the component of time.

To elaborate the first of these points, there are a variety of distinct stakeholders in the IS research production process, each with different value systems, needs and expectations (Dennis, 2001; Keen, 1991). These include IS professionals in industry, students, educators, researchers, and scholars in other disciplines. The non-acceptance or non-utilisation by IS professionals of academic IS research should therefore not always be regarded as a true and fair indicator of its relevance (Lee, 1999a). What practitioners expect and want are unambiguous, implementable resolutions to real and immediate problems, rather than some academic contribution that fills a gap in a theoretical body of knowledge. This explains why IS professionals are often disenchanted with the outcome of academic research projects that they sponsor. However, much of the work that academic researchers produce is of a highly esoteric or theoretical nature and is intended to be of *immediate* relevance only to other researchers working within the same domain. This leads to the second point, - that a critical aspect in defining "relevance" is timeliness. Very often, the theoretical bases upon which research is founded may be of little or no practical use when initially published, therefore contemporaries are not always well placed to judge its relevance (Kock et al., 2001). In reality, academic researchers are unlikely to make a worthy contribution to practice in less than 5 years (Lyytinen, 1999). It may thus be argued that to be truly relevant, IS research must be future-oriented (Rollier, 2001; Dennis, 2001). Research with a long-term perspective is often not directly relevant to practitioners in its initial stages, but it may become so through the gradual accumulation of small but significant advances that eventually enable the resolution of major problems. A case in point here is that of Vannevar Bush, whose futuristic "As We May Think" essay published in *Atlantic Monthly* in July 1945 formed the basis of Engelbart's work into the "augmentation of man's intellect" throughout the 1960s, which in turn blossomed into significant advances in graphical user interfaces, computer-supported cooperative work, hypermedia, organizational memory, information retrieval, Intranets, and knowledge management. Thus, "relevance" is a highly transient concept, and different time frames can lead to completely different judgements about the relevance and value of research.

As basic research matures and theories are iteratively refined, they attain direct and immediate relevance to IS professionals in industry. "Old" theories can often be reframed in "new" modern contexts (Keen, 1991; Lee, 1999b), so that for example, end-user computing theory can be reapplied to Intranet rollouts,

and experiences with EDI can assist B2B XML systems. It should not be left to IS professionals to attempt to make these sometimes tenuous connections. Once IS research becomes relevant to practitioners' needs, it is incumbent upon academia to communicate it to them "in the language and through the media of practice" (Senn, 1998). However, the timely communication of relevant research findings to practitioners is fraught with problems, many of them enduring, as discussed in the next section.

## **Analysis of Communication Problems**

Shannon & Weaver's (1949) model of human communication, though rather simplistic, nevertheless provides a useful framework within which to reason about problems in communicating academic research findings to professionals. Three critical aspects of an effective human communication process are that: firstly, suitable communication channels are selected, with minimal background noise; secondly, the language of communication is intelligible to both parties; and thirdly, the participants in the communication come from similar environments, or at least have had adequate exposure to each others environments. In all three of these aspects, the means by which IS research findings have traditionally been relayed to practitioners are chronically impaired. Each of these is now discussed in turn.

### ***Channels for Communicating Research Findings***

In applying Porter's framework to IS research strategy formulation, Lee (2000) speaks of reviewers, editors, faculty members, journal subscribers, and IS managers as "research buyers", and raises the question: "*The very idea of 'research buyers' requires you to ask yourself, 'How am I presenting my research to them so that they would buy it?'*". For many academics, the primary motivation to conduct research is personal survival (Moody, 2000), which necessarily means impressing those "buyers" who have the greatest potential influence on one's academic career prospects. There is little motivation to consider the needs of IS professionals as research consumers because they are not decision-makers when it comes to awarding academic tenure. Like buyers of any product, IS professionals should therefore be expected to avoid publication channels directed toward a different (i.e. mainly academic) audience; indeed, it seems "almost unreasonable for IS practitioners to want to read academic articles" (Alter, 2001).

Refereed academic journals and conferences are the two main publication outlets for academic research, and journal articles are most highly regarded in academic promotion and tenure decisions (Avgerou et al., 1999). Thus arises a communication problem: the principal channels through which academic research findings are published are not targeted at or sought out by practitioners. Keen (1991) therefore challenges the traditional assumption that journals should be the main outlet for IS research on the basis that it is "highly limiting to its progress". As a publication outlet, books are much more influential than scholarly journals or academic conferences and can play a very important role in advancing a discipline (Lyytinen, 1999; Keen, 1991). However, books are not as favoured as journal articles in academic reward mechanisms, the effort required to produce them being disproportionate to the recognition granted (Gillenson & Stutz, 1991).

The preference towards scholarly academic journals as publication channels has at least two other communicational disadvantages. Firstly, because of the dishearteningly low acceptance rates of journals, there is a high level of atrophy. Much promising but "poorly written work" may never be published because many researchers respond to journal rejections by abandoning a paper rather than reworking it (Straub et al., 1994). Secondly, researchers whose area is topical only within the short or medium-term face the unenviable prospect that the passage of time may render their findings obsolete before they are published, because the production cycles of academic journals are typically of the order of 4 to 5 years. Academic writers seek to circumvent this problem by aspiring, unlike the trade press, to produce timeless contributions (Lee, 1999b). Nevertheless, it would be arrogant and foolish to suggest that IS research is immune to long publication delays (Ives, 1993). It is artificial to divorce the management of IT from IT itself, because technology can and does alter the environment.

It may of course be argued that papers in academic journals and conferences are not intended for direct consumption by IS professionals, and that instead the messages contained therein are meant to be further distilled and transferred through other media such as teaching and textbooks. The assertion by Olfman (2001) that “research informs textbook writers ... textbooks inform students ... students practice what they learn” is rather simple. In truth, undergraduate teaching is a very slow and inefficient way of disseminating research. Of course, it is altogether different in the case of postgraduate professionally-oriented programmes. However, even then, the irony is that academics tend to refer to articles from practitioner periodicals more so than articles from scholarly journals in the preparation of course materials. In a recent survey of ISWorld mailing list subscribers, it was revealed that 82.5% of 137 respondents consider publications such as *MIS Quarterly* and *Journal of the AIS* as most important to research, but only 12.4% said that those same sources were most important for teaching, for which purpose practitioner publications are seen as being far more useful (Press, 2001). This practice is slammed as being downright hypocritical by Robey & Markus (1998) who insist that academics be forced to “eat [their] own dog food”.

If one were to seek out a root cause for these communication channel problems, an obvious direction in which to point the finger of blame would be towards institutionalised academic reward mechanisms. As evidenced by a study of over 4000 US academics, research output dominates almost universally over teaching, administration and service as a criterion in salary determination, and teaching activities are seldom rewarded, hence there is little incentive to aspire to excellence in teaching (Fairweather, 1993). Measures of research output value publications in formal academic outlets way above books or practice-oriented periodicals.

The prevalent use of journal ranking lists as a basis for tenure and promotion decisions is potentially very damaging. Indeed, some of the findings of international journal ranking studies are hard to believe and it is clear that in many cases they are heavily biased by regional identities and cultural values. As an example, whereas the *Information Systems Journal* and the *European Journal of Information Systems* are both very highly respected in Europe (Mylonopoulos & Theoharakis, 2001; Avgerou et al., 1999), in surveys of North American academics they are relegated to much lower rankings and in some cases are not even ranked at all (Hardgrave & Walstrom, 1997; Whitman et al., 1999; Mylonopoulos & Theoharakis, 2001). Conversely, two of the best respected journals in North America, *MIS Quarterly* and *Information Systems Research* are unknown to a surprisingly high number of academics in Europe, all the more pronounced in German-speaking regions (Avgerou et al., 1999). This casts doubts over the rigour and validity of the processes used to compile these lists in the first instance.

To use such lists for academic tenure decisions is tantamount to codifying and propagating a scheme of research agendas, ideologies and values. It clearly discriminates against those who seek to publish in narrower more-focused journals, as “top tier” journals are predominantly of rather general scope or focus on management-level concerns. Practitioner-oriented periodicals are rarely given credit and are relegated at best to third-tier “C grade” publications, regardless of the much wider readership those publications receive. Papers in conference proceedings, though more timely than journal articles, also receive less recognition.

### ***The Language Barrier***

The second critical prerequisite for successful human communication is the use of a commonly understood language. For research to be useful, it must also be usable. At present, the style and form of academic writing is impervious to most IS professionals. Work that is highly relevant to pragmatic issues might be rejected as being irrelevant merely because it is presented in an inaccessible style (Robey & Markus, 1998). Too often, articles are littered with detailed statistics, formalised notations, jargon, arcane prose, and excessive references. The use of terse and complex language serves only to obfuscate the message and lessens the likelihood that it shall be understood.

Much of the blame for this problem lies with academic writing style guides, or the absence thereof. In reviewing academic articles, criteria such as “presentation”, “professional style”, and “tone” are typically treated as being of low priority, according to a survey of published authors and editorial board members from a selection of leading IS journals (Straub et al., 1994). The authoring guidelines of many of the leading journals do not explicitly talk about style and tone. Not surprisingly, those which target not just the academic community but also the practitioner community provide explicit directions, – for example, the *Harvard Business Review* insists that “accessible and jargon-free expression” be used, *Communications of the ACM* specifies that “articles that are obviously written for a specific niche group or have been written in a dense, theoretical tone will be returned”, and *IEEE Computer* stipulates that “an article should be comprehensible to all readers, regardless of their specialty”.

### ***Industry and Academia: Polarised Communities***

A third key factor in the effectiveness of human communication is the similarity between the “environments” of the sender and the recipient of a message, – that is, the closeness of their respective backgrounds and cumulative experience. The greater the overlap in terms of common knowledge between participants in a communication process, the more effective the communication is likely to be (Ellis & McClintock, 1990). Unfortunately, there appears to be a major disconnect between academia and industry, as researchers and IS professionals in industry have formed their own mutually independent communities, with minimal cross-membership and little formal or informal knowledge transfer. Thus Glass (1997) is led to comment that “the academic picture of the industrial world (and vice versa) is both skewed and disdainful”, while Pike (2000) remarks that “we see a thriving software industry that largely ignores research, and a research community that writes papers rather than software”.

Notably, while academics bemoan the absence of IS professionals from their conferences and lament that their work is being ignored, few IS professionals complain that academia is failing them. Although Robey & Markus (1998) anticipate an impoverished future for both the academic community and the professional community if they part, the reality is that practitioners are quite capable of devising their own solutions without recourse to academia. The inverse is not true. Academia does not and cannot exist within a void; however, in many ways it has shut itself away. In the eyes of many IS professionals, the only purposeful role that academics fulfil is that of graduate training in routine technical skills, such as programming or analysis and design techniques. Even in that role, much of what is taught on technology and practice is severely outdated and there is a gap between what industry needs and what academics offer.

In order for IS research to be of relevance, academics must be exposed to practical contexts (Benbasat & Zmud, 1999). The reality is that few academics have adequate real-world work experience. By virtue of academic recruitment criteria, this is likely to remain so; professionally inexperienced scholars holding postgraduate research degrees are more likely to be considered eligible for appointment than highly experienced practitioners who perhaps entered industry directly after an undergraduate qualification many years before. Furthermore, academic appraisal systems neither respect nor encourage the development and maintenance of technical competencies, so valued within industry. Not surprisingly, universities are experiencing difficulty finding experienced instructors with the requisite skills to teach courses in newer technologies (Westfall, 1999). There is no incentive for an academic who hails from the era of COBOL and SSADM to learn the “new tricks” of Java, VB, or UML. Academics who maintain their technical skills may in fact be indirectly penalised if by investing time in so doing, they are distracted from research activities. It is therefore no surprise that, upon entering academia, gaps in technical skills soon appear. Not surprisingly, academics face a credibility gap within the business community, few academics are sought out as being leading thinkers on IT in business, and there is an opinion amongst practitioners that in the majority of cases the “academic IS community doesn’t have a clue” (Senn, 1998; Benbasat & Zmud, 1999; Davenport, 1997).

## ***The “Lost Volumes” of IS Research***

The fourth major communicational problem ties back to the point about timeliness of communication made earlier under the *Definition of Relevance*. The Shannon & Weaver model does not explicitly consider the concept of timeliness, or the affect of passing time on the amplification of a message. Within IS research, the lack of a cumulative tradition is oft lamented (Keen, 1991; Benbasat & Zmud, 1999), though never really from the perspective of communicating research findings. Lee (1999b) makes the fair assertion that research about the management of IT or the use of IT for managerial and organizational purposes is much less time-sensitive than research on IT itself. In truth however, articles are soon forgotten. Most citations referenced in IS journal articles are less than 5 years old (Holsapple et al., 1994).

One way of looking at this lack of a cumulative tradition is as the failure of the IS research community to communicate its findings to itself, or to listen to itself. It is the onus of academics to distil relevant, practical knowledge from the cumulative body of academic research, and in due time to communicate that knowledge to professionals. This task is becoming all the more difficult. Such is the proliferation of journals – recently estimated as being in excess of 200 (Hardgrave & Walstrom, 1997) – that the IS discipline has created for itself a situation of information overload. Electronic access to hypermedia archives and better indexing meta-data can help alleviate this problem, but that of itself is not enough. Far too often, short papers have appeared in journals and conferences alike describing some new method, tool, or technique that has only been tested in narrow case studies (often within academic contexts), but only very rarely do these progress beyond incomplete research prototypes to become commercial realities. Also, many doctoral dissertations remain unpublished in mainstream outlets, or only appear as a disconnected series of papers in various outlets rather than as a cohesive whole. To ensure that the legacy of a research project can be built upon, it is necessary to release the research instruments, research data (subject to confidentiality constraints), software prototypes, full-length reports, and all other artefacts produced as open source objects onto public domain networks.

## **Recommendations**

In view of these communication problems, a wholesale revision of academic evaluation mechanisms shall be necessary, because at present there is little direct incentive for academics to consider the needs of IS professionals as consumers of their research. Otherwise, as Keen (1991) warns, IS research may be “in danger of talking mainly to itself about itself”. However, a revision of evaluation mechanisms is by no means straightforward. The problems of attending to “value” and “meaningfulness” in academic appraisal systems are notoriously difficult, especially in the evaluation of research. Indeed, Ruth (2000) goes so far as to argue that “*appraisal systems, no matter how apparently democratic and transparent, by virtue of being systems, remain a techno-rationalistic enterprise that threatens to undermine research*”. That said, there are few feasible alternatives to existing appraisal schemes. Sensible improvements would be to give greater weighting to professional experience and competency in technical skills where appropriate; to encourage and reward applied teaching methods that demonstrate the practical utility of academic theories; and to give more recognition to publications in peer-reviewed books and practitioner-oriented outlets.

Regarding publication channels, Westfall (2001) and Senn (1998) suggest that researchers should use electronic methods to package and promote their work in new, non-traditional, practitioner-friendly forms such as reports, briefs, and white papers. Fitzgerald (2001) has called for Internet-based publishing models in the spirit of the “open source” movement. It may also be feasible in some cases to produce separate editions of journals / conference proceedings, - one intended for a scholarly audience, and the other, targeted towards IS professionals, giving a synopsis of the key findings and their possible application to practice.

As regards the language barrier, there have been calls to revise norms for style and tone so that articles are shorter, use simple language in so far as is possible, and anchor concepts in realistic examples so as to create appropriate contextual frames (Westfall, 1999; Benbasat & Zmud, 1999; Kavan, 1998). Academic writers should use more fluid and open styles, perhaps following the example of those few journals which are held in high regard not just by academia but also by IS professionals. Reviewing criteria for IS journals and conferences should be revised to place greater emphasis on presentation and understandability, particularly with regard to statistical or mathematical content.

Concerning the gap between academic and professional environments, IS researchers need to spend more time within industrial contexts, and to be rewarded for maintaining their technical skills. Academia has the potential to make valuable contributions to practice through the development of tools, methods, and techniques, but rarely is this potential realised. The two communities may be brought closer together by allowing and encouraging academics to take sabbatical leave or career breaks within industry, co-opting IS professionals into associate or part-time academic posts, creating improved knowledge-exchange arenas such as campus industrial parks, encouraging academics to attend practitioner conferences, scheduling “practitioner days” at academic conferences, and developing part-time professional education programmes that may serve as forums for bi-directional exchange of knowledge.

It may well be the case that many of these recommendations shall in time be implemented through necessity. Universities have now become akin to businesses operating in a competitive international market wherein resources such as grant aid and programme subsidies are scarce. Within this new context, academic researchers in an applied domain such as IS have a firm mandate to efficiently produce work that is of relevance to practitioners, and to effectively communicate the findings of that work. Otherwise, the prospect of alienation looms.

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## Biography

**Michael Lang** has been a Lecturer in Information Systems at the National University of Ireland, Galway since 1996. Prior to that, he worked in industry as an analyst/programmer. His principal research interests are business systems analysis and design, and multimedia/Web-based information systems development. He is a B.Comm. graduate of University College Dublin, and received his M.Sc. in Applied Computing & Information Technology from the National University of Ireland, Galway. He is currently studying for a Ph.D. in Information Systems at the University of Limerick, Ireland.