Evidence Based Library and Information Practice

Article

Evaluating Qualitative Research Studies for Evidence Based Library and Information Practice

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Abstract

Objective - Research studies in the literature that may be useful for solving professional practice questions are frequently based on findings from studies that use qualitative methods. Criteria used to appraise qualitative research are still evolving and often lack the readily understood precision of the numerical criteria used for quantitative research. Qualitative research studies can often be more valuable than quantitative studies for a given situation. This article offers a template to assess qualitative methods used in practitioner-led research for library and information science.

Methods – This paper presents a narrative scenario of a library management problem. After conducting a literature search, the author identified an article with apparent relevance and potential to help resolve the problem. The author then evaluated the article using an assessment framework to illustrate how qualitative library research can be assessed. The paper examines the components of the framework, and explores the process.

Results - The appraisal of the selected article demonstrates that qualitative methods used in library research can be critically evaluated for evidence to assist librarians in addressing their professional practice questions.

Conclusions - Results obtained from qualitative research projects can be applied as evidence to support library practice. Qualitative methods are useful, and for many

library practice issues, the assessment process illustrated here will help librarians evaluate the evidence and assess its appropriateness for practice.

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Introduction

Library professionals often find themselves in situations where they need answers to questions that emerge from their professional practice. One method to obtain the answers is to search the professional literature. The ability to assess the quality of the research studies found in a literature search is essential in order to evaluate and apply the findings to answer these questions in a meaningful and useful manner. Depending on the research design used in these studies, the methods of collecting data and their analysis may include either quantitative, or qualitative, or a combination of both methods. Many library research studies use a variety of methods that are selected for their appropriateness to best suit the research design (Fidel, 2008). For example, to determine how effectively the library's journal collection is meeting faculty and student needs, quantitative methods might include surveys as well as qualitative methods such as interviews, focus groups, and observation studies with selected student and faculty populations within a library. To find out if a specific change in service has had an effect (e.g., adding specific journal titles), this service intervention could be measured before and after implementation by using survey or other instruments to collect numerical data. In this example data could be obtained for the number of journal titles used before and after the introduction of new titles. If librarians also wanted to assess the perceptions of students and faculty to this service intervention, then interviews and focus groups could be conducted to collect this sort of data.

No matter what methods are employed to gather and analyse research data, the findings have to be assessed before the evidence can be used for practice. Given (2006) argued persuasively for the acknowledgment of qualitative research within evidence based practice library and information practice and also outlined the qualitative paradigm and the

importance of its approach. Booth (2009b) recently acknowledged that where assessment is based on good practical client-centered evaluation models, it can contribute usefully to well-informed decisions at the local level. While librarians have always been cognizant of the inherent value of library research, the recent trend for evidence based practice has provided a focus for improved research quality. Evidence based practice in library science has been associated largely with research in health sciences librarianship and is often referred to as evidence based librarianship or, most recently, evidence based library and information practice (EBLIP). Eldredge (2002) and others (Booth, 2003; Booth, 2009b; Booth & Brice, 2004; Koufogiannakis & Crumley, 2006) have noted that reliable and valid evidence has become the expected norm for evidence based practice in most library and information studies research, regardless of specific library contexts.

The assessment criteria used in EBLIP are more arguably appropriate for quantitative methods, perhaps because of the fundamental difference between the paradigms with which evidence based practice has traditionally been associated. According to Loiselle, Profetto-McGrath, Polit, and Beck (2007), the positivistic paradigm is "the traditional paradigm underlying the scientific approach, which assumes that there is a fixed, orderly reality that can be objectively studied; often associated with quantitative research" (p. 508). The naturalistic paradigm is an alternative to this, in that there are "multiple interpretations of reality, and the goal of research is to understand how individuals construct reality within their context; often associated with qualitative research" (p. 506). The credibility and accuracy of data generated from quantitative methods may well be more readily understood because of their numeric nature and subject to interpretation and analysis by statistical methods, whereas the

data generated by qualitative studies are interpreted and analyzed almost simultaneously and integrated into a unified whole. Because of this fundamental difference, the transferability, or generalizability, of findings from quantitative methods may be more easily accepted as valid, compared to the findings of qualitative methods. Quantitative studies are part of the traditional scientific method, subject to numerical analysis, and reported in a style based on the traditional scientific report format that is normally accepted as being an objective description of the research. Bazerman (1988) referred to this style as "prescriptive rhetoric" (p. 275). Sandelowski and Barroso (2002) argued that research findings are more difficult to locate and communicate in qualitative studies, because the methods and findings are not as easily suited to this style. Qualitative methods and the results obtained from using such methods have sometimes been suspect, regarded as less rigorous than other methods, and even devalued (Booth, 2009b; Bradley, 1993; Johannsen, 2004; Fitzgerald & Galloway, 2001). As a result, research outcomes generated from qualitative studies may not be regarded as evidence, and they may not be disseminated or used as widely as they could be (Devers, 1999).

How do librarians know when qualitative research findings provide evidence that can be used to assist them in their library practice? One way is to use an assessment framework. When assessing qualitative research, the seven criteria should be considered and incorporated in the process, and these are generally included in some format in many assessment frameworks (Cohen & Crabtree, 2008):

- Maintaining an ethical research policy.
- Importance of the research.
- Clarity and coherence of the research proposal.
- Use of appropriate and rigorous methods.
- Incorporating reflexivity (critical self-reflection).
- Attending to researcher bias.

- Establishing validity (i.e., credibility) and reliability (i.e., verification).

Beck and Manuel (2008) list some of the most common errors in research assessment that frameworks help identify. Some of those errors include:

- Not asking the right question or not asking the question in the right way.
- Gathering data at the wrong time or place.
- Using unrepresentative samples, or failing to recognize possible response bias among those members of the sample who do respond.
- Failing to control for or consider possible experimenter expectancy effects that arise when researchers' measurements are shaped to match their own hypotheses or expectations.
- Not allowing for research biases (e.g., the Hawthorne effect, the effect on data results from research subjects' awareness that they are being studied).
- Over-generalizing to conclusions not directly supported by the research data (generalizability validity).

This article outlines the process of reviewing qualitative research methods by presenting a dilemma as part of a library practice scenario. Part of this scenario will include an article from a literature search that will be evaluated in the course of the assessment exercise. The article will discuss and review a range of assessment tools and present a possible framework for assessing library research. In the critique of the article, this paper will use the framework's component parts to identify the process of discovering and evaluating the evidence. While it is not the intention here to provide a comprehensive review of qualitative and quantitative methods, the assessment framework will address key elements of evaluation, particularly as these elements pertain to qualitative methods. The paper will also discuss these elements of evaluation in relation to quantitative methods in this context.

Academic training in anthropology and working experience in academic libraries have contributed to the author's commitment to the use of qualitative methods in professional library practice (Suarez, 2007). The discipline of anthropology is well known for its productive use of qualitative methods, and it shares many of the same theoretical and methodological procedures and methods used in other social science and health science disciplines. (Berg, 2004; Bryman, 2004; Creswell, 2009; Griffiths, 2009; Sandelowski, 2004). The purpose of this article is to demonstrate that there is a place for qualitative research methods within evidence based library and information practice and to help librarians determine whether the research has been conducted rigorously.

Methodology

The following library scenario illustrates a typical academic library practice situation requiring resolution:

A liaison librarian for social science and applied health science disciplines at a mid-sized university has a dilemma. The university has recently expanded its Department of Graduate Studies. Two of the librarian's subject specialties, sociology and kinesiology, currently have high undergraduate enrollments. With the expansion of the graduate program, the demands for library services are expected to grow exponentially. Both the university and library mission statements include statements about taking positive steps to meet the needs of graduate students. While there have always been graduate programs offered at the university, this expansion is expected to cause serious strains on programs and services. How this change will affect the liaison librarian's role and effectiveness, particularly from the point of view of teaching information seeking skills to graduate students, will be challenging. The librarian suspects that graduate students will need different levels of instruction, but is not sure if this can be substantiated, or if it is just an intuitive observation. Initially the librarian thinks that a literature search would be appropriate as part of a needs assessment. The librarian conducts a search

in standard subject related databases using the terms "graduate students" and "information literacy." The search is limited to recent peer-reviewed journals published in the last 5 years; the search retrieves 17 article citations. The librarian browses the abstracts and selects one article that looks particularly relevant. Titled "Development of information search expertise: postgraduates' knowledge of searching skills" (Chu and Law 2007), the article appears to address her main areas of interest. The librarian notes that the study employs qualitative methods in its research design. The librarian downloads a copy of the article and proceeds to read and assess its worth.

Assessment Tools

There are a number of readily available tools to help evaluate qualitative research. Examples include the Joanna Briggs Institute QARI assessment tool (Briggs, 2009) and the Critical Appraisal Skills Programme (CASP) worksheet created by the Public Health Resource Unit, National Health Service (2006). These were developed and have been used to assess the rigor of research method and the credibility and relevance of research findings in studies that use qualitative methods. Other assessment tools have referred to library guidelines or checklists developed by national organizations (American Library Association, 2004) or in-house (Ward, 2004; Fitzgerald & Galloway, 2001). These in-house assessment tools often have limited value because of their specificity. The Critical Skills Training in Appraisal for Librarians (CriSTAL) checklists developed for appraising library studies (Booth & Brice, 2003) and the EBL critical appraisal checklist (Glynn, 2006) are good examples of tools used for critical appraisal of EBLIP.

The particular tool used here for illustrative purposes has been selected on the basis of its brevity, clarity, and adaptability for library practice. In their article on evaluating qualitative research studies in nursing practice, Russell and Gregory (2003) presented a list of questions, to use in assessing qualitative research. This has been adapted for use in library practice and is reproduced in Table 1 below.

Table 1
Questions to Help Critically Appraise Qualitative Research (adapted from Russell and Gregory, 2003)

1. Are the findings valid?
a.   Is the research question clear and adequately substantiated?
b.   Is the design appropriate for the research question?
c.   Was the sampling method appropriate for the research question?
d.   Were data collected and managed systematically?
e.   Were the data analyzed appropriately?
2. What are the findings?
a. Is the description of findings thorough?
3. How can the findings be applied to library practice?
a.   What meaning and relevance does the study have for library practice?
b.   Does the study help me understand the context of library practice?
c.   Does the study enhance my knowledge about library practice?

Description of the Assessment Framework and Article Critique

Librarians can use the three main criteria headings of Russell and Gregory's framework as a model to evaluate qualitative library research:

- Are the findings valid?
- What are the findings?
- How can the findings be applied to library practice?

1. Are the findings valid?

The librarian should start by looking for a clear statement of the question that the study sought to answer, as well as looking for factors that make this relevant for the librarian's particular library practice question. The question should be clearly stated within the context of prior research and should include relevant literature referents. The research design should be clearly defined and explained and the narrative should include a clear discussion of the qualitative approaches that have been used and why. Possible research approaches might include grounded theory, phenomenology, case studies, or narrative and historical research, among others. Whatever approach is used should fit the research question, and the methods of sampling should be appropriate for the research question (Creswell, 2009).

Sampling tends to be purposive, rather than random, in qualitative studies; i.e., the sample tends to be selected for the potential richness of its contribution, rather than randomly as in quantitative studies. The sample size tends to be small to allow for the tendency of qualitative research to enfold and provide rich descriptive data. The reasons for the sample selection, its size, and the description of the process used to select the sample, should be thoroughly presented and discussed, because the study results may not be meaningful, or easily transferable, outside the study's immediate context. Researchers judge the relevance of a sample in relation to the study results, and the librarian should be able to assess the validity of the results by their comprehensiveness and by the extent to which the research questions were answered.

How the data were collected, whether by field observation, document analysis, or interviews, should be thoroughly described and judged to avoid bias and misleading results. Typically the article should explain to the reader the number of observations, interviews, or documents used. It should also explain how the data were collected -- by whom, when, and for how long a period of time. Finally, the data analysis phase of the study should be clearly described. This is extremely important in qualitative research, because the research question is often exploratory. In the analysis, the researcher describes the data retrieved, explains how the data is collected, discusses patterns observed, and organizes the results into a conceptual framework. Data collection continues in a cyclical pattern until saturation

(informational redundancy) is observed, and the researchers decide that no new information is likely to emerge to change the conceptual framework. (This is often assumed and not elaborated upon in most qualitative studies.) Data analysis software packages such as NVivo are sometimes used to store, organize, and retrieve qualitative data, but they do not actually analyze the data. Researchers often demonstrate data collaboration with the use of other information resources (often referred to as triangulation), and this includes the use of methods such as surveys to add weight to the analysis. The methods used and how the data were analyzed need to be thoroughly discussed and presented to ensure their depth and breadth so that the librarian can judge how meaningful they appear in relation to the research question and to her own library practice situation.

Article Critique:

Chu, S. K.-W., & Law, N. (2007). Development of information search expertise: Postgraduates' knowledge of searching skills. *portal: Libraries and the Academy, 7*(3), 295-316.

This assessment of Chu and Law's article utilizes the five subheadings in this category :

a. Is the research question clear and adequately substantiated?

Chu and Law (2007) explored the information searching skills used by two groups of doctoral students when they searched databases to find research studies to support their academic program requirements (engineering and education). They had three research questions: What were the information searching behaviours and skills of two groups of graduate students, and how had these skills developed over time? Were these skills used more often when the students became more familiar with searching techniques and databases? What similarities and differences exist between the two groups in terms of information searching behaviour and skills? The literature review provided references to previous studies where results indicated

graduate students' research skills were inadequate. Two major approaches used by study participants were noted in the literature review: novice-expert comparison; and developmental studies of expertise. In the first instance, other researchers had studied the characteristics of experts in a given subject field but had not, for the most part, looked at the development of these skills over time. In the second instance, more studies were identified that looked at various components of the search process, including search tactics and operators, keyword searching, Boolean searching, subject searching, author and title searching, and browsing. The population samples of these studies were largely comprised of undergraduate students.

b. Is the design appropriate?

Chu and Law wanted to investigate graduate students' development of information searching expertise over time, but they discovered there was a lack of longitudinal searching behaviour studies. They designed a longitudinal study with a small participant sample in order to gain an in-depth understanding of the processes used by two groups of graduate students as they moved from novice to expert information searchers.

c. Was the sampling method appropriate for the research question and design?

Twelve graduate students (six from engineering and six from education) were purposively selected for this study. All but one were first-year graduate students and were appropriate participants for establishing a baseline of novice searchers. The remaining student was a part-time third-year student who self-identified as someone who needed more help with searching techniques. Selecting three male and three female participants from each of the two academic disciplines minimized gender effect bias. It was not entirely clear why these two disciplines were more appropriate to study than others, apart from their disparate natures (science versus social science), but this did not compromise the study's value, as the study

made no claim to be comparing specific disciplines. Any idiosyncrasies associated with searching behaviour within each discipline were not the main aims of the research and did not compromise the study.

d. Were data collected and managed systematically?

Four kinds of data were collected for analysis: written search queries; think-aloud strategies; self-reporting questionnaires; and interviews. Students used written search statements when they searched databases, and when students performed their searches they used think-aloud strategy protocol verbalizations. These two data sets were collected from a series of five meetings with individual students over a one-year period. The authors provided a good description of each meeting: First, a student would perform a search for twenty minutes, followed by the researcher demonstrating how he would do the same search (also twenty minutes). After the researcher's demonstration, the student's second search period followed, and again that would be followed by a second demonstration by the researcher. To avoid undue influence from the second search period and the researcher's demonstrations, only the first search period data was used for analysis.

A self-reporting questionnaire was administered at the end of search meetings one, three, and five to help the researchers determine what searching knowledge and skills each student had. The authors used a Likert scale to ascertain the level of importance of (and familiarity with) various searching techniques and strategies. The researchers conducted interviews with each student to help augment perceptions of the searching process. The researchers realized that the data from the five search meetings was limited and amounted to only approximately 90 minutes of research time per student. In a future study it would be prudent to add other methods of analysis to add more depth and breadth to this research and to discover more about the students' searching knowledge and skills. It was not clear whether the interviews were semi-structured, what the questions were, or when they were conducted during the study.

The researchers used common qualitative data collecting strategies. They observed the searching behaviours and think-aloud statements of search strategies that were exhibited by the students in the search meetings. They used document analysis when they obtained the initial written search query statements from each student prior to their searches. Finally, they used interviews to obtain student search experiences.

e. Were the data analyzed appropriately?

The authors analyzed their data and provided a series of tables that listed the results obtained from their data analysis: search types (keyword, subject, author, title, call number, and browse); subject searches (searches that use the automatic mapping feature of a database); keyword searches; students' familiarity with search knowledge/skills (average rating of student search skills); importance of search knowledge/skills (average rating of student acknowledgment of their importance); students' use of search operators and parentheses; students' perceived importance of information search skills at the end of the study in meeting five; and lastly, the number of students who had not obtained the search skills they had identified as lacking in the initial meeting.

The authors provided a thorough description and discussion of the tables. They used consistent terminology and also provided the results within a context that could be understood easily by the librarians engaged in instruction. Although they did not provide details of the interview questions, sufficient information about the interview process was provided. Presumably these interview questions were closely related to the survey questions, and the data obtained through observation were sufficient to provide good data saturation.

2.   What are the findings?

A well-written article with clearly communicated methods and results will provide a thorough understanding of the research. Qualitative research is often context specific and purports to make sense within narrow boundaries, as defined in the research question. It is imperative that the researcher describes and justifies the findings within that context. This will help the librarian to make informed decisions about the applicability of those findings to the research problem in question. A clear and thorough discussion about the limitations of the study is particularly important so that librarians can judge the relevance of the findings.

Article Critique:

Chu, S. K.-W., & Law, N. (2007). Development of information search expertise: Postgraduates' knowledge of searching skills. *portal: Libraries and the Academy*, *7*(3), 295-316.

Chu and Law's article identified several research findings that can be assessed:

The authors were primarily interested in discovering if students' searching skills improved over time and if their familiarity with searching skills contributed to the positive development of their expertise. The authors claimed that students' skills advanced as they became more familiar with the various search techniques. They identified three major findings:

- Library instruction was necessary even at the postgraduate level.
- Being computer literate was not the same as being information literate.
- Offering library tailored instruction by subject was necessary to address different academic disciplines.

These findings were clearly articulated and based on the evidence that was described and presented in the article's methods section. The

research question and findings were congruous. Their research articulated how students' knowledge of searching skills developed over time and influenced changes in searching behaviour as students became more familiar with searching techniques. The authors concluded that further studies with more participants, as well as further studies of individual student search strategies within an academic discipline, would be useful to obtain more reliable data.

3.   How can the findings be applied to library practice?

Once the librarian has thoroughly read and examined the article, its applicability can be assessed. It is necessary to reflect on the study to make sure the research question, design, and the results are congruent. Using the above assessment framework criteria, common sense, and personal professional experience, a determination must be made whether the results can be used as evidence for library practice. This decision will depend on professional judgment as to how reliable and useful these findings will be for the specific library practice setting.

Article Critique:

Chu, S. K.-W., & Law, N. (2007). Development of information search expertise: Postgraduates' knowledge of searching skills. *portal: Libraries and the Academy*, *7*(3), 295-316.

Finally, Chu and Law's article can be assessed for its applicability under the respective subheadings in this section:

a. What meaning and relevance does this study have for library practice?

Chu and Law made a strong case for the relevance and importance of addressing the changing service needs of library clientele. The study clearly articulated the library context of student learning and emerging instructional skills that students were required to have in order to succeed in their academic careers. The findings provided evidence that graduate

students would and could benefit from discipline focused library instruction. Subsequently, liaison librarians at their university could more realistically target groups of students from different faculties and emphasize different skills depending on their students' perceived needs.

b. Does the study help me understand the context for library practice?
c. Does the study enhance my knowledge about library practice?

From their research results, the authors noted the following limitations: small sample size, limited number of sampled subject disciplines, and recognition that students within a specific discipline will exhibit varying search expertise and will need an assortment of search skills. Therefore, it would be prudent to not generalize at the group level and to avoid any assumption that the same results would relate to sociology and kinesiology exactly. But on the whole, this study provides the liaison librarian with good evidence for solving the scenario problem by planning for tailored instruction.

Discussion

Librarians need to have evidence on which to base their informed decisions. Whenever they consult the library literature for the purpose of finding evidence to help answer service problems in their library practice, the articles they choose need to be scrutinized to ensure that findings are valid and relevant to their practice. The emerging standards of EBLIP require this approach, and librarians in health science disciplines have arguably embraced this concept more thoroughly than those in other academic disciplines (Bayley & McKibbon, 2006; Booth, 2003). The intention in this article has been to offer an immediate and practical method of assessing library research that uses qualitative methods, in the broader library research context.

If librarians use data from findings that are reported in the literature, they need to be assured that these findings are valid and

reliable. Librarians can and should make informed decisions about the quality of research, no matter what methods are used. Qualitative methods need to be assessed differently than quantitative methods, because of the different paradigms with which they are associated, naturalistic and positivistic, respectively. The constructivist nature of the naturalistic paradigm, the different research problems that lend themselves to this paradigm, the different methods of data collection and analysis, and the reporting style of research studies that use this paradigm can make evidence difficult to interpret and appraise (Sandelowski & Barroso, 2002). Nevertheless, it is possible to appraise naturalistic research evidence using a framework, such as the one used here, to help librarians identify common research errors as outlined earlier by Beck and Manuel (2008). More research needs to be done in library contexts to identify and construct library-specific research assessment frameworks that address library research problems (Booth, 2003; Booth, 2009a). In the meantime, librarians can use the assessment framework illustrated here or similar frameworks to help assess evidence to assist them in their ongoing library practices.

Conclusion

The aim of this article has been to help librarians evaluate qualitative research so they can use it in their daily practice. Evidence derived from qualitative methods may be disregarded because it can sometimes be overlooked. This can be because the research results of qualitative studies are compared to the findings and rigor associated with quantitative methods, or because of the inherently different paradigms with which each is associated. Taking into account the suitability of different approaches and methods for specific research problems, librarians may not find the evidence or use it to best advantage in their professional practice. To address this omission, the assessment framework suggested here illustrates the criteria and process for assessing qualitative research, while simultaneously

applying the assessment method as a template to critique a research article. The findings have been assessed, and the results deemed valuable for use in resolving the library scenario that was initially provided.

It is anticipated that this article will provide a reliable and practical demonstration of how library research based on qualitative methods can be evaluated and judged on its worthiness and then used for evidence to guide EBLIP. By employing an assessment framework such as the one offered here, and by combining its use with personal work experience and common sense, librarians will be able to judge the inherent value of published library research and to use it as evidence for practice.

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