



Plugging the 'Whole': Librarians as Interdisciplinary Facilitators

Jeffrey Knapp
Penn State University, Altoona
Altoona, Pennsylvania, USA

Meeting:

142 — Libraries beyond libraries; integration, innovation and information for all — Social Science Libraries Section

Abstract:

Interdisciplinary research is a growing and continuing movement that has great potential for addressing specific problems in society. There are numerous obstacles to engaging in interdisciplinary research, and librarians can assist their constituents in getting around these obstacles. By doing this, they can carve out a new niche for themselves and strengthen their roles in the academy.

Introduction

Interdisciplinary research is by no means a new phenomenon. Hailed by some as the future of knowledge, interdisciplinarity has been discussed in some way since the early 20th century (“interdisciplinary,” 1989) and was accelerated by the creation of the social sciences at around the same time (Klein, 1996, p. 8).

Whether it is truly the future of knowledge, or an exaggerated fad, there are clearly some benefits and advantages that interdisciplinary research can offer our world. This by itself makes it a worthwhile issue to examine in the context of librarianship. This paper will look into ways that librarians can facilitate interdisciplinary research, and how they can use this new research trend to expand their role in academia.

Terminology

First, however, a brief discussion of terminology is in order. “Interdisciplinary,” as a term, can be traced back as far as 1937 according to the *Oxford English Dictionary*. In this definition, it is described as simply “Of or pertaining to two or more disciplines or branches of learning; contributing to or benefiting from two or more disciplines” (“interdisciplinary,” 1989). This is probably the definition that comes to mind of most casual users of the term.

Klein, however, has added deeper resolution to the term's definition, breaking it down further into the subgroups of "multidisciplinarity," "interdisciplinarity," and "transdisciplinarity" (Klein, 2005). In Klein's view, "multidisciplinarity" refers to situations where separate disciplinary approaches are utilized around a common research interest, but the approaches remain separate and distinct, and disciplinary boundaries are not crossed. Conversely, Klein describes true "interdisciplinarity" as an integration of the different disciplinary approaches to solve a common problem or issue. Over time, interdisciplinary fields tend to form their own bodies of knowledge, often resulting in the publication of new specialized journals (2005, p. 1035). "Transdisciplinarity" is described by Klein as a sort of bridging approach that "transcends the narrow scope of disciplinary worldviews," and gives as examples broad fields of study such as geography and area studies.

For purposes of this paper, interdisciplinarity will be defined in its broadest terms. Although Klein's distinctions are important for studying interdisciplinarity itself, this paper will address ways that librarians can facilitate the process of interdisciplinary research in whatever form that it takes.

Importance of Interdisciplinary Study

Although interdisciplinary research is often identified as being part of a new wave of the future, some may be surprised to discover that it has been around for quite some time. In his introduction to *Interdisciplinary Relationships in the Social Sciences*, a collection of lectures delivered at a 1967 Symposium on the topic, Sherif argues that interdisciplinary borrowing is not new, and that even in 1967, the natural and physical sciences were borrowing from each other (1969, p. xii).

In this same volume, Milgram weighs in on the benefits of interdisciplinary research. He states "When a social scientist frees himself from the narrow grooves of his academic discipline, a new range of intellectual problems is made accessible to him, and new paths of inquiry open" (M. Sherif & C. W. Sherif, 1969, p. 103). Scholars, by nature, tend to focus and specialize. The most reliable way they can make new contributions to the body of knowledge in their disciplines is by discovering a very specific niche that has been relatively unexplored, and specializing in it. Focus and specialization are indeed necessary to solve intellectual problems presented in advanced research, but proponents of interdisciplinary research often argue that we must be receptive to these "new paths of inquiry." If we are not, we run a risk described by Maslow: "I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail." (1966, p. 15)

Interdisciplinary studies have a high potential for new discoveries and the advancement of knowledge. New perspectives from scholars of different academic backgrounds usually provide at least a spark in igniting new advancements. There are many examples of success resulting from interdisciplinary methods in research both within the social sciences and without. Calhoun and Marrett note a few of these, including the use of immunology and anthropology in HIV/AIDS research, population studies of the health of aging populations, and the studies of the relationship between heart disease and social factors (Kessel, Rosenfield, & Anderson, 2003, p. vii). Overall, however, Salter and Hearn sum it up best by saying that interdisciplinary research is important from the practical perspective: "research is interdisciplinary because many research problems cannot easily be addressed from within the confines of particular disciplines. They require the concerted efforts of many people, each reflecting a different perspective." (1997, p. 3)

An excellent example of an important new realm of interdisciplinary studies is Quaternary Science, the study of the last two million years of the earth's history (the Quaternary Period) in which a great deal of global climate change took place (Porter, 2006). Quaternary Science incorporates many different academic disciplines, including anthropology, geology, climatology, paleontology, and oceanography. Using knowledge and approaches from all of these varying disciplines, and threading them together in new ways, scholars in this area have uncovered new observations about humankind's effect on the environment, changes to the earth's climate, and how life on earth has responded historically to such changes (Porter, 2006). Where knowledge gaps arise in one discipline, other disciplines step in to try to fill. Quaternary Science is a good example of how interdisciplinary research is often focused on problems, and using whatever disciplinary approaches work best at solving them, rather than staying tied to one discipline's approach.

Caruso and Rhoten follow in this line of thinking, by saying interdisciplinary research "increases the explanatory power, the immediate relevance, and the practical applicability of research for solving real-world problems" (2001, p. 6). The issue of "explanatory power" for science is very important when one considers the resistance that policy makers in the United States have experienced in addressing climate change issues. Regardless of the oceans of data that scientists might produce, it is difficult to imagine it spurring political action unless the average voting person believes what the scientists are saying. Interdisciplinary research may be able to increase the explanatory power of scientists so they can better explain the very complex issues involved in their research to convince the necessary people to act.

Interdisciplinary research is not without its critics. Some have called it "parasitical" and argued that is a poorly defined concept that is difficult to implement in real-world conditions (Hansson, 1999). Others point out that calls from university administrations can be viewed as mere cost-cutting exercises, e.g., combining two academic departments into one to cut down on staff overhead, and that interdisciplinarity is simply not the best method in all cases (Davis, 2007). In addition, it must be understood that interdisciplinarity is difficult, if impossible, to measure. It is not something that can be quantifiably shown to produce better, or even different, results from intra-disciplinary research (Jacobs & Frickel, 2009, p. 48). All of these arguments are well founded and deserving of consideration. The purpose of this paper is not to promote interdisciplinary research exclusively, or to attack the existing structure of disciplinary organizations in academia, but to encourage an understanding of it and promote new ways for librarians to serve their constituents.

Obstacles to Interdisciplinary Research

In order to better understand interdisciplinarity overall, one must review what have been identified as the obstacles to its practice. Since the issue of interdisciplinarity is usually framed in terms of being an alternative to the existing structure of disciplines, the issue most frequently cited as an obstacle is differences in disciplinary cultures. For graduate students, interdisciplinarity can add an additional level of complexity on top of the already daunting requirements in their own disciplines (Graybill et al., 2006, p. 763).

Finding publication venues in a different discipline can be a difficult task, particularly if it is a new field (which many interdisciplinary fields are) that does not have an established hierarchy of journals willing to consider publishing their work. Furthermore, the differences in disciplinary cultures involve differences in methodology and approach, as well as communication problems between scholars of different disciplinary backgrounds (McNicol,

2003, p. 27). The same concept is often identified with different terms across different disciplines, or even more confusingly, sometimes identical terms actually describe different concepts (Spanner, 2001, p. 356). Newer faculty just starting out are also concerned with doing the kinds of research that will impress their tenure committees, and accurately describing interdisciplinary research to these committees can be a risky proposition for those trying to keep their jobs.

Some examples of cultural differences in the disciplines can be found in the very things academic librarians work with all the time: scholarly publications. In some fields, the monograph is the more valued type of publication (such as in the humanities), whereas in other fields (such as the social sciences), refereed journal articles are more valued. Similarly, in some fields it is understood that the order of the authors' names denote something about the amount they contributed; in others, the authors are listed alphabetically (National Academies, 2005a, p. 75). This is information that is not readily apparent to a researcher trying to get familiar with a different discipline.

Financial considerations are also an important obstacle. Although funding is available for interdisciplinary research, and public funding for it has been increasing (Rhoten, 2004, p. 8), it still cannot match the amount of funding available within the traditional disciplines. Even when funding is available, the interdisciplinary researcher can often encounter trouble in identifying funding sources and navigating the grant-writing process.

The cultural issue of "extending oneself into unfamiliar territory" (Spanner, 2001, p. 355) can also make it a challenge to find people to work with. Finding colleagues from other disciplines interested in working on an interdisciplinary project, who are similarly willing to overcome the aforementioned obstacles, can make for a difficult endeavor, although it appears that younger faculty are more willing and interested in this than their more established colleagues (Rhoten, 2004, p. 8)

Interdisciplinary researchers are in need of "connectors," people and resources that can make it easier for them to connect to the greater overall body of research and knowledge, and people willing to make the necessary introductions for collaboration (Rhoten, 2004, p. 11). Physical space for such collaborations is also necessary and not always available (National Academies, 2005b, p. 85) —and while this may not be an issue in all cases, it certainly is if laboratory space is required.

Future of Librarianship?

There is no shortage of opinion on what the future of librarianship is, from both inside and outside of the profession. While librarians know that they still have much to offer their constituents, it is not always clear whether the constituents know it. Even among faculty with the best of feelings about their libraries, it seems the frequency with which they actually consult with their librarians is going down.

The intention here is not to predict the demise of librarianship, but to acknowledge that librarians (and perhaps all professions, these days) cannot afford to assume that society understands their contributions and that they must always be looking for new ways to add value to the academic enterprise. As the academic environment changes, librarians who know they can contribute must constantly be looking for new niches to exploit, and provide necessary services to remain relevant to their constituents.

It is clear that librarians are no longer the “gatekeepers” of knowledge (Fletcher, 2001, p. 6). Questions that required a trip to a library even 15 years ago can now be answered instantaneously on a mobile phone. Even six or seven years ago, librarians found comfort in the fact that people would still need libraries for older, historical works, because it would simply be too costly and impractical to scan all the world’s books—and then Google started doing just that with the Google Books project. Online searching is delivering increasingly competent results, even for scholarly research (using resources such as Google Scholar). And for undergraduates being introduced for the first time to using scholarly library materials, “discovery services” such as Summon[™] from SerialsSolutions are making it easier than ever to find books and articles scattered among the maze of separately licensed content providers offered on library web sites. Librarians must assume that at some point in the future, that online resources will be able to deliver results that are good enough for their academic constituents without any assistance from a librarian.

It may seem ironic to mention in a paper about librarians and interdisciplinarity, but librarians actually owe a lot to the existence of different disciplines. The very act of classifying and cataloguing units of knowledge, such as books and articles, using complicated and precise rules, is very disciplinary in nature. The complexity of this system is what traditionally required the services of a professional to navigate it effectively, before the advent of electronic means of retrieval.

The following is a quote about librarianship that was posted on Lane Wilkinson’s blog, *Sense and Reference* (2011):

As it appears from the outside, the profession itself is now unsure of what its functions are and unsure also of just how to go about performing whatever functions are assigned to it or that it adopts. This state of affairs seems to me to be entirely understandable in the light of certain developments that affect not merely the profession but our society as a whole. (Kaplan, 1964, p. 295)

The fact that this quote is from 1964 shows that concerns about the direction and future of librarianship predate the dawn of the Internet. But in this same article, Kaplan, a philosophy professor, discusses the many similarities between philosophy and librarianship:

Like your profession, mine also has thrust upon it, as its appropriate domain, the whole of knowledge, the whole of culture; nothing is supposed to be foreign to us, and we ought to be prepared under suitable circumstances to be helpful with regard to any and every area of human concern. Like you, we cannot even begin to occupy ourselves with the substance and content of this endless domain, but only with its form, with its structure, with its order, with the interrelations of the various parts. (1964, p. 304)

It is the “whole” that is the focus of this paper. Regardless of whether printed books cease to exist, or whether every scrap of human knowledge is posted for free on the Internet, librarians can still provide a necessary service: promoting the “whole;” the broad view. Whether researchers want to call it “interdisciplinary” or not, it is an important to help researchers see how different forms of knowledge interact, how they are related, and understand when it might be appropriate to broaden their searches. Since interdisciplinary research is taking on added significance, however, it is an important new area, and a new “academic need” that librarians are uniquely qualified to address.

Facilitating Interdisciplinary Research

There are a number of specific areas in which librarians can focus their energies in order to facilitate interdisciplinary research at their institutions.

The issue of physical space being needed by researchers working outside of their traditional discipline is one that could potentially be addressed by libraries. The “Knowledge Commons” or “Information Commons” concept has taken hold at many academic libraries to provide a new kind of workspace for undergraduates. A key component of the Knowledge Commons concept in libraries is to offer open seating, where students can gather and meet to work on group projects, in addition to having access to all of the library’s knowledge resources. A similar idea could be implemented for faculty and graduate students, offering meeting rooms, technology, and presentation spaces. This would create a central space—a place where the libraries could function as a central core of their college or university.

Librarians can also foster collaboration in a social sense. Aside from reaching out to academic departments at their institutions, librarians can host programming and social functions that bring faculty together from different disciplines. An example that has had some success at the author’s college is an “Academic Book Club,” where faculty would gather during a common hour each week to discuss an academic book. Such a gathering has the potential, with its relaxed setting, to allow researchers from many different areas to discuss their unique perspectives on the book’s subject.

A way that librarians can get personally involved in interdisciplinary research is by offering their services to faculty members in preparing literature reviews for research projects they are working on. The librarian can get involved in a team of researchers and discuss a librarian’s unique perspective. Other faculty researchers can be surprised by the researching capabilities of librarians, and their ability to locate relevant topics not previously considered. In providing literature-searching services, librarians can also provide the often-needed cross-disciplinary vocabulary translations for their fellow researchers.

Interdisciplinarity and Collections

Spanner notes that collection development is a serious concern to interdisciplinary researchers (2001, p. 359). One reason for this, he states, is that newer interdisciplinary fields do not communicate new knowledge in the same way as traditional disciplines. Newer fields tend to rely more heavily on conference proceedings rather than journals, and with shrinking budgets, it can be hard to justify subscribing to newer journals without an established reputation (2001, p. 357).

While establishing separate budget lines for collections in interdisciplinary areas would seem to be the best course of action, rigid collection statements are recommended. Spanner gives the example of a women’s studies budget being created, only to have selectors from other areas wanting to use it for specious reasons (books that were written by a woman, or have “woman” in the title, etc.) (2001, p. 358).

Many universities have separate interdisciplinary research centers set up to work on specific problems. These are areas that librarians should consider setting up a liaison relationship with. If the research center has a specific librarian to contact, they may be more likely to contact that person with their specific needs.

Interdisciplinarity and Cataloging

No cataloging system is perfect. Cataloging is a descriptive framework for the items in a collection, and no matter how good it may be, it can never completely replace the experience of having the item in front of you. Subject headings and call numbers have evolved along with the disciplinary structure of academia and therefore are of help only to the interdisciplinary scholar who understands the disciplines she/he is crossing.

The main difficulty in providing a classification system that would help the interdisciplinary researcher is the varying vocabularies between disciplines for the same or similar concepts. Existing subject terms tend to focus on what a knowledge resource is “about,” while interdisciplinary research questions tend to focus on larger societal problems, which are not as well served by “about-ness.” Szostak advocates a “universal” classification system that would enable scholars from different disciplines to be able to access the same documents equally. His proposed system would still be hierarchically ordered, and use exclusive terms for precise definitions, but his classification would provide definitions based on either their essence or function, rather than what a document is “about.” (Szostak, 2008, p. 323) His system does not require a destruction of current classification systems, but an expansion. Szostak cites Weinberg (1988) in describing the situation of scholars (particularly interdisciplinary scholars) who are interested in seeing if a particular theory or scientific method has ever been applied in the study of a phenomenon. They will have no problem finding material “about” the phenomenon, but the search for methods and theories will be more convoluted (Szostak, 2008, pp. 320-321).

The creation of a new system of classification based on Szostak’s recommendations seems to be an unbelievably large undertaking. However, it would be interesting to see if some sort of “crowd-sourced” system could be created that could utilize a large community of scholars to “tag” (i.e., attach subject headings to) knowledge resources using the guidance Szostak and others suggest. Functions such as tagging can create an entirely new lexicon for subject headings that flow “from the bottom up,” i.e., from the users into the catalog, rather than “from the top down,” i.e., from the professional catalogers down to the users. Such user-generated tags should not *replace* controlled subject headings, but rather complement them. Allowing users to “tag” items by adding their own descriptive terms to catalog records will also provide better findability to interdisciplinary materials by more immediately incorporating new terminology into catalog records. This would be an interesting area for further research.

Conclusion

Librarians must reconsider their role in the academic enterprise and reach out into new areas. They need to promote the “whole” and be able to find threads of relevance between seemingly disparate disciplines. Interdisciplinary research is a growing movement that deserves support. Librarians are uniquely qualified to play a central role as “connectors” in this movement. By connecting closely with their academic departments, reaching out to interdisciplinary research centers, and working with some of the obstacles interdisciplinary researchers face, librarians can strengthen their role in the academy.

References

- Caruso, D., & Rhoten, D. (2001). *Lead, Follow, Get Out of the Way: Sidestepping the Barriers to Effective Practice of Interdisciplinarity* (White Paper) (p. 29). Hybrid Vigor Institute. Retrieved from http://www.hybridvigor.net/interdis/pubs/hv_pub_interdis-2001.04.30.pdf
- Davis, L. J. (2007). A Grand Unified Theory of Interdisciplinarity. *The Chronicle of Higher Education*, 53(40), B9.
- Fletcher, P. D. (2001). Libraries and the Internet: New roles for librarians in the networked world. *The Electronic Library*, 19(1), 5-7.
- Graybill, J. K., Dooling, S., Shandas, V., Withey, J., Greve, A., & Simon, G. L. (2006). A Rough Guide to Interdisciplinarity: Graduate Student Perspectives. *BioScience*, 56(9), 757-763.
- Hansson, B. (1999). Interdisciplinarity: For What Purpose? *Policy Sciences*, 32(4), 339-343. doi:10.1023/A:1004718320735
- interdisciplinary. (1989). *Oxford English Dictionary Online*. Oxford: Oxford University Press. Retrieved from <http://dictionary.oed.com/cgi/entry/50118985>
- Jacobs, J. A., & Frickel, S. (2009). Interdisciplinarity: A Critical Assessment. *Annual Review of Sociology*, 35(1), 43-65. doi:10.1146/annurev-soc-070308-115954
- Kaplan, A. (1964). The Age of the Symbol: A Philosophy of Library Education. *The Library Quarterly*, 34(4), 295-304.
- Kessel, F. S., Rosenfield, P. L., & Anderson, N. B. (Eds.). (2003). *Expanding the Boundaries of Health and Social Science: Case Studies in Interdisciplinary Innovation*. Oxford•; New York: Oxford University Press.
- Klein, J. T. (1996). *Crossing Boundaries: Knowledge, Disciplinarity, and Interdisciplinarity*. Charlottesville, Va.: University Press of Virginia.
- Klein, J. T. (2005). Interdisciplinarity. (C. Mitcham, Ed.) *Encyclopedia of Science, Technology, and Ethics*. Detroit: Macmillan Reference USA. Retrieved from <http://go.galegroup.com/ps/i.do?id=GALE|CX3434900360&v=2.1&u=psucic&it=r&p=GVRL&sw=w>
- Maslow, A. H. (1966). *The Psychology of Science: A Reconnaissance*. South Bend, Ind.: Gateway Editions, Ltd.
- McNicol, S. (2003). LIS: The interdisciplinary research landscape. *Journal of Librarianship and Information Science*, 35(1), 23-30. doi:10.1177/096100060303500103
- National Academies (U. S.). Committee on Facilitating Interdisciplinary Research. (2005a). The Academic Researcher and Interdisciplinary Research. *Facilitating Interdisciplinary Research* (pp. 61-83). Washington, D.C.: National Academies Press.
- National Academies (U. S.). Committee on Facilitating Interdisciplinary Research. (2005b). How Academic Institutions Can Facilitate Interdisciplinary Research. *Facilitating Interdisciplinary Research* (pp. 84-113). Washington, D.C.: National Academies Press.
- Porter, S. C. (2006, March 15). About INQUA: Quaternary Science. *INQUA: International Union for Quaternary Research*. Retrieved June 28, 2011, from <http://www.inqua.org/about.html>
- Rhoten, D. (2004). Interdisciplinary Research: Trend or Transition. *Items & Issues*, 5(1-2), 6-11.

- Salter, L., & Hearn, A. M. V. (Eds.). (1997). *Outside the Lines: Issues in Interdisciplinary Research*. Montreal: McGill-Queen's University Press.
- Sherif, M., & Sherif, C. W. (Eds.). (1969). *Interdisciplinary Relationships in the Social Sciences*. Chicago: Aldine.
- Spanner, D. (2001). Border Crossings: Understanding the Cultural and Informational Dilemmas of Interdisciplinary Scholars. *The Journal of Academic Librarianship*, 27(5), 352-360. doi:16/S0099-1333(01)00220-8
- Szostak, R. (2008). Classification, interdisciplinarity, and the study of science. *Journal of Documentation*, 64(3), 319-332. doi:10.1108/00220410810867551
- Weinberg, B. H. (1988). Why Indexing Fails the Researcher. *The Indexer*, 16(1), 3-6.
- Wilkinson, L. (2011, June 3). Sense and Reference: The Age of The Symbol (Essential Readings in the Philosophy of LIS). *Sense and Reference*. Retrieved June 23, 2011, from <http://senseandref.blogspot.com/2011/06/age-of-symbol-essential-readings-in-lis.html>