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Science and the IS Researcher: Building an Empire Without Walls

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Abstract

The purpose of this paper is to introduce a radical alternative perspective into the debate on diversity, and the use of reference disciplines in IS research. It seeks to provide the foundation for a philosophical dialectic from which a new synthesis of the opposing views on the debate may emerge. Specifically, it is argued that the boundaries that divide academic disciplines are merely social conventions; products of convenience and individual and group self-interest. In contrast to this socially constructed view of scholarly inquiry, it is argued that science is a common good and that maturity of a field and of a researcher is evidenced not by defending the walls of a scientific empire but by contributing to the broader scientific community in which scholars in all fields may participate. The paradigm promulgated here is one of intellectual development and knowledge sharing that breaks down the walls of disciplines, views knowledge holistically, and considers the spread and evolution of ideas as the most important goal of all researchers. More than just a philosophical ideal, with the advent of the world wide web this new paradigm becomes a very real possibility.

Introduction

Since the dawn of the field of information systems, researchers have debated its identity, legitimacy, and role as a discipline within the context of the plethora of scientific fields and academic pursuits extant in the broader scholarly community. Initially the focus of IS scholars was on developing research frameworks to structure programmatic research, foster a cumulative research tradition, and leverage the use of reference disciplines (Ives, Hamilton & Davis 1980, Keen 1980). More recently, there has been heated debate about the value of diversity in IS research, the continued reliance on reference disciplines and its effect on perceptions of the maturity of the field (Benbasat & Weber 1996, Robey 1996). While the ongoing debate has been enlightening its existence inadvertently also serves to promote and perpetuate the social importance of disciplinary boundaries. Strictly applying disciplinary boundaries implies that the adoption of theories and methods from reference disciplines amounts to intellectual larceny and that such thievery is reflective of an immature or insubstantial field. In contrast, the argument presented in this paper is that scientific knowledge is not owned by any discipline *per se*, but is a common good. In this view the mark of maturity of a field is not merely its use of the common good of scientific knowledge but also its contribution to its future development without consideration of the disciplinary source of the theories and methods employed.

Defenders of the Walls that Don't Exist

As researchers in a young field concerned with a constantly changing and dynamic phenomena, IS scholars have found difficulty achieving consensus about what is the true and proper subject of IS research, and the appropriate manner in which to conduct it. The difficulties in achieving consensus, together with the constantly changing phenomena, has led scholars both inside and outside IS to question the legitimacy of the field as a scientific endeavor. Indeed, as a whole IS researchers seem unduly preoccupied with the legitimacy and identity of their academic pursuits.

In an effort to legitimize IS research and because of the diverse disciplinary backgrounds of IS researchers, the field has turned to reference disciplines to define what is good science. The perceived benefit of the use of reference disciplines is that there is already some established consensus about the appropriate methods and theories for studying phenomena, and there are also established outlets for the research employing those theories and methods. However, by deferring to the reference discipline to define what constitutes

good science in IS, researchers perpetuate the dependency on other fields and further contribute to the identity crisis and concerns over the legitimacy of IS research as an academic pursuit.

Philosophically, this debate and concern over identity and diversity in IS research and the compartmentalization of scientific endeavors implies a Neo-Aristotelean view of knowledge, in that there is a presupposition that there are well defined categories of knowledge and thus natural boundaries to scientific inquiries. In such a compartmentalized view of science, claims and disputes over ownership of problems, theory and methods abound. This stratification of scientific knowledge creates paradigmatic clashes and promotes the deification of so called "reference disciplines". Whereas in reality, these boundaries have, and indeed continue to evolve out of the increasing specialization and fragmentation of scientific knowledge. This fragmentation and specialization is driven not by the structure of the subject of study, but by those that study it. In part it is a product of the social process by which knowledge is constructed and protected - the economic and psychological necessity for academic researchers to control the accessibility to, and accreditation of, outlets for reporting scientific endeavors. More fully it is reflective of human cognitive and physical limits in comprehending and efficiently studying the gestalt of manifest reality. In short, IS researchers have tended to defend the walls around their preferred reference discipline and sought to construct walls around IS, both as the path of least resistance and as a means of ensuring their survival and the future of the field. While some have argued for building bridges to cross these walls, it is the thesis of this paper that such walls are merely social constructions, that they serve to hinder as much as help the advancement of scientific knowledge.

Building an Empire Without Walls

In the empire without walls (science without disciplinary boundaries), science can be viewed as the systematic inquiry into the nature of manifest reality, the results of which contribute to the ongoing intellectual discourse above and beyond the specific application problem of focus. In such a view, no individual, and no focus group of scholars owns "Science". Science is knowledge in its general form, that can be instantiated into a variety of specific domains. To be recognized as a mature field requires not merely the instantiation of scientific knowledge into a domain of interest, but the generalization of any findings to the level of broader intellectual discourse. This does not mean that researchers in a field must develop their own grand theories to which they have exclusive intellectual rights. To the contrary, researchers in a mature field become participants in the broader intellectual discourse across all disciplines. Through the careful selection of generalizable problems, the prudent application or development of theory and methods, such a goal is within the reach of IS research today. Such research should not be distant from practice, but rather serve to build an intellectual structure into which experiential knowledge from practice can be formalized. In the empire without walls, science is not controlled by those with power over exclusive discipline-based research outlets, rather it is defined by those whose work contributes to knowledge universal - just as it was in the Academy of Socrates. In the empire without walls, there is no deification of one discipline over another, in fact there is no concept of a scientific discipline at all, rather it is an empire of universality of knowledge and science.

To make an analogy, the universal body of scientific knowledge is to the researcher what an object repository is to the programmer in an object-oriented development environment. Just as the hallmark of good programming in an object-oriented environment is the extent of object reuse (e.g., see Banker & Kauffman 1991, Banker, Kauffman, Zweig 1993), the mark of good scientific research is the extent of reuse of the knowledge it produced. While the value of knowledge reuse within a discipline may already be well realized, it is reuse beyond the socially constructed walls of a discipline that is characteristic of the greatest and most significant scholarly achievements. This is akin to object reuse beyond the application project for which the object was originally developed.

Drawing further on the object-oriented analogy, one of the key concerns in that domain has been the impact of quality concerns on object reuse (Frakes & Fox 1995). What then constitutes quality scientific contributions worthy of reuse? In the current social reality, science is paradigm-based and consensus determines the appropriate theories and methods to apply (Kuhn 1970). Indeed it has been argued, and quite rightly, that consensus is essential to progress and the cumulative development of knowledge (Pfeffer

1993). The question then remains, what form of consensus is appropriate for building an open empire without walls?

Unlike the narrow paradigmatic, disciplinary and sub-disciplinary based consensus that is the current status quo, consensus in the empire without walls is pluralistic. Consensus should exist concerning the appropriate problems to study, about theories that are useful, and about methodologies that are rigorous, but it should not be constrained to exist within socially constructed boundaries. The consensus for each dimension of a scientific endeavor (problem, theory or method), need not be from the same group of scholars. The consensus about the importance of the problem may come from one group of scholars, about the value of the theory from another, and the rigorous methodology from yet another. This is a stark contrast to the current situation in most fields of scholarly endeavor in which consensus along all three dimensions comes from the one field or sub-field.

The narrow view of consensus currently employed constructs unnecessary knowledge barriers to entry for those wishing to study of a particular problem, or theory or method. This narrow view restricts the sharing of knowledge. Yet, development and sharing of knowledge are the fundamental purposes of scientific research. In the scientific empire without walls, pluralism in problems, theories and methods means that the scholarly community becomes more of a networked community than a compartmentalized one. Researchers who share only common problem interests, are encouraged to exchange different theories and methods with each other. Researchers who share only common theoretical interests, are encouraged to exchange different problems and methods with each other. Similar logic applies for those with common methodological approaches but different theory bases and application problems. Not only is knowledge sharing enhanced, but knowledge creation is enhanced. In the open empire, good scientific research makes a contribution to all three consensus communities - problems, theories, and methods. Thus, problems are examined from the perspective of multiple theories and methods, providing greater explanatory and predictive power. Theories are tested in multiple application problems and with multiple methods, increasing their comprehensiveness, robustness or generalizability. Finally, methods are applied to multiple problems in testing multiple theories, providing greater opportunity for refinement and enhancement. In the empire without walls, researchers choose the combination of problem, theories, and methods based solely on their utility and validity in the knowledge creation task, rather than by following the social mandates of the narrow consensus. Lowering the social barriers to entry for studying or using a particular problem, theory or method, is the foundation of the empire without walls. It increases cross fertilization of ideas, while retaining rigorous knowledge barriers to entry.

While the scientific empire without walls may seem a philosophical ideal, it is also becoming a real possibility. Already in IS and other fields such as computer science and engineering researchers have begun to circumvent the traditional scholarly outlets and publish living research works on the World Wide Web for perusal, critique, debate, and refinement by the intellectual community at large. The hypertext based web is the epitome of an empire without walls, as Edwards (1994, p. 266) pontificates:

... hypertext represents a faith in the possibility of incorporating all individual perspectives within a single socially constructed whole through multiply articulated structures - 'a society of text' ... [It] represents the liberation of private cognitive worlds from the oppression of social conformity through a communicative form that equalizes among them. Hypertext is a universalist language ... reconciling the many with the one.

This is Western culture and education come full circle, it is a return to the Academy of Socrates. This is the quintessence of intellectual pluralism and knowledge sharing. In this new paradigm and research outlet the evolution of knowledge is more important than the assignation of credit for the production of that knowledge. Realizing this return to the Academy of Socrates will require substantial social change, yet social structures are always in flux. While it is uncertain what social changes await today's academy, it is certain that changes will occur. It is equally clear that technology will play a key role in these changes, and as such that IS researchers must be at the lead.

References

Banker, R. & R. Kauffman. "Reuse and Productivity in Integrated Computer-Aided Software Engineering: An Empirical Study". *MIS Quarterly*. (15:3), September 1991, pp. 375-401.

Banker, R., Kauffman, R., & D. Zweig. "Repository Evaluation of Software Reuse". *IEEE Transactions on Software Engineering*. (19:4), April 1993, pp. 379-389.

Benbasat, I. & R. Weber. "Research Commentary: Rethinking 'Diversity in Information Systems Research'". *Information Systems Research*. (7:4), December 1996, pp. 389-399.

Edwards, P. "Hyper Text and Hypertension: Post-Structuralist Critical Theory, Social Studies of Science and Software." *Social Studies of Science*. 24, 1994, pp. 229-78.

Frakes, W. & Fox, C. "Sixteen questions about software reuse". *Communications of the ACM*. (38:6), June 1995, pp. 75-87.

Ives, B., Hamilton, S., & G. Davis. "A Framework for Research in Computer-Based Management Information Systems." *Management Science*. (26:9), September 1980, pp. 910-934.

Keen, P. "MIS Research: Reference Disciplines and a Cumulative Tradition." In E. R. McLean (Editor), *Proceedings of the First Conference on Information Systems*, Philadelphia, Pennsylvania, 1980, pp. 9-18.

Kuhn, T., *The Structure of Scientific Revolutions*. 2nd ed., University of Chicago Press, Chicago, IL, 1970.

Pfeffer, J. "Barriers to the Advancement of Organizational Science: Paradigm Development as a Dependent Variable". *Academy of Management Review*. (18:4), October 1993, pp. 599-620.

Robey, D. "Research Commentary: Diversity in Information Systems Research: Threat, Promise, and Responsibility". *Information Systems Research*. (7:4), 1996, pp. 400-408.