

## **Crossing Boundaries: Facing the Challenges of Library Instruction and Research for Evolving Interdisciplinary Topics**

### **Introduction**

What is interdisciplinarity, and why should academic librarians care? I suspect that each of us works with interdisciplinarity on some level, whether it be a new program or a particular course, whether at the reference desk or in class. Increasingly, as new fields and perspectives emerge from the strengths of other disciplines, research librarians are faced with the often tricky challenge of educating students on how best to find research on their new and emerging topics. And this challenge is not going away—new programs and fields of research are burgeoning across university campuses everywhere as scholars seek understanding of topics that are often too broad for one academic discipline to cover alone, such as climate change, child poverty, or terrorism.

An openness to new, different, and unconventional approaches and methodology is essential in being able to deliver meaningful information literacy to the student pursuing interdisciplinary research. Librarians must be ready to face this challenge. This paper, then, seeks to address the rise in interdisciplinary programs and research on university campuses, their impact on libraries, and discuss a number of methods of dealing with the complexities involved in helping students try to access information from across multiple departmental lines.

### **Literature of Interdisciplinarity**

Mohanan and Mohanan (2001) articulated a framework designed to aid our understanding of disciplines by challenging us to develop a “portrait” of an academic discipline (p. 2), revolving around the nature of disciplinary knowledge, theory, and methodology, or, in short, a discipline’s “modes of inquiry.” Salter and Hearn (1996) discuss the rise of interdisciplinarity, the various ways it has been defined, and the ways it can be applied and practiced within academia. Their work goes a long way to address what they bemoan as our general lack of uniformity in our interpretation of interdisciplinarity. I will draw on these two main sources for my own understanding and discussion of interdisciplinarity.

However, as the nature of interdisciplinary study and research has been well discussed by these and other scholars (many of whom can be found in this paper’s references), there is no discussion of interdisciplinarity from the perspective of libraries. This striking oversight becomes that much more poignant when we consider the library’s essential role in academic research, the professional expertise librarians have to contribute to information use, and our role as major stakeholder in the educational process. Thus it is important that we look at the topic of interdisciplinarity so as to inform ourselves of the related issues, as well as to stake a (disciplinary?) claim in the overall interdisciplinary research process.

### **Disciplines**

In a way, one can think about most academic disciplines, including traditional ones, as being at the time of their creation interdisciplinary. Often, new disciplines start out as interdisciplines, evolving out of a need to address new topics, methods, and points

of view that are not being covered by established fields. From the beginning, curricula were constructed along disciplinary lines. That is to say, academic knowledge has always been conceived as a collection of distinct subjects, each dealing with a unique area of thought, with each discipline seeking to answer or solve different questions or problems.

However, not all disciplines of course evolve(d) at the same time. Disciplines tend to emerge out of perceived need. The various disciplines we see today as the traditional, established ones, the ones that are common to just about all universities each developed on their own to fill in space that was left unattended by established disciplines, just as did more recent ones, like Librarianship, Sociology, Computer Science, and Environmental Studies.

It is important to keep in mind, though, that field-specific scholarship is more than merely covering distinct subject areas. Disciplines conduct their study and research in direct relation to disciplinary standards of method and theory, in addition to subject-specific content. A discipline's method and theory define the scope, approach, and interpretations of research. So, each discipline has its own unique set of methods regarded as legitimate to the discipline. Thus the library's use of rationalism in order to organize information by media and along subject-specific lines is a method and way of thinking that we librarians apply to our field's work. It is important to keep in mind that "in addition to learning the *knowledge content* of these disciplines, students learn *how to think* like" these individual disciplines (*What is KMI?*, 2001). We can think of our students studying a discipline as being taught a "mode of thinking." As students acquire a discipline-specific education, they develop a discipline-specific "mode of inquiry": that is, the research paradigms, data collection, and analysis methods particular to that discipline. The methodology of the research becomes unique to each field. Students learn how to "think" according to a discipline; that is, developing a discipline's mode of inquiry.

### **Interdisciplinarity**

How to define interdisciplinarity? First of all, I think it is a few things. A word that is a good analogy to describe it is Dogan (1997)'s notion of "hybrid." As he explains it: "Between neighbouring disciplines there are empty spaces or unexploited lands open to interaction between specialties and research fields, by hybridization of branches of science." Interdisciplinarity, then, shows itself in a number of ways, including when a discipline takes on a new topic of study, usually through its own discipline's lens; a new discipline develops out of a specific need not met by existing disciplines; and when a topic incorporates elements of more than one discipline, such as language, methodology, literature, perspectives. Interdisciplinarity speaks to drawing insights from two or more academic disciplines, and integrating and synthesizing them into a new whole. It tends to emerge on the fringes of two or more disciplines, filling in the gaps, so to speak between disciplines, or borrowing from two or more disciplines.

Interdisciplinarity is also akin to an emerging discipline. Just as disciplines have always at one point been new, claiming territory left unattended by others, as we've seen, interdisciplinarity can be thought of as doing the same. It just has a name these days. And eventually, if an interdisciplinary subject gets covered enough, it becomes established as its own discipline, often breaking off of an established one (Criminology from Sociology, say), the result of "fragmentation" (Dugan, 430). But the process that drives this

development, the need to explore unknown territory, is what has always driven the emergence of disciplines. With interdisciplinarity there's simply a more conscious awareness that the resources of multiple disciplines are being drawn upon.

As for its purposes, interdisciplinary study is often used for a greater understanding of a problem too large or complex for one discipline's knowledge or methodology. Often we think of disciplines as each looking at a unique set of issues and topics. Interdisciplinary study speaks to one topic being looked at from the point of view of multiple disciplines and incorporating elements of each of these diverse perspectives and insights. New, large issues require a scholar to apply methods and theories from more than one discipline to address the topic in any substantial or significant way. We can think of global warming, say: one could look at this topic from a health perspective, from an ecological one, an economic one, a political one, a chemistry one, etc. Any one voice or point of view could be seen as inadequate to providing considerable insight.

### **Rise in interdisciplinary study**

Interdisciplinary research and study is increasing as we head into new uncharted waters of challenges and opportunities. New fields are being discovered all the time, old ones are incorporating new topics or revising old ones (Bio-technology and Ethics, for instance). Traditional disciplines innovate and incorporate new ideas, as a sort of interdisciplinarity within a discipline (Literary Theory within English or International Development and Aid within Political Science). So what is driving this rise in interdisciplinary study?

Firstly, there is an increase in interdisciplinary programs and courses on campuses worldwide in an attempt to attract new students and to promote themselves as innovative, cutting edge, or simply even to stay with the times; that is, trying to offer programs that appeal to the needs and interests of students. Younger students are genuinely attracted to new topics and ideas. In addition to students' desire to tackle new and large issues and some forward looking administrators' efforts to respond, newer faculty and researchers are also driving the rise in interdisciplinarity.

Secondly, increasing social interconnectedness is fuelling an interest in interdisciplinarity. While certainly not brand new as an idea, interdisciplinary study is materializing and evolving at an accelerated rate in recent years as we become increasingly interconnected and informed of new ideas, perspectives, and approaches. Particularly germane here is the increasing interconnectedness among younger students, most of whom have grown up being aware and informed of many more issues and events than their predecessors. Whether it's surfing a myriad of websites, keeping in touch more regularly with a friend in Chile via Facebook, or by having RSS feeds automatically alerting us to instant developments, we as a society and youth in particular are seeing the world as interconnected. As a result, issues become interconnected. Interconnected issues become larger ones. Larger issues become larger topics of study, driving the need for multiple voices and views of knowledge.

The last main factor in the rise of interdisciplinarity I wish to highlight is technology. For one, as human technological capacity and impact grow, such as our abilities to produce carbon dioxide, the consequences affect more people and aspects of life, such as on a planetary scale like global warming. Thus an increasing number of issues are affecting an increasing number of people compared to previous eras. So,

technology is a huge factor here in general, but also in the sciences in particular. New technology has radically transformed research in, for example, developmental, cell, and molecular biology over the past 25 years (Ares, 1170). Technological tools are empowering us to incorporate new fields and methods to study the world's phenomena. Research bodies and organizations increasingly value and promote interdisciplinarity in the hope that it will produce cross-fertility and, frankly, new commercial products. So there is a whole commercial aspect driving interdisciplinarity as well, particularly in the sciences, which in turn manifests itself back in academia as universities seek program offerings that provide meaningful job market qualifications to students. The emergence and rejuvenation of disciplines is happening at a faster rate than ever before. And that is not going to change.

### **Impacts on libraries**

So, what are the impacts of the rise of interdisciplinary research on libraries? One is that new, cutting edge interdisciplinary literature is delayed by the scholarly and publishing cycles, causing a lag time for libraries, along with everyone else, to catch up with the latest topic. It takes time for a new area to gain legitimacy, get funded, get researched, get reviewed, get published, and get into the library.

Also, new interdisciplinary topics might not establish themselves strongly enough to last, resulting in ramifications in terms of spending money and resources on these topics. How do we librarians avoid becoming part of the problem if we, for financial reasons, do not collect in a new field because we do not want to risk spending precious resource money on unestablished topics?

Another impact we need to be mindful of is the challenges to supporting interdisciplinary research brought on by traditional library organization. We have organized the world's information along subject-specific lines. This has immense value, of course. I am highlighting the need for flexibility in academic libraries, though, in order to adapt to the increasingly varied and innovative programs that are being created. The way we have organized the world of information along subject lines has impacts on findability for interdisciplinary students. As mentioned earlier, libraries traditionally value rationalism. This was and is useful when organizing the world of information. We made the information retrievable according to rational organization along subject lines. The downside of this system is that new topics are evolving which are not easily fitting into the rational organization of traditional Library of Congress classification demarcation lines conceived in 1898.

Also, resources defined along discipline lines are physically located in different parts of the building, on different floors, or in different buildings altogether in very large institutions. As interdisciplinary and new topics emerge, where are such books going to be located in the stacks? Perhaps not beside similar ones if the subject isn't a long-established one. It could vary greatly depending on the subject headings decided upon by the cataloguer or author.

Subject librarians, too, offer obstacles to interdisciplinarity. Libraries like subject specialists, of course, for their deep knowledge of and familiarity with disciplines and subjects. The problem is that subject specialists can fall into the trap of discipline specific literature and perspectives. As a result, we are often not familiar with disciplines outside our own subject areas. This typical organization of librarian expertise has consequences

on the services we provide on the reference desk, as well as when we are planning effective services for all patrons, such as when making acquisition decisions in the interests of the library as a whole while only being familiar with a focused discipline area. This is important because not all patrons use the library the same way. Indeed, as disciplinarians-in-training, our students are learning to approach their studies with very different methodologies, resulting in different pressures on library services.

### Some Suggestions

With our extensive web presence, we have the opportunity of course to promote our subject resources. How about a pathfinder for how to approach interdisciplinary research in general? We can include an LC classification schedule in it. I have found that visually presenting the LC classification schedule, breaking down the general topics by letter allows users to get a quick and useful sense of how we organize information. This visual information will enable students to become informed of the schema we use to organize information and make them more likely to be able to question and subvert it to locate hard to find interdisciplinary topics. At least this way they are familiar with the playing field they are dealing with.

Similarly, including an example of subject headings will enable students to use LCSH to their benefit. I always find that LCSH are potentially one of the best ways to locate similar resources to relevant ones already in possession, but that students often are oblivious to them. To guide students, we can show an example of a book title with multiple subject headings crossing disciplinary lines. An entry like the one below makes the point that library books are organized by subject headings, and can be organized by multiple subjects, each leading to similar or related resources.

**Title:** Global warming : understanding the forecast

**Author:** [Archer, David, 1960-](#)

**Publisher:** Malden, MA ; Oxford : Blackwell Pub.

**Subject(s):**

[Global warming.](#)

[Global temperature changes.](#)

[Greenhouse effect, Atmospheric.](#)

[Global warming --Political aspects.](#)

[Global warming --Economic aspects.](#)

**Call Number:** QC981.8.G56 A73 2007

We see that this book on global warming covers (among others) political aspects, economic aspects, but that it is in a Q call number range, indicating science as the main perspective. If Economics students knew how to use subject headings effectively, this book would connect them to other economically related global warming resources as well as prevent them from being scared off from it simply because it is classified as a science book. So we can see that the Library of Congress can really struggle with

interdisciplinarity. If we can convey this to students, they stand a better chance at using the system to their advantage.

### **Web 2.0**

Web 2.0 allows for the breaking down of silos, which I think is its greatest benefit for research. In some ways the new web technologies are the ultimate interdisciplinary platform. Unlike Encyclopaedia Britannica, Wikipedia, to use an easy example, is community created, driven, and controlled, thus allowing insight and perspective from multiple backgrounds. Web 2.0 social networking environments allow for subjects to be approached from many different disciplinary angles. So, a Wikipedia article's bibliography, for example, might be more inclusive and broad in transcending discipline boundaries than its equivalent in a traditional encyclopedia, which is typically written by one, discipline specific author.

I also see web 2.0 as offering immense benefits in much the manner of the traditional peer review, though with a much faster turn around time, sort of like a hyper peer-review. Technologies like Wikipedia offer a community driven knowledge base, except that the peers, unlike in the typical peer review process, are not necessarily from the same discipline. Web 2.0 bypasses LCSH. Community driven keywords will enable resources to be found using language that is meaningful to users, just as traditional web technologies have enabled many to effortlessly and unknowingly cross the disciplinary boundaries of library subject headings and discipline-related publishing silos by using a keyword, rather than LCSH, catalogue search.

Another example of web 2.0 that libraries should be looking at closely is Amazon, with its pushing of information towards users (e.g. people who bought this book also bought this one; lists of related items by users; books rated by users). We should look at ways of using web 2.0 technologies to apply lessons of the likes of Wikipedia and Amazon: getting people connected with their peers and the information that is useful to them. For example, we could enable students to post and embed meaningful comments or reviews of books they have borrowed right into the library catalogue. Through such a connection, useful interdisciplinary sources, otherwise under the radar, will emerge quickly for the community to use, particularly if a peer's opinions are attached.

### **Interdisciplinary Librarians**

Librarians also need to be savvy about multiple departments and the ways in which each department approaches research. Librarians could be subject librarians for dissimilar departments in order to become more interdisciplinary. This would definitely pay off at the reference desk, say, or while making larger collection development decisions. (This is probably a suggestion that would meet with resistance, but we can try...) Also, as librarians, we can be more aware of a given broad subject literature than faculty, who are often focused in on a narrow research field. They might not be fully aware of the limitations of resources in their field. But if we look elsewhere, in a related or even formally unrelated field's literature, we may find additional, useful information for the user. We as librarians have the potential to bring in these other subjects' sources in a way no one else can. We should be mindful of this insight we can provide and pass on this awareness to faculty who can incorporate it in their outlines and classes through reading and study materials.

## Conclusion

Interdisciplinarity is not going away. Disciplines themselves die hard, and will not be displaced easily. So they, too, are here to stay, which, of course, is just fine. However, we as librarians need to be mindful of ever evolving and emerging new voices and perspectives, developing as they are in greater numbers in formal courses and programs, and at previously unseen rates of acceleration. If we remain aware of the inherent limitations of our own discipline's methodology, based on subject delineations and an outdated view of disciplines as being unrelated and unconnected, we can pass on this knowledge to our students, enabling us to provide better research expertise to the interdisciplinarian who strives to regenerate the scholarly discourse through his or her need to explore new topics of study.

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