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How We Done It Good: Research Through Design as a Legitimate Methodology for Librarianship

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How we done it good:
Research through design as a legitimate methodology for librarianship

Abstract

"How we done it good" publications—a genre concerning project-based approaches that describe how (and sometimes why) something was done—are often rebuked in the library research community for lacking traditional scientific validity, reliability, and generalizability. While scientific methodologies may be a common approach to research and inquiry, they are not the only methodological paradigms. This research posits that the "how we done it good" paradigm in librarianship reflects a valid and legitimate approach to research. By drawing on the concept of *research through design*, this study shows how these "how we done it good" projects reflect design methodologies which draw rigor from process, invention, relevance, and extensibility rather than replicability, generalizability, and predictability. Although these projects implicitly reflect research through design, the methodology is not yet explicitly harnessed in librarianship. More support for these types of projects can be achieved by making the legitimate design framework more explicit and increasing support from publication venues.

1   Introduction

Traditional publication venues reject or chastise submissions for lacking scientific rigor. For example, a paper I was once assigned to review discussed a library's creation of a new database of mural art. Yet the paper was not published, because it did not demonstrate in a valid and reliable manner that the database had any sort of effect on patron use. This project, like many others in librarianship, was rebuked for being what has come to be colloquially known as "how we done it good in our library": a project-based research attempt that merely describes how (and sometimes why) something was done. Such projects are not typically considered research because they do not meet traditional scientific criteria.

The paradigm of science is rooted in observation and description of the existing natural world in order to predict future occurrences, with rigor determined through validity, reliability, generalizability, and replicability. Although scientific methodologies may be the most traditional approach to research and inquiry, they are far from the only methodological paradigms. Other disciplines reflect alternative aims and criteria for rigor. For instance, humanities research, such as historical methodologies, finds rigor in the trustworthiness and dependability of data, enacted though triangulation of evidence from multiple sources, careful authentication of source materials though provenance, and continued documentation of such provenance so lines of evidence can always be traced (Busha & Harter, 1980; Pickard, 2013; Wildemuth, 2009). Design—also a unique discipline—centers on the artificial world: objects created by humans intended to institute change and solve problems (e.g., Cross, 2011). Such alternative paradigms cannot be assessed on the same criteria for rigor as the sciences.

1.1   Problem statement

Over the course of its development, American librarianship has positioned itself as mainly a social science discipline. The movement of education for librarianship from vocational training schools situated in libraries to formal university education in the early 20th century put an increased emphasis on scientific research and publication over practice (Richardson, 1982). Librarians were increasingly educated in an environment steeped in science and the academy, taking those epistemological understandings with them as they moved into practice and codifying the scientific identity of the field. Various scientific methods and methodological approaches have been harnessed throughout the 20th century, including positivistic approaches (Butler, 1933); social epistemology (Egan & Shera, 1952; Shera, 1972); qualitative inquiry (Fidel, 1993); and evidence-based librarianship (Eldredge, 2000, 2006). But all fundamentally

rest in the realm of science, and research undertaken in librarianship is assessed according to these scientific paradigms.

However, scientific paradigms may not be the only nor the most relevant paradigms for librarianship. Recent inquiry has raised the idea that librarianship closely reflects the discipline of design (Clarke, 2018). In this paper, I argue that the "how we done it good" approach to research in librarianship is a valid and rigorous approach to research that stems from a basis in design. I draw upon the concept of *research through design*, as articulated in the human-computer interaction (HCI) community by Zimmerman, Forlizzi, and Evenson (2007) to show how design-based research projects can be rigorous, reflective, and produce knowledge that can be useful and beneficial to librarianship. I advocate for supporting, rather than disdaining, these types of projects by explicitly harnessing the rigor inherent in the design process and creating publication and dissemination venues that support the research through design paradigm. I conclude with the idea that research through design methodologies add to the argument supporting the reconceptualization of librarianship as a design discipline, rather than its traditional conceptualization as a science.

2 Literature review

2.1 *Criticisms of how we done it good*

Criticism of research in library publications has been ongoing since the field's establishment as a scientific discipline (Haddow, 1997). As early as 1942, Beals, as noted by Johnson (1982) and Maguire (1988), described three major types of library publications: "glad tidings, testimony, and research," positing that there had been too much emphasis on the first two genres and too little of the last. A variety of techniques have been applied over the years to distinguish research literature from non-research literature in librarianship. For example, the norm in the 20th century

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was to equate research with quantitative positivistic methodologies. Notable scholars of librarianship including Butler (1933), Shera (1964), Goldhor (1972) and Busha and Harter (1980) lamented the lack of quantitative research in the field. Studies such as Wallace (1985) and Enger, Quirk, and Stewart (1988) used the presence of statistical methods to classify published articles in library journals as research. Other characteristics of division used to distinguish research publications have included the use of references in a given article. For example, Windsor and Windsor (1973) defined scholarly papers as those that contained references, while papers without references were classified as non-scholarly. Others, like Price (1970) used quantity of references as a measure of scholarliness.

These examples are clearly products of their time, as today a broader variety of approaches are accepted in the realm of scholarly publication in librarianship (Chu, 2015). Definitions of what constitutes research have moved away from these types of specific quantitative measures. Peritz (1980) defines research as "inquiry which is carried out, at least to some degree, by a *systematic method* with the purpose of eliciting some *new* facts, concepts, or ideas" (p. 251, emphasis in original). Analyses of library and information science (LIS) literature writ large have consistently found less than half of published literature in research venues to actually qualify as research according to this definition. For example, Kumpulainen (1991) found 56.8% of LIS articles published in 1975 to qualify as research; Feehan, Li, Havener, and Kester (1987) 23.6% of articles published in 1984; Koufogiannakis and Slater (2004) 30.3% of articles published in 2001; and Turcios, Agarwal, and Watkins (2014) a mere 16% of articles published in 2012-2013. These percentages are similar in sub-fields of librarianship, such as reference, where Aytac and Slutsky (2015) found 30.49% of the literature to be scholarly research, and cataloging, where Carter and Kascus (1991), Roe, Culbetson and Jizba (2007), and Terrill (2016) found 20%, 15-

20% and 24%, respectively. A survey of author and editor perceptions found that a majority of authors (57%) and editors (60%) in journals of library scholarship felt that scholarly publications in librarianship were less rigorous than other fields, and editors referenced "shallow, poor research" as the top reason for rejecting a submission (Floyd & Phillips, 1997, p. 89).

By definitions proffered, "how we done it good" articles, have traditionally been considered part of the majority of literature not classified as research in these analyses. Although no formal definition can be identified, how we done it good in our library papers are those that communicate a project-based research attempt that describes how (and sometimes why) something was done in a particular setting. Foster (1968) may have been the first to use the phrase "how we did it in our library" to derogatorily describe the bulk of published journal content in librarianship. Danton (1976) wrote a scathing criticism of this type of article:

> "The frontiers of the profession will not be advanced, its fundamental problems will not be solved, and the many 'whys' which it faces will not be answered by 'how-we-do-it-good-in-our-library' articles, no matter how numerous, useful, informative and well done (p. 170).

The editors of *Library and Information Science Research* find this genre to be representative of shallow and poor research:

> "A 'how we done it good' paper tends to lack a problem statement, a theoretical connection, coverage of literature from other than library and information science (and perhaps even that only partially), research questions, and (if appropriate) hypotheses. The entire paper—from the abstract and introduction to the conclusion—might revolve around a specific named institution. The method or procedures section might mention the

number of respondents participating in data collection but might not say anything about research design, sampling method, instrument development and testing, reliability and validity, and so on. If the study involves an intervention of some kind (e.g., a new or different component of an information literacy program), there might be no baseline data upon which to measure change." (Hernon & Schwartz, 2016, p. 91)

These criticisms of the how we done it good approach are certainly legitimate from the perspective of scientific research. Yet the characteristics Hernon and Schwartz identify as imperative to quality research offer a narrow conceptualization of research and scholarship, still rooted in a quantitative, positivistic paradigm. Such a perspective presupposes the notion that research in librarianship is, or should be scientific. But what about other existing legitimate research paradigms? For instance, if we consider the how we done it good approach as a form of research rooted in design, rather than science, it may not only turn out to be a valid research methodology, but one that is more appropriate to librarianship than scientific methodology.

2.2   Research through design

Despite the increasing variety of research methods in recent years, research in librarianship is still implicitly equated with scientific paradigms (e.g., Chu, 2015). Design research is no exception. Although early formal investigations of processes and methods of design in the 1960s characterized design as a type of science, it quickly became evident that this was a limited viewpoint (Cross, 1993, 2001, 2011). Indeed, design is not science at all—design is a completely different discipline with a unique epistemological framework. Scholars from the 1960s to the present day have identified consistent factors and aspects of design across a diverse range of disciplines. Designers from all fields—from architecture to engineering, from fashion to technology—undergo similar methodologies, revealing a common set of fundamental principles

that underlie what constitutes knowledge in design (Cross, 1999, 2011; Schön, 1983; Thomas & Carroll, 1979). The major epistemological division between traditional science and design stems from the idea that science concerns itself with observing and describing the existing natural world with the goal of replicability and prediction. Design, on the other hand, centers on the artificial world: objects created by humans to institute change and solve problems. Science is about what is, while design is about what could be—or arguably what should be (Liedka, 2004). The objectives of design are to "create things people want" by "addressing problems or ideas in a situated context" (Konsorski-Lange & Hampe, 2010, p. 3; A. Telier, 2011, p. x). Unlike science, knowledge in design stems from the creation of artifacts and the accompanying processes that occur throughout creation. To create artifacts, designers undergo processes including but not limited to the following: defining design spaces and boundaries of context (constraints, requirements, and focus; Goel & Pirolli, 1992); drawing on repertoire (previous experiences and bodies of knowledge; Schön, 1983); ideating through sketching (brief, disposable inspiration and ideas in words or pictures; Buxton, 2007); iterative work processes and parallel development (creation of many different solutions instead of working to perfect a single solution; Dow et al., 2010); on-the-spot trial, experimentation, and error (Schön, 1987); and reflecting on situations, contexts, and potential solutions both during and after work is carried out (Schön, 1983, 1987). These are more than just a process of working—they reflect a "designerly way of knowing"–a distinctly different epistemology than traditional science (Cross, 1999, 2011). Science creates knowledge through activities like observation, hypothesis testing, and controlled experimentation. Rather than relying on reliability and validity to establish rigor, design relies on rationale (reasons and justifications for choices; Carroll & Rosson, 2003); critiques from experts (Greenberg & Buxton, 2008); and other criteria such as novelty, innovation, and relevance to

users (Forlizzi, Zimmerman, & Evenson, 2008) to determine rigor. Unlike science, which aims for predictable, consistent results, design specifically aims for deviations and variations (Jonas, 2012), creating its own forms of rigor. See Table 1 for a comparison of basic differences between research through science and research through design.

Such an alternative approach to knowledge needs appropriate alternative research methodologies. Yet design research in librarianship is often characterized as a type of scientific action research method. The action research approach is especially prevalent in LIS, perhaps because of its focus on applied organizational settings and its emphasis on problem solving (Connaway & Radford, 2017). Some action research projects may incorporate aspects of design, by creating, implementing, and evaluating artifacts intended to solve problems through intervention (Beck & Manuel, 2008). For example, Bowler and Large (2008) suggest what they call "design-based research" as a useful methodology for LIS research. However, their suggestion draws on design methodologies as understood in the field of education, which frames design as a form of scientific experiment (Brown 1992), and thus still reflects a scientific paradigm. In fact, definitions and outlines of action research are still deeply situated in scientific epistemology, such as formulating testable hypotheses, articulating predictive theories, and collecting measurable data (Isaac & Michael, 1995; Sagor, 2010). Connaway and Radford note that the steps of action research do not significantly differ from those in a scientific research study.

Instead, this paper will draw on the concept of research through design (Frayling, 1993) to describe methodologies rooted in design epistemology and differentiate the concept from research intended to inform design (such as user studies), research about design (such as the history of a design field), or intervention-based action research methodologies. Research through

design is an activity where design researchers focus not just on making, but on making the *right* thing (Zimmerman et al., 2007, emphasis original); that is, making artifacts intended to transform the world from the current state to a preferred state. Thus it is a methodology that endorses the making of an artifact itself as a form of inquiry, relying on the criteria outlined above to guide rigor. Research through design is separated from everyday design practices through its intention to function as inquiry. To qualify as research through design, Zimmerman et al. argue that the motivation for making an artifact must be to produce knowledge, rather than producing a commercially viable product. Additionally, artifacts need to demonstrate significant invention to qualify as research, integrating a thorough understanding of theory, technology, user needs and context. They offer four criteria that may be used to assess high quality research though design contributions:

1. An examination of the design process: how a design was made, including choices faced, decisions made, and justifications for those decisions (i.e., rationale);
2. The inventiveness of the design product through a documented demonstration of the design's newness and novelty;
3. Rather than increased performance, a design should demonstrate relevance to its intended community by articulating why it offers a preferred state;
4. Opportunities for extensibility and the ability to build on the resulting outcomes

Although Zimmerman et al.'s suggestions are supplied specifically for research in the field of human-computer interaction, they believe that research through design might be one of the most important contributions of design researchers to the larger research community. Examples of research through design exist in a variety of fields, from architecture to software engineering.

Fields with close ties to librarianship and information science, such as information systems and interaction design, are increasingly harnessing research through design methodology.

3   How we done good research through design

It is difficult to review existing examples of how we done it good literature, since much of it is not published due to its perceived lack of scientific rigor. But if we imagine typical projects of the genre, we can easily see that they reflect many elements of research through design, including process descriptions, inventiveness, and relevance. In this section, I draw on Hernon and Schwartz's (2016) characteristics of how we done it good papers as well as the example of the mural art database mentioned in the introduction to illustrate the valid applicability of research through design to librarianship.

3.1   Creation

How we done it good projects are based in creation by their very nature. Kline (1985) uses the term "artifacts" to refer to all products—tangible or intangible—created by humans that do not naturally occur on earth. Therefore, the term "artifact" is often used to describe the creative output of design. Artifacts may be physical objects like tables or telephones. But physical artifacts are not the only artificially-created things in our universe. People also create intangible conceptual systems and processes, like applications for smartphones. These designs may be represented by or documented in physical artifacts, such as functional requirements or sketches. These intangible conceptual objects can also be considered artifacts, along with any techniques or records used to embed them. Myriad examples of these design artifacts exist in librarianship: from the earliest cuneiform lists of holdings for the libraries of Sumeria, to the first known deposit model at the library of Alexandria; from Dewey's decimal-based classification system, to modern databases like NoveList that support readers' advisory and recommendations. Any

library project, especially those that might be considered interventions in scientific action research, is a created artifact. In the how we done it good approach, the artifact is the "it", or what, exactly was created in the library. In the introductory example of this paper, the database of local mural art would be the "it", the artifact that was created.

3.2 Process documentation

While artifacts are a key component of research through design, knowledge is formed and rigor is assessed through the process of their creation. Such a description is inherently included in the "how" of the how we done it good. While such description may be viewed as anecdotal in a scientific paradigm, it is the heart of research through design, where strict adherence to documenting the process allows the community to critically reflect on both the process and the artifact created. Many of these reports also include thorough descriptions of the intended functionality of the artifact. For example, the mural art database enabled users to search for works by both artist and geographic location. The intention of this function was to offer multiple access points for connecting with works, and let users both identify locations where art might exist as well as learn more about a work they had encountered in the city. The mural art database project also offered a rationale for selecting location as an access point by connecting it to the goals of helping users identify and learn more about a work they encountered while out in the city—without location metadata as an access point, a user who encounters a mural at 123 Main Street would not be able to find information about it in the database. The rigor in this case stems not from the inclusion of location metadata in and of itself, but the explication of the reasons and rationale for its inclusion, and the connection of that rationale to the project's stated goals.

3.3   Inventiveness and relevance

In addition to process documentation, how we done it good projects also reflect aspects of inventiveness and relevance. In the case of the mural database, the creators discussed the lack of any tools to identify, document, represent, and preserve the mural art in their community, and demonstrated that no tool (or set of tools) yet existed to address those issues. They did note the existence of databases and information systems for other art forms, which may appear to negate the inventiveness of their project. However, novelty is not binary, but may be assessed along a spectrum. For instance, newness may be context dependent: a pre-existing idea implemented in a new setting may be considered novel. There may be new challenges raised by the medium of mural art—such as the importance for geographic location and context—not addressed in other information systems, such as those for paintings or photographs.

Relative innovation also connects to the idea of extensibility: if all designs were completely new inventions that did not draw on previous designs, then the extensibility of those designs would be moot, and not a critical criteria for research through design.

The example of the mural art database also reveals a focus on relevance by articulating its intentions for serving the community. By describing the project goals—to help users learn more about mural art in the community—the creators clearly reflect and rationalize the desire to change from an existing to a preferred state and make an assertion about how the world should be. In this example, the existing state is one in which users lack knowledge about the art surrounding them, while the preferred state—the state the library feels users should exist in—is one in which they have more information about these local artistic endeavors.

3.4   Evaluation

Additionally, it should be noted that this genre is not characterized as "how I did it in my library," but "how I done it *good* in my library," thus implying some sort of quality assessment. In intervention-based action research, success is often assessed by measuring changes from a baseline state. Hernon and Schwartz (2016) explicitly call out the lack of baseline data as one of the issues with how we done it good papers. While science relies on such epistemological constructs of evidence, design considers interpretation as a valid form of epistemological evidence (Nelson & Stolterman, 2012). Scientific evidence is often used by designers to describe existing situations, which is necessary to inform design frames, conditions, and constraints. But the underlying purpose of design is not to describe the existing world in a factual or objective manner, but to change situations and add meaning to them. A novel artifact may have no meaningful baseline. Therefore, subjective interpretation is a valid form of evidence in design, manifesting through evaluative elements like reflection and expert critique. At minimum, design evaluation should consist of a reflective critique by the design's creators (Greenberg & Buxton, 2008). In the case of the mural art database, such a reflection might include what the researchers learned about library patrons; technological constraints and how they were (or were not) overcome; or how their repertoire was expanded through increased knowledge of art, just to name a few ideas. Such reflection might also address some of the other aspects of research rigor put forth by Zimmerman et al. (2007): the creators of the mural art database might reflect on its extensibility by brainstorming new projects that build on the database, such as a monthly walking tour informed by the database information.

Although design evaluation is not objective in the traditional sense, it adheres to foundational concepts of rigor in practice to ensure validity within the discipline. What may seem like

arbitrary subjectivity to outsiders is actually evaluation based on an extensive repertoire of personal knowledge and experience (Snodgrass & Coyne, 2006). The lack of pre-established and explicitly defined and measurable validation criteria does not mean that interpretation comes arbitrarily from thin air. Instead, designers develop an understanding of values and norms of evaluative criteria built up over time. Although such evaluation may seem random to an outsider, it is actually adherence to these established values that demonstrates and reifies an evaluator's authoritative role.

3.5   What makes it research?

So far we have shown that how we done it good projects are design projects that reflect elements of research through design. But as previously noted, it is intent that distinguishes practical design application from research through design: artifacts must be created with the intent of seeking knowledge rather than commercial prospects. Although commercial viability is typically considered in the context of profit-seeking return on investment, most libraries are not commercial entities with profit-seeking aims. However, a broader interpretation of commercial viability may include parallel concepts in a library context, like patron use and adoption. In this view, many library artifacts profiled in how we done it good reports could be considered as artifacts of design practice. Thus, intention to share or disseminate experiences emerging from the creation of those artifacts—such as submitting an article or report to a research journal, as in the case of the mural art database—constitutes an intention to share new knowledge. New knowledge was anticipated and at least partially responsible for motivating the artifact's creation and the surrounding inquiry activities. Such an overlap is clearly reflected in library how we done it good projects, with intentions both to "do it good" within one's own library and also share knowledge so that others may "do it good" in theirs.

4 Issues and opportunities

4.1 *Explicit inclusion of the elements of research through design*

We have shown many ways in which how we done it good approaches represent legitimate research inquiry when framed as research through design. However, although many elements of research through design appear in such projects, few explicitly draw on the methodology of research through design. For instance, process descriptions are key elements of the genre and represent more rigorous research through design, but these descriptions often only include implicit articulation of choices made throughout the creation process and the reasoning behind those choices. To constitute research through design, this articulation needs to be explicitly considered. Such rationale creates new knowledge and works toward theory creation in design (Carroll & Rosson, 2003).

In existing how we done it good papers, evidence of invention or novelty may be only addressed in a cursory manner, when it should be represented by thorough literature review and field scans for other similar projects. This poses a catch-22, however, because if project-based how we done it good reports are not published and disseminated, it makes discovering and learning about what already exists much more challenging and may offer creators a false sense that what they are creating is novel.

Other research through design criteria, such as relevance and extensibility, are almost always implicit. Relevance is often presumed without being formally articulated. But this issue is not unique to research through design—even Hernon and Schwarz (2016) note the lack of well-articulated problem statements that connect to the inquiry at hand. Thinking about relevance as it is framed in research through design—explaining why the newly-designed state is preferable to

the current situation—may help all library researchers better express the relevance of their projects.

4.2   Trading generalizability for the "ultimate particular"

One of the most common critiques of the how we done it good genre is the limited context and applications for any findings or discoveries. Most how we done it good papers focus on a specialized local case, such as a specific named institution (Hernon & Schwartz, 2016); added value comes from placing research results within the wider community of library research (Douchette, Fyfe, Harrington, Hoffman, & Waugh, 2013). But design offers a bridge between broader knowledge and specific local instantiations, what Nelson and Stolterman (2012, pp. 30-32) describe as the "universal" and the "ultimate particular." The universal describes abstract ideas, absolute truths, and overarching theories. The ultimate particular refers to specific, concrete, highly contextual instantiations, for instance, specific artifacts (tangible or intangible), such as a chair, a curriculum, or a policy. Traditional how we done it good papers, by their very nature, are examples of particulars.

According to Nelson and Stolterman (2012), design is the process of moving from the universal to specific artifacts. Yet rather than acknowledging the design perspective that particulars derive from universals, antagonists of the how we done it good projects seems to desire the opposite idea—some kind of universally applicable result or "universal particular" that functions across all contexts. But since design aims to solve problems affected by diverse localized contexts and framings, creating any sort of universal artifact that works for all libraries is a quixotic task. Instead, how we done it good papers need to expressly communicate the ways in which the particular being described emanated from a universal. In librarianship, a universal might be a theory of information behavior, or a value espoused by the profession. Explicitly connecting to

these types of universals is what positions research through design results in the wider community, not the creation of a universally applicable artifact.

4.3   *Emphasizing extensibility over adoption*

Another technique that, if strengthened in these types of reports, may help communicate generalized knowledge is the use of reflection to offer insights about extensibility. Brainstorming ways that other libraries and organizations could benefit not just from the artifact itself, but from the knowledge gleaned in making the artifact, could help bridge this gap. Brainstorming extensible applications also combats the lack of innovation demonstrated in how we done it good projects by the assumption that others will implement the project directly as is: a visible phenomenon in contemporary librarianship. For example, the first library makerspace at the Fayetteville (NY) Free Library was incredibly inventive. Subsequent installations of makerspaces were copies, applications of a how we done it good project as-is, without extending or building on the design. Reframing these applications as research through design could increase emphasis on the invention aspect, and explicit use of reflections can help others understand how to harness extensibility for their own context rather than out-and-out copying. Although direct adoption of a design that was developed in another context, such as a makerspace installation, can possibly benefit a community, the benefit will always be stronger if that design is extended and tailored for local use. Additionally, new information learned about patrons, usage, and behaviors could be gleaned in a research through design approach that extended the original design, thus contributing to the continuation of ongoing knowledge development that benefits more than just the local community. Adding research through design and other design epistemological concepts to library education as a means to support this type of approach may help librarians increase their creativity and inventiveness, and foster a body of

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knowledge that helps librarians not just deploy useful products, but better understand why those deployments work. Training librarians to be informed creators can help them better understand what would work for their specific libraries vs. another setting, and help them actively embody universals like the values of librarianship in their creations.

4.4   Theory generation in research through design

A final criticism of the how we done it good approach rests in the idea that these projects are disconnected from theory. Hernon and Schwartz state that how we done it good articles lack a theoretical connection (2016). Katapol (2015) describes how we done it good articles as ones that rarely relate back to theories in LIS. Matteson (2008) suggests that the theory/practice divide in librarianship is a contributing factor to the prevalence of the how we done it good phenomenon: practitioners reject basic scientific or academic research because they do not perceive it to be relevant to practice, while researchers reject the how we done it good work as anecdotal and therefore not rigorous. Research through design offers answers to both of these concerns. Although theory development is not as well understood yet in design as in science, clear differences stand out: science seeks theories that are descriptive and predictive, while design offers theories that are provisional, contingent, and aspirational (Gaver, 2012). Katapol's critique may be valid if we look for connections to scientific theories in design projects, but that seems akin to looking for a needle in a haystack: not only is it hard to find, but why would a needle be in a haystack in the first place? Rather, we need to be looking for connections to alternative approaches to theory. Aspirational theories are both highly relevant to research through design and librarianship, as both aspire to change the world.

In the example of the paper submission about the mural art database, scientific assessment was used to evaluate the submission. But such an approach should not have been the only

determining factor in evaluation of rigor. Instead, if rigor is considered in terms of design epistemology, then a discussion of the artifact and its significance—the first database to tackle description of this prevalent local art form—and the challenges faced and decisions made during its creation would qualify as a legitimate contribution to knowledge. Additionally, while a more scientific-based assessment addressing usage, such as a patron survey, may have offered knowledge about local adoption and needs, the discussion and reflection around challenges and decision rationale could offer universally applicable knowledge adaptable by other libraries and related settings, and would therefore be more useful to other professionals and researchers in the field than a survey of local patron use. Therefore, instead of being chastised, the "this is how I did it in my library" paradigm should be acknowledged as a valid contribution to knowledge in librarianship.

4.5 *Acknowledging the legitimacy of research through design*

The first step in acknowledging research through design as a valid contribution to knowledge rests with the gatekeepers of what constitutes legitimate research knowledge in the field: publication and dissemination venues. Publication venues for research, like scholarly journals, need to acknowledge the legitimacy of research through design as a rigorous and valid methodology instead of forcing such projects to be reframed and communicated via traditional scientific norms. But acknowledgement alone is not enough. Such venues should strive to communicate and support the application of research through design in the peer review process and other forms of mentorship. Publications can also support the application of research through design by requiring mandatory sections on rationale and reflection, in the same way that they currently require standard sections like problem statements and literature reviews. If existing publications are not willing to institute such support mechanisms, new venues for sharing and

disseminating information surrounding library designs that acknowledge the legitimacy of evaluation methods based in design epistemology need to be created. Other institutional structures, such as the American Library Association or similar organizations, should foster and support expert critique for evaluating design artifacts, using examples such as the annual video and website critique sessions offered at conferences such as Museums and the Web as springboards.[1] Instituting these critique sessions will require participants with expertise not only in library-related subject areas but also in giving and receiving critique, which requires explicit education, training, and practice.

Research in librarianship has been criticized for its lack of rigorous scientific methodology, epitomized by the phenomenon known as the how we done it good approach. However, just because this approach lacks scientific validity does not mean it lacks research validity. How and why a library artifact was created—the focus of most how we done it good projects—is core to the research through design methodology. The fact that these types of practical application papers outnumber what have traditionally been classified as scholarly research papers is perhaps not an indication of low research output, but rather a sign that a mismatched paradigm has been applied to research in librarianship. Although design often seems mysterious to those outside the domain, its unfamiliarity does not mean it is less rigorous or unsystematic. Design offers a common set of fundamental principles that underlie what constitutes knowledge in design (Cross, 1999, 2011; Schön, 1983; Thomas & Carroll, 1979), and the idea of research through design, with its explicit intention of generating new knowledge via artifact creation (Zimmerman et al., 2007), even meets Peritz's (1980) definition of research as "inquiry which is carried out, at

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[1] See for example http://mw2016.museumsandtheweb.com/session/video-crit/ and
    http://mw2016.museumsandtheweb.com/session/web-crit/

least to some degree, by a *systematic method* with the purpose of eliciting some *new* facts, concepts, or ideas" (p. 251, emphasis in original). Were it possible to somehow collect these unpublished practical reports, perhaps via direct requests from libraries, a future review might reveal just how much they reflect and represent the design paradigm.

4.6   Acknowledging the role of design in librarianship at large

Although how we done it good projects implicitly reflect design elements, research through design methodology is not explicitly harnessed by these researchers. One reason the research through design methodology is not supported is due to the scientific norms adhered to by publication outlets. Such venues evaluate submissions based on scientific paradigms, which only contributes to the notion that librarianship is a science-based field. Even the American Library Association (2009) stipulates the fundamentals of scientific research methods as a core competency for the profession. However, Simon (1969, 1996) specifically calls out the professions—including librarianship—as a design field. The traditional labeling of librarianship as "library science" and conjoining the field with information science has been a problematic move. While the two fields are obviously related, they are not the same and should not be united under the same descriptive label. While information science operates under a scientific paradigm, librarianship is a practice-based design profession. This does not make it less rigorous than information science or any other science—instead, it calls for a different form of rigor. Instead of applying scientific standards, norms, and judgements of quality to a field that is not a science, we need to explicitly acknowledge the design basis of librarianship as its own distinct counterpart to information science, so that these distinct fields can work together symbiotically, as librarianship and information science (L&IS), rather than the traditional notion of the single LIS field. This is especially important given librarianship's increasingly explicit alignment with social justice

(e.g., Gorham, Taylor, & Jaeger, 2016; Morales, Knowles, & Bourg, 2014) –a major factor that sets the field apart from other information fields. No matter how strongly librarianship asserts itself as a profession underscored by objective and neutral scientific approaches, a focus on social justice and other activist aims demonstrates the need for aspirational design theories that seek to change the world for the better.

5   Conclusion

It is clear that the how we done it good approach aligns with the research through design methodology in many ways. If librarianship is indeed a design field, the how I did it in my library paradigm, if consciously connected to research through design, may be better representative and more appropriate to the types of research relevant to and occurring in libraries. Perhaps librarianship sees such a preponderance of how we done it good projects not because of flaws in training regarding scientific research methodologies, but because this genre is inherently applicable to the types of research knowledge being created. We need to stop berating librarians for attempting to conduct research through design, and instead scaffold them through education and publication support. Local communities, the library field, and even the broader information society are missing out on a wealth of knowledge by not recognizing these contributions as valid. Traditional scientific methodologies cannot solve fundamental problems and advance the frontiers of a design field like librarianship—a design field needs research through design.

6   Acknowledgements

7   References

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