

Bridging the LIS-Practitioner Gap: Some Frames for Research

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In his recent book, *Spanning the Theory-Practice Divide in Library and Information Science*, Bill Crowley (2005) examined the divide between published research from library school (LIS) faculty and the use of these publications by practitioners in the field. Library school faculty laments that their research results are not being read by practitioners; and practicing librarians say that those publications are not useful in addressing existing problems and needs. Crowley went on to say that his book "seeks to promote the development of useful theory" (2005, 7) to benefit LIS faculty, practitioners and consultants alike. These theories should furthermore promote understanding of differing realities perceived by faculty and practitioners. Perhaps these theories should be grounded in experiences based on tacit knowledge of practitioners. This mode of pragmatic approach may be a beginning in building bridges to span this theory-practice gap.

In my readings of library literature, what seem to be useful are those articles that cover topics dealing with the process of providing library services. The context is the engagement of librarianship. From my vantage point as a practicing librarian, I would suggest additional ways to bridge this gap between theory and practice. What follows are not topics that deal directly with collections of a library or materials accessible through a library, either in traditional print-based format or in electronic formats. Nor do they concern users of libraries or services that librarians provide to the users. The following are ways to frame the analyses of useful research areas that can help us improve the practice of librarianship. Many of the services that we provide are in the big area between library collections and library users. It is on how we organize information, provide access to collections, and help our patrons get what they need. It is how we help to connect our users to the information landscape through layers of mapping in the guise of OPACS, indexes or literature guides prepared for specific instructional sessions.

1. Structural Secrecy

In a previous paper on faculty-librarian collaboration in collection development, Chu (1995) pointed out that the tools used for collection analysis and approval plans are based on the jargon of librarianship such as Library of Congress classification schedules and subject headings. Such a reliance on discipline-specific jargon undermines attempts at substantive collaboration because the vocabulary used by librarians is not shared with those outside of the discipline in daily usage when they talk about library matters. Similarly, librarians organize collections and assign access points according to their view of information management. This

aspect may be what Diane Vaughan (1996) refers to as "structural secrecy" in her book, *The Challenger Launch Decision*. She said that according to mass media and common interpretation, crucial information concerning failure of the O-rings that led to the spacecraft Challenger disaster on January 28, 1986 were concealed by NASA personnel. In reality, information was passed freely, both orally and in memos, according to the procedures set up in NASA. Why is it then, that different groups of people drew different conclusions from the same set of data? And was there any attempt to "hide" information?

According to Vaughan (1996), the information processing procedure was deemed ambiguous by the media because it relies on the NASA work group's understanding of the organization of information, patterns of information usage, and the meaning of information items within their scientific paradigm. Erosion on the O-rings, which function to prevent hot gases from escaping, had previously been observed, tested and explained. So it would no longer be an anomaly. If a category had not been established on standard NASA forms about observations that could not be backed up by hard data, then that information could not be coded and be made available. As pieces of information were coded, categorized, and entered into the computer, they became useful in a symbolic sense. So information being coded and stored only include those pieces that may be quantified within the existing paradigm.

In libraries, we organize our collections, create cataloging records, and assign access points that we deem important. The different pieces of information we make available all reflect our view of information organization. By controlling the environment through the use of standardized call numbers and controlled vocabulary for subject headings, we have frozen the pieces of information and legitimized their presence as parts of our OPAC. Many of these points such as assigning call numbers using the Library of Congress schedules have been addressed earlier (Chu 1996). An article by Hope Olson (2001) examines the problems present in the Dewey schedule. One area that should be examined is subject access to library collections and resources. The social understanding of keywords with discipline-ascribed meanings was discussed earlier by Chu (2003). This leads into a very interesting area of controlled vocabularies used by different cataloging and indexing agencies. One finds Library of Congress subject headings, ERIC descriptors, and controlled vocabularies used by *ABI-INFORM*, *Biological Abstracts*, *MLA*, or *PAIS*. Each controlled vocabulary has its own assumptions and organizational practices which in turn, will allow access through channels bounded by prescribed meanings for keywords and subject headings. In particular, how does the concept of "structural secrecy" facilitate or hinder a library user's access to a particular body of knowledge? More importantly, how is the "googlization" of access or the use of federated searching affecting the quality and relevance of search results? Research in this area may cover both technical services where access points are assigned and public services where librarians work with users to access appropriate information.

2. Improvisation

When one thinks about improvisation, what comes to mind is jazz, the American contribution to music. One may also talk about improvisational theater or improvised strategy to meet a new challenge. In the library world, improvisation occurs in many areas when the environment changes in unexpected or ill-understood directions. These may occur when the university computer center or the city IT department decides to upgrade to a different version of the Windows operating system such as the new Windows Vista, or to improved networking software. Similarly, OCLC may announce timelines for an upgraded version of Connexion and moves ILL functionalities from one interface to another. Improvisation may also occur in a reference setting when a question is posed by a student where the answer may need to draw on new relationships across discipline boundaries of existing reference tools. But the ability to improvise hinges on mastery of basic components.

In *Managing as a Performing Art*, Peter Vaill (1989) talks about coping with changes in a chaotic environment. He drew on the metaphor of canoeing in permanent white water to describe the operating environment in the business world. While the objective of going to a specific point downstream may be quite clear, the path to be taken and the process may not be charted beforehand. The canoeer must adapt paddling strokes and plan intermediate steps as he or she proceeds because the water is in constant turmoil. In an earlier presentation, Chu (1999) addressed the improvisational nature of a change process involving the migration from one automated library system to another. As noted there, steps for migration may be based on projected functionalities of a system to be developed and completed according to a planned product, not something that is currently in use at another site. Similarly, operational expertise was acquired as needed by existing personnel, not by hiring additional personnel with skill sets that match projected needs. Thus improvisation is to meet needs as they arise and solutions are crafted within the bounds of available resources.

One possible topic may be to examine the improvisational nature of reference. One may learn in library school and read in professional publications about intent of certain tools and questions they may answer. But in practice, questions that come up at the reference desk or during a more extensive scheduled session in someone's office are often not clearly defined or bounded. Furthermore, potential tools or resources that one has learned or read about may be limited or unavailable for some reason. The only option may be to "make do" with what is readily available, including a scarcity of time. This process may include novel uses of well-known tools and innovative search strategies. However, as Louis Armstrong reputedly said, in order to improvise in jazz, one must improvise from something. Thus a reference librarian must have intimate understanding of reference tools and their intended uses. This is the basic technical knowledge acquired in academic settings and professional readings. The art of improvisation may in fact distinguish a master reference librarian from a good reference librarian. The question then is how this improvisation takes place? Are there "rules of thumb" that may be articulated and learned?

As a guideline, one can apply the methodology of metaphoric analysis as used in the article "Qualitative Research as Jazz" by Oldfather and West (1994). In this article, the authors examine the research process as improvisation through metaphoric analysis. In a live performance, musicians may carry similar repertoire and use the same music score. But each musician may respond to the environment in different ways and shape the music collaboratively. Similarly, in a reference setting, different reference librarians, in helping students from the same class and using similar resources, may answer the same set of questions in different ways. Satisfactory answers are reached when collaborative efforts are reached by librarians and students. This begs the question of how one successfully improvises in a reference setting.

3. Naturalistic Decision Making

Naturalistic decision making is on the operational side of decision making, not on the planning side as used in an administrative capacity. It is looking at the process under conditions with ill-defined objectives, competing goals, uncertain environment, time constraints and limited resources. This applies to many situations in the day-to-day operations within libraries, both in technical services and public services, whether in subject analysis during cataloging or choosing a search strategy in seeking an appropriate resource to answer a reference question. There are eight factors that mark the decision-making setting (Orasanu and Connolly 1993, 7). But not all eight may be present in all cases. They are:

1. Ill-structured problems
2. Uncertain dynamic environments

3. Shifting, ill-defined, or competing goals
4. Action/feedback loops
5. Time stress
6. High stakes
7. Multiple players
8. Organizational goals and norms

For example, if an OCLC workstation malfunctions, the problem may be with the hardware itself, with the institution's network, with the ISP, or with OCLC. Environmental issues include updates of systems software, networking software, Internet access, or other upgrades at any level which may cause problems of compatibility. Ensuring stability at one level may compete with desires for improved functionalities at other levels. An instance involving multiple players may be adding a new branch library to a university library system. The problems are much more than collection development and public services. In order for the OPAC to work, the librarian for systems administration must work with cataloging to define shelving locations, with circulation to construct a circulation matrix of patrons and loan periods, and with computer support personnel to ensure that hardware, software and networking support issues are addressed.

Thus the decision-making process is much more than addressing the technical issues. Included are competing goals within library departments, institutional priorities, consortial needs, and external constraints presented by OCLC, EBSCO, and various other electronic services providers. The process would necessarily involve balancing needs and priorities of multiple stakeholders. Naturalistic decision making is a relatively young field. Library science should contribute toward the maturation of the field.

4. Tacit Knowledge

Tacit knowledge is something that is acquired, often unconsciously, through observing and doing. It is knowledge that is implicit in nature and difficult to articulate. At times, it seems that the possessor is not aware of it even while it is being used. But it is important for success in many fields. While the concept was described by Michael Polanyi some forty years ago, it has not received much attention until the last decade in many applied fields such as education, decision-making, accounting, management and military leadership (Sternberg and Horvath 1999). Robert Sternberg et al. (1999) conducted studies over a six-year period in an effort to define, assess and measure tacit knowledge for leadership in the US Army. These studies seem to indicate that while technical knowledge is essential as a base, the distinguishing component of expert performance at higher levels lies in the knowledge of non-technical dimensions. While this body of knowledge may differ for different ranks and nature of leadership, it is consistent across a particular leadership level. These dimensions may include a thorough understanding of corporate culture, an awareness of local social norms or communication practices in the local setting. Tacit knowledge may also influence when and how to change or bring about innovation. In all of these situations, the important part is knowing how to adapt technical knowledge and apply it to needs within constraints of local conditions that cannot be changed.

While many librarians may know about this concept through practice, Crowley has noted that very little has appeared in library publications using the phrase "tacit knowledge"

(1999, 281). One distinct possibility is that many authors writing about librarianship are simply not aware of the term or treated topics within the framework of tacit knowledge. Writings on the reference interview, for example, talk about the need to pay attention to the unarticulated context and local assumptions. Similarly, one hears comments from librarians that it takes time to become acclimated to a certain library or institution before one can become proficient. Since tacit knowledge is unarticulated, any direct measurement becomes problematic. Sternberg et al., however, included the questionnaires they had developed for their studies (1999). By adapting these questionnaires, it may be possible to identify environmental factors conducive to the acquisition of tacit knowledge among librarians.

5. Activity Theory

The most salient feature of activity theory is in its unit of analysis. As Victor Kaptelinin and Bonnie Nardi (2006, 10) said in their recent book,

In activity theory, *people act with technology*; technologies are both designed and used in the context of people with intentions and desires. People act as *subjects* in the world, constructing and instantiating their intentions and desires as *objects*. Activity theory casts the relationship between people and tools as one of *mediation*; tools mediate between people and the world.

The theory posits that the context is what lends meaning to the activity. For example, if one looks at patron behavior in searching for a title in an OPAC usability study, the purpose of seeking for a title must enter into the analysis. Looking more broadly, if searching for materials is for writing a paper, then writing the paper becomes the activity, thus setting the context for searching. Contextual cues may then suggest avenues for research and choice of methodologies. When looking for a title, one student may use a left-anchored title search to find an exact match. The purpose may be to complete a citation for a bibliography where alternate information is not acceptable. Another person may be using a title keyword search or even a general keyword search of complete catalog records. The purpose may be treated as an intermediate step in a subject search, having learned that this is one way of ascertaining the correct subject heading to be used in a further search. Thus the unit of analysis, the activity, may be dynamic in nature and variable. In many activities such as searching in the OPAC, the student may have learned from previous iterations of an usability study, transferred learning from a different usability study, be placed in a different physical testing facility, or be using a different computer.

The salient point here is that that research is carried out in a holistic environment that more closely mimics real life. In studying any one aspect such as problems in indexing, the process must be understood within certain contexts. Thus indexing at a level to support experts may be too detailed for the educated non-expert. By looking at the whole activity, including the use of artifacts such as a computer workstation or the design of the human-computer interface, we may come to a better understanding of the purposes of indexing. Although Kaptelinin and Nardi are interested primarily in human-computer interface, activity theory came out of Russian psychology and may be applied to many areas.

6. Assessment

Librarians have talked and written about assessment for many years. What come to the foreground are studies on collection assessment, and more recently, outcomes assessment centered on student learning. However, these writings only cover a portion of what librarians do. They cover only the outwardly visible aspects. These measurements are also predicated on librarians' views of how the quality of collections ought to be measured and how services

should be provided. In the institutional environment on assessment, measurements should be on every aspect of library operations, from what we currently deem important and measurable to those qualities that we tacitly assume. With continuous changes in the environment, some planned and others chaotic or improvisational, librarians also need to become aware of whether the right kind of services are being offered and whether additional services are required. We need to become keenly aware of the information infrastructure that we use to support our services. We need to measure the processes, the operational aspects that happen between the acquisition of library resources and the provision of public services.

In instituting a culture of assessment, we must realize that there are many ways of measuring, from formal questionnaires to informal surveys and observations. While many existing assessment studies center on quantitative measures using descriptive statistics, we must also consider inferential statistics. For example, a simple *t*-test on averages may be used in looking at possible age discrimination problems in hiring library staff. In a presentation made several years ago at the Illinois Library Association annual meeting, Chu (1992) used canonical analysis and multiple regression analysis to look at possible indicators for calculating personnel needs, both librarians and support staff, in public institutions of higher education. Taken into account are variables called for in the then current 1986 ACRL standards and also the number of journal subscriptions and expenditure for materials. A regression analysis would allow a researcher to look at the contribution that each of these independent variables makes toward the variability of the dependent variable, the staffing needs. It is then possible to take into account a few predictors from among all the variables instead of looking at each ratio independently. But we must keep in mind that quantitative measures by themselves do not show causal relationships or offer explanations of a phenomenon. The results of quantitative studies usually only present a temporal snapshot.

In order to explain the “why,” there must be a qualitative component to assessment. These may be interviews, observations, textual analyses, or focus groups. While focus groups are formal and must be planned, interviews and observations may be informal and can be conducted on an ad hoc basis. For example, Chu (2005, 59-60) explained in his recent book how they arrived at specific information needs at their Curriculum Library through informal assessment and decided on corrective measures to be made during cataloging. This process for addressing a need is then validated through quantitative analysis of results from a simple survey.

The question that arises is how to institute these formal and informal assessment practices on a systematic basis throughout a library, regardless of the type of the library. In simple terms, assessment may be viewed as a way to find out whether a library is doing the right things. If it is, how effective are these things being carried out? Assessment results may also talk about needs for procedural changes or how to re-frame existing processes.

Bringing the Research Areas Together

In the previous sections, I listed six possible ways to frame analyses on research topics that are important to practitioners. The first two, *structural secrecy* and *improvisation*, are operational in nature and deal with the day-to-day procedures. The third one, *naturalistic decision making*, concerns making choices in the performance of duties. It is decision making in procedural matters, not in planning, that may be used in the day-to-day performance of library processes. The fourth area, *tacit knowledge*, is on our assumptions rooted in our knowledge of professional and institutional values. This aspect influences our decision making and performance of duties. The fifth topic, *activity theory*, may elicit a holistic examination of our activities to study, for example, the efficacy of specific reference practices within the context of a particular library and institution. The final topic of *assessment* is a reality check on whether we are doing the right things, and if we are, how well we are doing them. The

language of assessment is a shared language at the institutional level that may help us communication with people outside of the library. These are all frameworks for researching topical areas that are "useful" to practicing librarians because these frameworks will allow topics to be grounded in daily practice.

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