Title

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Journal

Proceedings of the American Society for Information Science and Technology, 51(1)

ISSN

0044-7870

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Publication Date

2014

DOI

10.1002/meet.2014.14505101010

Peer reviewed

Pluri, Multi-, Trans- Meta- and Interdisciplinary nature of LIS. Does it really matter?

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ABSTRACT

The field of LIS is beset by recurrent debates as to its disciplinary status. For decades, the interdisciplinary nature of information science has been upheld without much proof from the ground. But if LIS is not an interdiscipline, is it then a meta-, a trans- a pluri-, a multi- or simply a discipline? The different proposals for qualifying the nature of LIS or for delineating its frontiers suggest that its fundamental nature remains unclear for its community. But is LIS alone in this dilemma and does it really matter? Does it stop the field from progressing?

KEYWORDS

Interdisciplinarity, multidisciplinarity, pluridisciplinarity, transdisciplinarity, LIS, scientific disciplines.

INTRODUCTION (FIDELIA IBEKWE-SANJUAN)

The field of LIS has devoted a huge amount of discussion to its disciplinary status. It has been diversely qualified as pluridisciplinary, multidisciplinary (Bawden 2007), transdisciplinary or interdisciplinary (Borko, 1968), metadisciplinary (Bates 2007). Robinson (2009) compiled an interesting list of attempts made by past scholars to consider LIS as a "social science", an "inter-science" (interdiscipline), a "postmodern science", an "interface science", a "superior science", a "rhetorical science", a "knowledge science", a "liberal art" and even a "nomad science". Robinson (2009: 580) suggested that a way to overcome the conflicting and for some esoteric proposals for LIS is to consider it not as a discipline but as a field of study. Disciplines are founded on a unique knowledge base whereas fields of studies can be created around specific subjects, hence, a field can have recourse to all models and theories that enables it to study the given object. In this sense, LIS can be considered a field whose subject is information and more precisely, the universe of recorded information.

Interestingly, pioneers in communication science had similar ambitions. Miège (2005: 99) recalled that Norbert Wiener (cybernetics), Claude Levi-Strauss (structuralism), Roland Barthes (semiotics, philosophy and one of the founding father of Information and Communication Sciences in France) as well as Gregory Bateson (anthropology) hoped to make communication a super- or a meta-science whose object would irrigate "*most of the known and chartered disciplines in the classification of the sciences"*.

For decades, the interdisciplinary nature of information science has been upheld without much proof from the ground (Machlup & Mansfield, 1983; Harmon, G. E. 1987). But recently, LIS scholars have been warned that interdisciplinarity may be harmful to the identity of the field. Buckland (2012) fears that to claim to be "interdisciplinary" is to choose a position of weakness because "in times of economic crisis political power tends to reside in well-established disciplines." Cronin (2012) observed that "the field's sense of identity, arguably fragile at the best of times, is likely to be further weakened" for its "epistemic promiscuity." Hjørland (2013) surmised that "the basic problem for LIS seems at the moment to be a lack of sufficiently strong centripetal forces keeping the field together" making reference here to the attendant borrowing of methods and models which characterises its research.

But let's take stock: attaining interdisciplinarity is very difficult owing to the fact that scientific research is organised around disciplines and not around objects. However, it is the study of objects that give rise to disciplines. In other words, it is the attention given to objects of study by different scientific communities that create disciplines. Objects of study and the real world do not present themselves to us clothed in disciplinary apparel. Scientific problems tend to be multidimensional, hence the necessity for interdisciplinary approaches. Ibekwe-SanJuan & Dousa (2014) in particular have shown that solutions to practical or applied research problems require methods stemming from more than one epistemological theory and more often than not, appropriated by different disciplines. Secondly, interdisciplinarity remains an elusive ideal

because it requires a high level of erudition to which our current higher education structure is hostile. Our course structures, PhD programs and research projects mostly run along the short term (1-3 years long is the norm). This makes interdisciplinarity a very difficult to attain ideal because of the high level of specialisation attained or needed nowadays, and the quest for high-skilled technical specialists who have a very narrow view of science in general outside of their own tiny area of specialty.

This is in contrast with the idea of science scholars in past centuries who were well versed in many areas (astronomy, chemistry, physics, music, arts, life sciences). The demand to produce highly specialised graduates leads to a tunnel-view of science where young scholars lack a global view of the object on which they are specialised and how they are perceived by the other sciences. Interdisciplinarity appears therefore to be a lifelong project, requiring time to acquire scientific culture from other disciplines and likely to be attained by more senior researchers.

If LIS does not qualify as an interdiscipline, is it then a meta-, a trans- a pluri-, a multi- or simply a discipline? These variants have defined by several authors. Space limitations do not enable us to recall these definitions here but an interesting discussion of the implications of interdisciplinarity and indiscipline can be found in Besnier & Perriault (2013). The different proposals for naming LIS and the recurring debate on its disciplinary status or frontiers suggest that its fundamental nature remains as yet unclear for its community. But is LIS alone in this dilemma and does it really matter?

At the scale of history, disciplines are mostly a recent invention dating from the 19th – 20th centuries, often born of violent acts resulting from splits. They are *avant tout* « fields of power» (Bourdieu, 2001). Machlup and Mansfield (1983: 9) observed that "splitting, or fission, of academic disciplines has been observed for over two thousand years". Positivist scholars demarcated clearly between chemistry, biology, physics and medicine. However, chemistry was a spin-off of physics and the two later remerged to form physical chemistry. Other splits and mergers occurred in the life sciences. Today chemistry can no longer ignore particle physics and since the discovery of the DNA, biology and medicine are dabbling into chemistry. Emerge then new (inter-)disciplines like biochemistry, bio-informatics, statistical physics, information systems theory that try to re-establish bridges between subject matters that were arbitrarily wrenched apart in the course of disciplinary warfare. Artificial Intelligence, Shannon's information theory and large chunks of computer science were born of the melting pot of ideas generated by cybernetics even if the latter consequently fell into disrepute. Nevertheless, all its descendants are subject to recurring debates on their disciplinehood and their position *vis-à-vis* other sciences. Allen Newell (1983: 188) founder of AI observed that his field was often accused of lacking theories and being essentially empirical in nature. Medicine is more of an art because "not only does it not meet the formal criteria nor the level of rigor one sees in physics, chemistry or even in physiology; but also because it is made up of a messy heap of empirical observations, trials, raw results, recipes, therapeutic prescriptions and institutional rules." (Foucault, 1969: 244).

Hence, "The disciplinary structure of science is a crazy quilt. Disciplines emerge and extend, shrink and disappear, merge and fracture, overlap and surround." (Allen Newell (1983:99).

The resulting hyper-specialisation from these artificial splits between disciplines in the 19th century creates difficulties: it hampers the mutual understanding of divergent approaches deployed by different disciplines to study a common object; it also hinders us from taking an interest on the history of the sciences and therefore becoming aware of questions arising in other scientific disciplines and how they are being tackled. Interestingly, Oustinoff (2013) recalled that the etymology of the word discipline bears mostly negative or normative connotations such as "punish, conform, comport oneself, doxa, learn, teach, docile, seem, give good impression, etc.)

Interdisciplinarity thus appears as an attempt to weld back subject matters that have been arbitrarily separated due to disciplinary warfare, with every discipline wanting to have its own turf (or *chasse gardée*).

Indeed, it is an accepted fact that discoveries and innovative work tend to take place at the borders of constituted discipline. Unfortunately, at the same time, institutions of higher learning and research evaluation agencies are busy erecting disciplinary borders within which scholars are shackled and asked to cast their research, thus hampering the very thing which stimulates discovery and innovation: *in*discipline and interdisciplinary dialogue (Besnier & Perriault, 2013). Hubert Curien (cited in Edgar Morin, 1999), a former French Minister of Research and a renowned physicist, compared scientists to wolves: they urinate to mark their territory and they bite any intruder who penetrates into it.

The aim of this panel is to stimulate a very provocative discussion around these issues by bringing together an array of young researchers involved in practical or applied research who will confront the theoretical discourse on inter- multi- pluri- trans-disciplinarity to their research practices. The questions they will aim to answer are:

1. Does the theoretical discourse on inter-, multi- trans- or pluridisciplinarity have any bearing on their areas of research. When put to the test of the realities of the terrain, does it resist?
2. Does it matter? Is this really a problem?
3. Is inter-, pluri- trans- meta- or multi-disciplinarity

something to be combated or to be afraid of?

4. Is LIS alone in this issue or is it something that transcends any one scientific field?

A second array of more senior researchers who have written on the issue will respond to these viewpoints.

Although some ASIST panels have been devoted to disciplinary boundaries issues (Aparac, Ibekwe-SanJuan, Huvila *et al*., 2013) and to the interdisciplinary nature of LIS (Hartel, Fuller, Szostak & Boninci, 2012), to the best of our knowledge, none has dealt with the issue in such a provocative manner and questioned the commonly held belief that LIS is interdisciplinary. Even in the case where this has been dealt with, it still remains an open and unfinished issue that keeps recurring as disciplinary boundaries shift and research practices evolve.

FORGET INTERDISCIPLINARITY; FORGE COMMUNITY (MELANIE FEINBERG)

When I began my doctoral education in 2004, I was immediately set to read a seemingly endless array of articles discussing the question "Information science: science or social science?" This question seemed both so meaningless and so far from my own concerns (I did not then, and do not now, consider myself either a scientist or a social scientist) that I experienced a brief panic: had I made a horrible decision? Would it be better for everyone if I just quit now? In the midst of my distress, I happened upon my advisor; he sympathetically laughed, told me that I wasn't the first person to feel that way, and wisely counseled me to assimilate such debates, but then ignore them. I shouldn't worry about fitting in but do whatever the hell I wanted to do. I have taken this advice, and I have generally profited from it. I have been fairly successful in taking an object of traditional interest to information studies (knowledge organization systems) and exploring it with various modes of inquiry (primarily design and humanities), in conjunction with literatures from multiple disciplines (including rhetoric and composition, literary studies, and human-computer interaction). However, while I still don't care about classifying my work within a discipline (ironically, perhaps, for a classificationist), or about classifying it as interdisciplinary in any firm or defined way, I do find myself caring about such matters in general, more than I perhaps did in the past. Why? Because operating within an undefined disciplinary space is hard work, and it is lonely too. My senior colleagues tell me to find allies in my home community, but I do not know what that is. Once again, I wonder if I have made a horrible mistake. If debates about inter (or meta, or trans, or multi, or pluri) disciplinarity matter, it my suggestion that they matter to the extent that they enable us to establish alignments and relationships between people with diverse commonalities of interests, to build a community of broad understanding and hospitality. To me, this means resisting the impulse to create definitions, boundaries, and taxonomies, which are helpful to those who find a place inside them, but not to those who don't. Instead of debating about whether information studies is this, or that, or both, or neither, we might focus our energies on creating inclusive communities to support discovery of our deeper affinities.

THICK MODEL OF INTERDISCIPLINARITY (RYAN SHAW)

In my own work I try to enact a "thick" model of interdisciplinary studies, along the lines described by Alan Liu in his essay "The Interdisciplinary War Machine" (2008). Liu argues that the value of interdisciplinarity is not in providing access to some new, "transcendent" space of knowledge, but in providing figurative or representational support for disciplinary knowledge. He identifies two ways in which this happens. In the first, what he calls the "thin" interdisciplinary studies model, other disciplines validate some home discipline by providing paradigms that seem to dovetail with ideas in the home discipline. These "outside" paradigms provide validity precisely because they are not subject to the standards of the home discipline, and so they can be treated as intuitive or natural. So, for example, this is how we often see computer scientists use economics, economists use sociology, or sociologists use history: as some external truth that can simply be pointed to in order to validate one's own points, without the messy business of having to be validated itself (because such validation by definition occurs outside of one's own discipline). Ron Day (2010) has described this phenomenon in LIS as the "domestication" of external paradigms. A "thick" model of interdisciplinary studies, on the other hand, properly leads to an undermining of the home discipline's sense of valid knowledge. One comes to see one's own standards and practices as just another approach, rather than a foundation grounded in truth. As Liu puts it, "few of us today have any knowledge anymore; we all have approaches instead." The deeper one becomes involved in interdisciplinary work, the more one becomes aware of the fragmentary and fleeting nature of all knowledge. And this is a positive thing. It opens the door to understanding that the paradigms, methodologies, theories, standards and rules that govern disciplinary work are not the only possible ones, that there are always new gaps between approaches, gaps that might be bridged by other, new configurations of boundaries (thereby opening new gaps). Just because we can never transcend such boundaries doesn't mean we can't explore different arrangements of them, can't try to find formations that are better or worse at meeting the demands of the present situation. What thick interdisciplinarity requires above all is humility, an acceptance that we don't have the answers.

FOR PROGRESS'S SAKE, IDENTITY MATTERS (SACHI ARAFAT)

I will contend that a foundations discourse on the nature of LIS, as to what kind of discipline it is or should or ought to

be, and how it is related to other disciplines, is necessary for the coherence of explanatory and interpretive discussions of the phenomena we find relevant for study - which we then effect through our practices and created technologies. In addition, I contend that since the phenomena we are interested in are becoming more complex, diverse and expansive - due to the pervasiveness of information seeking technologies, that a foundations discourse clarifying the corresponding ontological, epistemological and ethical positions on which our claims are based, is even more necessary for progress. Finally, I would claim this inclination for self-understanding in LIS, while existent in most disciplines in some form, would have implications 'outside' of LIS since LIS partakes in the social and mathematical sciences as well as the humanities.

PROBLEMS AND DISCIPLINES (MICHAEL BUCKLAND)

Each discipline is characterized by a distinctive and, therefore, limited methodological approach. However, problems that matter to society are usually complex, with cognitive, social, economic and technological aspects. Addressing real needs ordinarily requires one to use more than one method, so focusing on any single discipline will generally be inadequate for useful research addressing significant practical problems. So it is best to insist on the need to be methodologically versatile and, if need be, to speak of a "field" or a profession rather than a discipline. Problems are not disciplines, but disciplines can be problematic.

INTEGRATING THEORY AND PRACTICE (JULIAN WARNER)

We address panel concerns with political power and disciplines, acknowledging disciplines as fields of power and recognizing that each discipline may want to have its own turf (or *chasse gardée*). Similarly, we try to sustain the crucial humility, which accepts that we do not have the answers, but can recognise and discriminate between, as necessary, different approaches. Disciplinary fortunes are understood as politically constituted, but not reducible simply to outcomes of political power struggles, following Collins (1998).

> 'We need not fall into a Platonism of eternal essences to avoid the polemical simplification of reputation to sociopolitical dominance; there is a social construction of eminence which does justice to the inner processes of intellectual life.' (Collin, 1998, p.xvii)

The fate of certain theories relevant to information science forms the particular focus of study. Theories traceable to Norbert Wiener's perspective on information technology as constituting a second industrial revolution, encapsulated in his remark that 'the automatic machine… is the precise economic equivalent of slave labor' (Wiener, 1954, p.162), and also reflected in Marvin Minsky's observation that, 'We are now immersed in a new technological revolution concerned with the mechanization of intellectual processes' (Minksy, 1967, p.2), have recently been re-awoken. Theoretical concepts developed to do with the contrasts between human mental labor and machine computational processes have been tested against information retrieval and developments in copyright. They have proved robust and revealing. At this stage the re-application of early insights represents a slightly isolated revival.

The concepts draw on an extensive disciplinary base, in particular transcending the divide between the discursive and formal disciplines. There is some evidence of emerging intra and extra disciplinary diffusion and of some, apparently independent, extra disciplinary convergence in interests in mental labor and its relation to information technology.

In conclusion, it is agreed with Collins, that, 'truth, when it exists, is inevitably a phenomenon of the human world' and that truth arises in social networks (Collins, 1998, p.877). It is suggested that the explanatory power of a theory constitutes a significant basis for the future politically influenced development of disciplines to which that theory is strongly relevant. The survival and continuity of disciplines can still be understood in political terms, with the extent of extra-disciplinary connections being particularly significant. Information science is considered in relation to these themes.

BIOS

SACHI ARAFAT is a Royal Academy of Engineering Postdoctoral Research Fellow working on the foundations of information retrieval and science. His doctoral thesis was the first to focus on the use of quantum theory for information retrieval. Since then he has been trying to understand the nature of IR and IS with respect to their basic problems.

MICHAEL BUCKLAND is Emeritus Professor in the School of Information, University of California, Berkeley. He worked as a librarian in England and the USA before becoming a professor and academic administrator. He was President of ASIS in 1998 and has written widely on the history and theory of information science and the practice of librarianship.

MELANIE FEINBERG is an assistant professor in the School of Information at the University of Texas at Austin. Melanie's research emphasizes the nature of document collections and datasets as things we make, and she seeks to understand the mechanisms through which our human hands shape the descriptive infrastructure—metadata—that forms the character of collections as written texts. She has published her work in both information studies journals and in human-computer interaction conferences, with preliminary forays into digital humanities.

FIDELIA IBEKWE-SANJUAN is Associate Professor in at Jean Moulin University, Lyon – France. She has been a member of the SIG F/HIS since 2009 and the chair of the

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RYAN SHAW <http://aeshin.org/> is an assistant professor in the School of Information and Library Science at the University of North Carolina at Chapel Hill, where he teaches courses on information organization, Web architecture, and digital humanities. He studies how people use information systems to conceptualize and model their worlds and pasts.

JULIAN WARNER is a faculty member at the Queen's University Management School, Northern Ireland, United Kingdom, where he teaches courses in the human aspects of modern information and communication technologies and in information policy. He has been a visiting scholar at the Universities of California at Berkeley, Illinois, and Edinburgh. He has research interests in creativity for copyright, information retrieval, in the connections between writing and computing, and in understanding current and recent transitions in information and communication technology as the mechanization of mental labor. He has published a number of journal articles in information science and four books, the first of which was translated into Japanese and noticed by Microsoft Japan. His most recent publications are Creativity for Feist, Journal of the American Society for Information Science and Technology, 2013, and, Human Information Retrieval (Cambridge, MA: MIT Press, 2010).

NOTE:

This panel session is sponsored by ASIS&T's Special interest Group 'History and Foundations of Information Science' (SIG/HFIS) and co-sponsored by Education for Information Science (SIG-ED). It reflects concerns with history and theoretical foundations of Information Science *as a whole*. It is expected to be of interest to members of all SIGs, LIS scholars and doctorate students. As such, it does not fall tidily into any single themed track.

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