Refining Strategy: A Second Bid at Critical Interpretive Synthesis for Collection Building

Stephen Bales[1] and Laura Sare[2]

[1]PhD, Humanities and Social Sciences Librarian, Sterling C. Evans Library, Texas A&M University Libraries, 5000 TAMU, College Station, TX 77843-5000, USA
[2] Texas A&M University Libraries, 5000 TAMU, College Station, TX 77843-5000, USA

Abstract: This paper reports on an on-going project to adapt critical interpretive synthesis (CIS), an interpretive method for synthesizing collections of both quantitative and qualitative research reports, for practical use by librarian subject selectors in current awareness activities and collection development. The authors critically assess a previous attempt at CIS for collection development—one that involved the subject area of journalism and popular culture—to inform and update their analytical strategies and streamline the method. These strategies are implemented in a second bid at CIS involving current research in philosophical ethics. It is determined that strategic shifts in both sampling and qualitative analytical procedures do much towards improving CIS's potential as a practical tool.

1. Introduction

Library collection developers/subject selectors have used both quantitative and qualitative research methodologies to conduct "back-end" collection analyses; that is, to evaluate the strength of existing bibliographic collections. There have, however, been no similarly rigorous research methodologies for analyzing the "front-end" of the collection building process, i.e., investigating methodologies supporting current awareness for making selection decisions. This distinction between front and back-end analyses results is an unusual contradiction in collection development practice. While rigor and method are preferred for conveying the strength of an existing collection—largely due to the defensibility of the results obtained—the same amount of rigor is not found in techniques used to identify trends in order to create new collections or build effectively upon pre-existing collections.

This paper reports on the second iteration of an ongoing project to refine an application of a qualitative research synthesis method, critical interpretive synthesis (CIS), as a tool for gaining a theoretical understanding of a collection area and informing sound selection decisions. It reports on an application of the method as a means for cognitively defining a specific selection area, the philosophical study of ethics (hereafter referred to as the "ethics review").

The particular application of CIS reported in this paper is a follow up to, and partial replication of, a previous attempt at using CIS for selection purposes (Bales and Gee 2013), and adopts the first article's basic framework for presenting its results. In the earlier review, the analysts explored a subject area consisting of the intersection of journalism and popular culture (hereafter referred to as the "J&PC review"). The present review takes into account the lessons learned in the J&PC review in order to further streamline the method for practical application by library collection builders. The following report compares the two reviews and reports on the efficacy of these methodological modifications. The analysts concluded that this streamlined approach is a viable method for developing a rigorously obtained theoretical understanding of the current state of an academic subject area and provides subject selectors with information necessary in order to determine the strength of their existing collections.

2. Background

Critical Interpretive Synthesis

CIS is an interpretive research method developed by Dixon-Woods et al. (2005; 2006) that allows analysts to synthesize existing quantitative and qualitative research reports to develop original substantive theories tailored to the analyzed corpus of research. Because it allows for the analysis of both quantitative and qualitative paradigms, CIS differs from meta-analysis, which include a variety of quantitative methods used for synthesizing quantitative research results, and meta-ethnography (Noblit and Hare, 1988) and related methods such as qualitative research synthesis (Major and Savin-Baden, 2010), which are used for the qualitative synthesis of qualitative research reports. As a technique that covers a range of research methods, CIS is applicable to heterogeneous research literatures. This, in turn, makes the method useful for analyzing many different subject areas.

Dixon-Woods et al. derived the CIS method largely from Noblit and Hare's (1988) method of meta-ethnography, adapting meta-ethnography by developing a programmatic set of five procedures that accommodate complex research literatures. The resulting CIS theory consists of "synthetic constructions" (broad theoretical categories) abstracted from the data through a derivation of Glaser and Strauss's (1967) grounded theory techniques. In addition to the inclusive nature of CIS, the method is notable for its use of "synthesizing arguments." That is, analysts construct an explanatory metaphor that links together the emergent synthetic constructions. What results from the CIS process is substantive, mid-range theory that, although not scientifically generalizable,

allows for what Straus (1981: 270) termed "generic models or hypotheses providing practical interpretation schemes for a range of similar phenomena."

Used primarily in health science research, recent CIS-based studies have synthesized research concerning the perceived value of health care services (Entwistle et al., 2012), the research output stemming from the UK's Continuity of Care Research Programme (Heaton, Corden, and Parker, 2012), the distribution of medical information to cancer patients (Kazimierczak et al., 2013), and co-parenting in social work (Hock and Mooradian, 2013).

Although the method remains popular in health science research, CIS is relatively unknown in library and information science (LIS), although Urquhart (2011) and Bawden (2012) have suggested the method as a viable tool for LIS research synthesis. The latter author concluded that "the most appropriate methods [for research synthesis in LIS] seem to [be] those categorized as 'critical interpretive synthesis', as these are able to deal with large sets of diverse forms of information, and proceed in a non-linear and holistic way" (Bawden, 2012: 157).

Initial Application of CIS: The Current Landscape of Journalism & Popular Culture

To gauge the potential of CIS as a tool for aiding library selection decisions, Bales and Gee (2013) used the method to model cutting-edge research trends in one of the lead authors selection areas, journalism and popular culture. In order to do this, the analysts analyzed five years-worth of conference presentations relating to journalism and popular culture in programs of the Popular Culture Association/American Culture Association (PCA/ACA) National Conference. The analysts adopted the rationale that the synthesized theory derived from such an analysis would provide a methical, rigorous way to describe emerging areas of interest in a discipline by deriving "higher order abstractions from large sets of data through theoretical consolidation, providing a well-developed cognitive model of the 'state of the field'" (Bales and Gee, 2013: 54).

Analysis of the PCA/ACA programs resulted in the development of a CIS theoretical model consisting of three primary synthetic constructions/categories, (1) Bounding the discipline, (2) Constructing realities, and (3) Reconstructing realities, as well as the synthesizing argument "Engaging in dialectical praxis." The analysts developed a theoretical understanding of J&PC centering on the notion that the emerging literature "focuses primarily either on understanding how [journalistic] institutions act to define realities or how these structures and relationships inform and result in practices of resistance" (Bales and Gee, 2013: 54). Although the analysts recognized the potential of CIS as a tool for environmental scanning—because it offers a methical way for understanding current literatures—and as a companion to systematic analyses of back-end collection strength, they encountered notable difficulties during analysis that appeared to limit this potential. Primary problems that occurred included the inadequate selection of an effective research sample, the lack of sufficient data for making determinations of data quality or extracting adequate amounts of

information necessary for meaningful analysis, and excessive time requirements that rendered the process unwieldy for practical application.

The following sections report on a second attempt to apply CIS to a subject collecting area, and the measures taken to modify and streamline the procedures. This second bid applied the method to the current intellectual terrain of the philosophical study of ethics. The following discussion describes the implementation of the ethics review while comparing it to the J&PC review. This is done to highlight significant modifications to the previous implementation (J&PC review), and to better understand the efficacy of the current bid at CIS for collection development (ethics review).

3. Implementation and Discussion

Dixon-Woods et al. (2005; 2006) developed a programmatic procedure for conducting a CIS analysis consisting of the following steps:

(1) Formulating the Review Question,
(2) Searching the Literature,
(3) Sampling,
(4) Determination of Quality,
(5) Data Extraction, and
(6) Interpretive Synthesis.

The J&PC review followed this same procedure, and it was similarly employed for the ethics review while incorporating strategic adjustments to specific elements (e.g., choice of sampling frame). The following subsections address each element of the procedure as they were applied in both reviews to illustrate the modified and streamlined approach of the updated method. The reporting structure of the previous review is similarly reported in this document to facilitate ease of comparison.

Formulating the Review Question

Dixon-Woods et al. (2006: 3) wrote that interpretive literature reviews, much like other types of qualitative (and particularly grounded theory) research, should begin with broad research questions. For the J&PC review, the analysts formulated the review question: "What are the characteristics of current research in journalism and popular culture" (Bales and Gee, 2013: 52)? Likewise, the review question for the ethics review was intentionally kept broad: "What are the characteristics of current research in the philosophical study of ethics?"

After finishing the ethics review and comparing the two reviews *qua* methodological processes, the present authors concluded that, for the purpose of a CIS analyses aimed at aiding selection decisions, this initial broad review question tends to remain intact throughout the review process. This appears to be largely because the intended outcome of the research—defining a particular subject area for selection—is established at the beginning of the process. This presumption should not be seen as monolithic or binding, as the ongoing analytical process may cause analysts to reassess the meanings and boundaries of the particular subject area under review, resulting in changes in the review question. For example, analysis may lead the reviewer to conclude that her

review question is too broad and needs to be further specified. Analysts should remain open to the possibility of shifting review questions over the course of the review.

Searching the Literature

Upon formulating the initial review question, analysts search the literature to identify potential materials for analysis. According to Dixon-Woods et al. (2006), structured search strategies aiming to collect *all* relevant literature are inefficient for CIS reviews. Instead, CIS analysts should conduct "organic" searches that identify "potentially relevant papers to provide a sampling frame" (Dixon-Woods et al., 2006: 3).

The J&PC review showed the analysts that, for CIS analysis to be a practical and efficient current awareness tool, analysts should make use of small, vetted lists of potential sources to derive their sampling frame. The sampling frame for the J&PC review consisted of five years of conference presentation titles drawn from PCA/ACA National Conference program, the rationale being that analyzing conference programs from recent national conferences would give analysts access to the most recent research trends in a subject area. This strategy, however, resulted in an unwieldy initial set of over 8750 presentation titles. Collecting and sampling from this frame was time consuming. Furthermore, since the analysts had nothing to go on but the titles of conference sections and presentation titles, they were left with many questions when making relevance decisions concerning appropriate titles for inclusion. The process turned into a massive time sink.

As a strategy for correcting for this problem during the ethics review, the analysts shifted from examining national conferences to examining the latest research published in academic philosophy journals. There are, of course, thousands of philosophy journals. Therefore, to streamline the framing process, the analysts adopted an existing list of recommended journals as a manageable "sampling frame," choosing the "Philosophy" chapter from the well-known reference publication *Magazines for Libraries* (Harnsberger, 2011). Other classified lists, such as *Magazine's for Young People*, resources available through *Choice Online*, and web bibliographies compiled by subject librarians, may likewise act as expert sources for sampling frames in various research.

Choosing a prefabricated list has advantages for the selector cum CIS analyst. Opting for a list provides a manageable body of publications that (in most lists) run the gamut of subjects within an academic area. These lists also save the analyst's time by doing the bulk of the information vetting for her. Journal articles also provide analysts with maximum information concerning a study, allowing for more flexibility in subsequent analysis. Conference programs or proceedings may still be feasible sources of sampling frames if they are taken from smaller, subject specific meetings with published abstracts.

Sampling

Once a manageable sampling frame has been identified, Dixon-Woods et al. (2006) call for purposive sampling as opposed to traditional (quantitative) sampling methods. Purposive sampling, also known as theoretical sampling, is

an iterative method in which the emerging theory dictates sampling decisions (Glaser & Strauss 1967). Again, the choice of sampling frame in the J&PC review proved inadequate in that it restricted the analysts' ability to successfully obtain a meaningful purposive sample. A successful sample was achieved for the ethics review, however, by using the abridged sampling frame described above and applying the following strategies:

(1) Identify those academic journals dedicated to philosophical ethics *in general.* Five journals out of 88 total journals were selected: *Ethics* (vol. 123, no. 3); *Ethical Theory and Moral Practice* (vol. 16, no. 4); *Journal of Ethics & Social Philosophy* (vol. 7, no. 1); *Journal of Moral Philosophy* (vol. 10, no. 3); and *Journal of Ethics* (vol. 17 no. 3).

(2) Obtain the latest, *non-thematic* issue of each of these journals (all issues of the ethics journals in this review were published in 2013).

(3) Identify all articles from these journals that present original research, while excluding all review articles (37 research articles were collected and analyzed).

The analysts worked through this corpus of 37 articles during the *Data Extraction* and *Interpretive Synthesis* stages of the CIS review, finishing when they had achieved theoretical saturation. If theoretical saturation is not achieved using this initial set of documents, or if the set of documents does not appear to adequately cover the research area, analysts might choose to do the following:

(4) Sample other, more specific journals from the sampling frame that fall within the targeted subject area.

(5) Conduct targeted searches for recent articles in relevant databases.

These final two steps, however, were not necessary in the ethics review; the basic synthetic constructions began to appear relatively soon after coding began for the 37 articles and were sufficiently established by the conclusion of these articles' coding.

Determination of Quality

Dixon-Woods et al. (2006: 4) found that for the purposes of CIS reviews, "signal" (relevance to a topic) takes precedence over "noise" (the inclusion of poorly realized research designs). During the J&PC review, the analysts made no attempt to determine the quality of the included literature, and considering that they were limited to the titles of research sessions and presentations, such a determination was impossible. The analysts determined, however, that the lack of even minimal quality control hindered the review procedure; too many assumptions concerning the legitimacy of the research had to be made on faith, and meaningful items might have been excluded because of the limited information available to the analysts.

For the ethics review, therefore, the analysts' modified sampling technique allowed them to strike a reasonable balance between "signal" and "noise." By selecting periodical titles from the *Magazines for Libraries* "Philosophy" chapter, the analysts were able to gather a literature that was both relevant to the review question, that is, the most current academic research in the philosophical

study of ethics, and of a generally high quality, that is, studies were taken from journals recommended in a notable and widely used reference resource.

Data Extraction
During the data collection process, CIS analysts use the grounded theory coding methods originated by Glaser and Strauss (1967), and further developed by Glaser (1978), Charmaz (2006), and Corbin and Strauss (2008). Grounded theory allows analysts to derive their synthetic constructions, which is CIS terminology for the primary categories uncovered in grounded theory research. Following Dixon-Woods et al.'s (2006) example, the ethics analysts created a *pro-forma* using an Excel spreadsheet to capture basic information about each of the journal articles, as well as to record qualitative codes that further abstract and define the meanings of the research reported in the articles (see Table 1). The *pro-forma* method was successfully implemented in the J&PC review, and was similarly found useful in the ethics review. The *pro-forma* allowed the analysts to organize larger quantities of information than typically found in grounded theory research studies. (i.e., 225 presentations for J&PC and 37 articles for ethics).

Table 1. Pro-forma for journal data extraction

Element	Description of element	Example
Record ID	Unique identifier for article (in this case, the initials of the source journal title followed by the number of the article from the issue sampled)	EB1
Year	The Year of publication	2013
First Author	The last name and first initial of the first author listed in the article	Baumsteiger, R
Title	The title of the article	Are Human Rights Redundant in the Ethical Codes of Psychologists
Journal	The title of the source journal	Ethics & Behavior
Codes	One or more open codes assigned to describe the individual presentation	Understanding the influence of religiosity and spirituality on moral reasoning; Examining factors that may influence moral reasoning

Interpretive Synthesis
Per Noblit and Hare (1988), Glaser and Strauss's (1967) grounded theory method is an appropriate tool for making theoretical connections between literatures by allowing analysts to identify major themes that run across multiple

cases. To do this, qualitative codes are derived immediately from the data, and, through an iterative process, these codes are repeatedly collapsed to develop a small set of major categories—the synthetic constructions—which act together as an explanatory model for the phenomena. In the case of the ethics review, the phenomena was defined as "cutting-edge research in philosophical research."

One complication identified in the J&PC review was the fact that that the analysts had nothing to code beyond the titles of the conference presentations themselves (although they might have tracked down additional information, such as contacting conference organizers or presenters for access to abstracts, this would have been unrealistic for the purpose of the practical application of CIS). The limited available information raised doubts concerning the precision of the coding process. The resulting codes, in fact, did little more than repeat many of the titles in somewhat generic terminology.

For the ethics review, the analysts initially considered coding the complete documents line-by-line in order to maximise their data analysis. This process was quickly determined to be tedious and an overcorrection of the coding problems encountered in the J&PC review. Many of the initial ethics codes were determined to be repetitious or superfluous. The analysts discovered that, by coding the article abstracts only, or by coding article introductions and conclusions when abstracts were not supplied, they were able to achieve satisfactory results while reducing unnecessary labour.

The ethics review resulted in the identification of four synthetic constructions (93 initial codes were recorded and iteratively collapsed into these categories) that, considered as a unit, described the current intellectual terrain of the philosophical study of ethics. These four synthetic constructions are listed and briefly outlined below:

(1) Arguing for or against an ethical position or theory,

A significant amount of the literature takes a stance either for or against an existing or emerging ethical position or theory. For example, articles took sides concerning concepts such as actualism (Greve, 2013), constitutive approaches to ethics (Kohler, 2013), and the connection between love and moral responsibility (Oates, 2013). The authors tended to use these opportunities to advance new ethics theories or amend existing theories.

(2) Fleshing out an existing ethical concept or phenomenon,

Another significant thread found woven throughout the research was the philosophical parsing and expanding of ethical concepts, e.g., moral reasoning (Baumsteiger, 2013) or phenomenon with ethical facets, e.g., euthanasia (Varelius, 2013). The literature appears to serve an anatomizing function for organizing the field, mapping and organizing ethics as a philosophical discipline.

(3) Expanding ethical consciousness,

There appears to be a significant movement in the literature towards spreading the normative conclusions obtained through ethical philosophy via pedagogy. So, not only does the research focus on parsing the field and taking firm positions, a major element of current publishing focuses on

actively molding popular and professional consciousness to accept these positions. The literature, in a sense, fulfills a proselytizing function.

(4) Implementing ethical positions through action, and

The final category reflects tendencies in the literature to not only expand ethical consciousness, but to implement ethical theory in order to bring to bear material change. For example, one article discussed how to confront important issues concerning race (Jeffers, 2013).

The analysts then developed the overarching code, the synthesizing argument "engineering change through theory and action," as a metaphor encompassing the four primary synthetic constructions and hence theoretically, describing the current state of the field.

The results will allow the subject selectors to focus their efforts on these emerging categories when searching for possible additions (both monographs and serial publications) to their subject collections. The derived theoretical framework, furthermore, may serve as a tool for evaluating the strength of existing collections by asking the question, does the current subject collection adequately reflect the substance of the current research environment?

Similar practical applicability was achieved with the J&PC review findings. But again, the modifications made to sampling and analysis procedures for the ethics study both greatly reduced the amount of time required for interpretive synthesis (from several months in the case of J&PC to approximately ten days for the ethics review) and improved the analysts' level of confidence in their analysis.

6. Conclusion

The first attempt at using CIS as a tool for selection decisions, the J&PC review, established that CIS has some potential for this practical application. The implementation of the review, unfortunately, was flawed. The sampling frame was unnecessarily large and the limitations of the data resulted in a synthesis that was theoretically opaque and left the analysts with concerns about precision.

Adjustments to procedures during the ethics review mitigated these problems. The modified sampling frame facilitated theoretical sampling by increasing analyst flexibility. The analyst is no longer locked into having to code a set of often obtuse titles and she can more dextrously go where the research takes her. Using abstracts as primary sources of data extraction greatly increased the richness of available information, and is thus a better means of creating a more fully realized grounded theory. Furthermore, the additional work spent coding the longer abstract was greatly offset by the time saved in working with the smaller (and better vetted) sampling frame.

CIS is a potentially valuable method for adding rigor to front-end collection development analysis. To realize this value, further research should be conducted to compare CIS results with known cutting-edge bibliographic collections to determine the fit of emergent theories to recognized exemplar collections. Initiatives should also be made to codify CIS procedure into an apparatus for collection analysis in such a way as to make it easily learned and applicable by practitioners.

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