

The Role of Digital Libraries as Boundary Objects Within and Across Communities

Adam Worrall

Florida State University
College of Communication and Information
apw06@my.fsu.edu

Abstract

Despite increased study of social contexts within information science, it is still unclear if and how digital libraries support and facilitate collaboration, communities, and other social contexts. This poster presents a study that will examine the role of the LibraryThing and Goodreads digital libraries, as social phenomena and boundary objects, in information behaviors and activities taking place within, between, and across multiple existing and emergent communities. The study will focus on the two key phenomena of communities and collaboration, under a theoretical framework drawing from Star's boundary object theory, Strauss's social worlds perspective, and Burnett and Jaeger's theory of information worlds. Data will be collected from the two cases using a sequential, multi-phased mixed methods design employing content analysis, a survey, and interviews. The study should have significant implications for digital library research and practice and for related research on social networking, social media, and social Web services.

Keywords: digital libraries, boundary objects, communities, social informatics, social contexts

Introduction and Background

Despite an expressed need—as far back as Bush (1945)—for social contexts of information to be considered under a social paradigm, many early information retrieval systems focused on technology (see e.g. Raber, 2003; Smith, 1991). This was no less true of early digital library (DL) research and practice, which showed echoes (Borgman, 1999) of the same paradigmatic unrest present in information science as a whole. The rise of social informatics (Kling, 1999; Sawyer & Tapia, 2007) and social constructionism (Tuominen & Savolainen, 1997; Weinberg, 2009), as part of a social paradigm for information science, have led to greater understanding of the importance of contextual views of information, ICTs, and information behavior (Courtright, 2008), including DLs (e.g. Lynch, 2005; Van House, 2003). Nevertheless, no one approach has been determined to be the way to support the social contexts of DLs, and further research grounded in existing literature, theory, and practice is necessary into if and how DLs facilitate collaboration, communities, and interaction in social contexts. This poster presents a study aiming to address this by examining the role of two DLs, as social phenomena and boundary objects, in information behaviors and activities taking place within, between, and across multiple communities.

Drawing from Borgman (1999) and other literature, a *social digital library* can be defined as

- having one or more collections of digital content collected on behalf of a user community;
- offering services, relating to the content, by or through the DL to the user community; and
- being one or more—or part of one or more—formal or informal organizations managing these content and services.

Acknowledgements: I thank Michelle M. Kazmer, Gary Burnett, Sanghee Oh, Deborah J. Armstrong, and the anonymous reviewers for their comments and feedback on this research in progress.

Worrall, A. (2013). The role of digital libraries as boundary objects within and across communities. *iConference 2013 Proceedings* (pp. 707-711). doi:10.9776/13327

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All of these should be considered in light of various contexts, especially the social contexts. Viewing DLs as social parallels the roles of physical libraries (Pomerantz & Marchionini, 2007, p. 506), which are not just physical collections and technical services but physical and conceptual spaces “link[ing] people to ideas and to each other.” Since a traditional role of physical library environments is to serve as inherently social spaces, DLs should improve their support for collaborative information behaviors, lest social opportunities to seek, use, and share information become diminished or lost as libraries become increasingly digital and hybrid in nature.

The phenomena of *communities* and *collaboration* are key elements of this problem. A user community may consist of smaller communities or groups, adopting the subcultural view pioneered by Fischer (1975) and incorporating flexible use of conceptions of community used in calls for social digital libraries (e.g. Gazan, 2008; Van House, 2003) and related research areas (see e.g. Ellis, Oldridge, & Vasconcelos, 2004; Haythornthwaite, 2007; Veinot & Williams, 2012). The DL collects content for use by these communities, offers services to them, and is associated with organization(s) that are a form of community. A major objective of DLs is to support, construct, and build these differing kinds of “knowledge communities” that use their content and services (Bearman, 2007, p. 245). DLs can and should support communities’ “internal workings ... and their links to the rest of the world” (Agre, 2003, p. 227; see also Star, Bowker, & Neumann, 2003). This requires supporting social contexts: collaboration within and across communities, the building of existing and emergence of new communities, and individual and collaborative information behavior. In most cases, such collaboration centers around a common overall project, goal, interest, or practice (Gunawardena, Weber, & Agosto, 2010), but collaboration may also be serendipitous (see Erdelez, 2005; Foster & Ford, 2003; Talja, 2002).

Framework and Approach

This study conceives of DLs as socially constructed phenomena, using the perspectives offered by the social paradigm, social constructionism, and social informatics. The study draws on a theoretical framework including Star’s (1989; Star & Griesemer, 1989) *boundary object theory*, Strauss’s *social worlds perspective* (Clarke & Star, 2008; Strauss, 1978), and Burnett and Jaeger’s (2008; Jaeger & Burnett, 2010) *theory of information worlds*. Under this framework, because they are used by and cross the boundaries of multiple social worlds, information worlds, and communities, social digital libraries should act as socially constructed boundary objects. They should

- adapt to the “local needs” of as many of these worlds and communities as possible (Star, 1989, p. 46);
- reconcile and translate “meanings” and understandings across these worlds to allow users to “work together,” collaborate, and interact (Star & Griesemer, 1989, pp. 388–389);
- support the emergence of localized and common social norms, social types, information values, and information behaviors shared—to varying and overlapping extents—by the different information worlds using them (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010);
- act as common sites and technologies for users to engage in information-based activities (Strauss, 1978), including collaboration and information sharing; and
- support the possible emergence of broader communities, social worlds, and information worlds as they converge, coalesce, and reconcile portions of the multiple communities they serve.

Research Design and Methods

This study will focus on two cases, LibraryThing and Goodreads, which are digital libraries and Web sites for readers and lovers of books. LibraryThing and Goodreads feature digital content—from outside organizations and users—collected for their users and user communities, services relating to the content and for their user communities, and formal and informal organizations managing the content and services; as such they are social digital libraries. The study will answer two research questions:

1. What role(s) do LibraryThing and Goodreads play, as boundary objects, in translation and coherence between the existing social and information worlds they are used within?
2. What role(s) do LibraryThing and Goodreads play, as boundary objects, in coherence and convergence of new social and information worlds around their use?

A case study approach (Yin, 2003) will employ a mixed methods research design, using qualitative and quantitative methods together to combine their strengths, minimize their weaknesses, and obtain a fuller understanding of social digital libraries. The research design is a variation on Creswell and Plano Clark's (2011) multiphase design incorporating elements of their sequential designs. Qualitative and quantitative data will be collected and integrated in sequence; qualitative data is prioritized, but not at the expense of quantitative data collection; and multiple methods are used within the one study. The study will incorporate the viewpoints of multiple perspectives, a strong theoretical framework, and a multi-levelled approach to analysis.

Three phases of data collection are planned. First, a *content analysis* phase will collect and analyze messages from LibraryThing and Goodreads' group discussion boards. Systematic random sampling will be employed to collect about 500 messages across 10 of these groups, taken from the groups most active and popular in the days prior to data collection. Messages will be collected by accessing the DLs' group discussion boards and saving individual threads. These will then be coded and analyzed using key concepts and phenomena from the theoretical framework. Preliminary findings from this phase are expected to be available by the time of the iConference.

Second, a *survey* phase will use an online questionnaire to obtain data from users of LibraryThing and Goodreads. Invitations to participate will be sent to LibraryThing users who posted messages analyzed in the previous phase; invitations will also be posted in the ten LibraryThing and Goodreads groups selected. The survey will include Likert scaled questions on the concepts used in the theoretical framework and demographic and usage questions. Two reminders will be sent during the survey collection process, which will last six weeks and should obtain at least 300 responses. Participants will be entered into a drawing for 10 \$25 Amazon.com, Barnes and Noble, or Books-A-Million gift cards as compensation. Appropriate descriptive and inferential statistical methods will be used to confirm the reliability and validity of the scales and analyze the results.

Third, a phase of semi-structured qualitative *interviews* will identify users for whom follow-up interviews could lead to insightful data. At least 15 users across the two DLs should be interviewed, but the final number may vary depending on when saturation is reached. The semi-structured interviews will follow pre-planned questions and themes drawn from the theoretical framework, but additional follow-up questions, probes, and prompts may emerge from the conversation. Critical incidents (Flanagan, 1954) of times when users interacted with others using the LibraryThing or Goodreads DLs should provide a rich environment and context within which to explore these themes. Interviews will take place using online audiovisual media or telephone and will be audio recorded using computer software. Interviews will later be transcribed, then—as with messages—coded and analyzed using key concepts and phenomena from the theoretical framework.

The field of digital library research, and by extension the information science field, will benefit from a fuller understanding of the role and uses of social digital libraries within and across worlds and communities, as should come from this study. Significant implications are expected to be identified for DL design, usability, and development; provision of services in and by DLs; and use of DLs by users and user communities. The study will further benefit related research on social networking, social media, and social Web services.

References

- Agre, P. E. (2003). Information and institutional change: The case of digital libraries. In A. P. Bishop, N. A. Van House, & B. P. Battenfield (Eds.), *Digital library use: Social practice in design and evaluation* (pp. 219–240). Cambridge, MA: MIT Press.
- Bearman, D. A. (2007). Digital libraries. *Annual Review of Information Science and Technology*, 41, 223–272. doi:10.1002/aris.2007.1440410112
- Borgman, C. L. (1999). What are digital libraries? Competing visions. *Information Processing and Management*, 35, 227–243. doi:10.1016/S0306-4573(98)00059-4
- Burnett, G., & Jaeger, P. T. (2008). Small worlds, lifeworlds, and information: The ramifications of the information behaviour of social groups in public policy and the public sphere. *Information Research*, 13(2). Retrieved from <http://informationr.net/ir/13-2/paper346.html>
- Bush, V. (1945). As we may think. *The Atlantic Monthly*, 176, 101–108.
- Clarke, A. E., & Star, S. L. (2008). The social worlds framework: A theory/methods package. In E. Hackett (Ed.), *Handbook of science and technology studies* (pp. 113–137). Cambridge, MA: MIT Press.

- Courtright, C. (2008). Context in information behavior research. *Annual Review of Information Science and Technology*, 41, 273–306. doi:10.1002/aris.2007.1440410113
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: Sage.
- Ellis, D., Oldridge, R., & Vasconcelos, A. (2004). Community and virtual community. *Annual Review of Information Science and Technology*, 38, 145–186. doi:10.1002/aris.1440380104
- Erdelez, S. (2005). Information encountering. In K. E. Fisher, S. Erdelez, & L. McKechnie (Eds.), *Theories of information behavior* (pp. 179–184). Medford, NJ: Information Today.
- Fischer, C. S. (1975). Toward a subcultural theory of urbanism. *American Journal of Sociology*, 80, 1319–1341.
- Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, 51, 327–358.
- Foster, A., & Ford, N. (2003). Serendipity and information seeking: An empirical study. *Journal of Documentation*, 59, 321–340. doi:10.1108/00220410310472518
- Gazan, R. (2008). Social annotations in digital library collections. *D-Lib Magazine*, 14(11/12). doi:10.1045/november2008-gazan
- Gunawardena, S., Weber, R., & Agosto, D. E. (2010). Finding that special someone: Interdisciplinary collaboration in an academic context. *Journal of Education for Library and Information Science*, 51, 210–221.
- Haythornthwaite, C. (2007). Social networks and online community. In A. Joinson, K. McKenna, T. Postmes, & U.-D. Reips (Eds.), *The Oxford handbook of Internet psychology* (pp. 121–137). New York, NY: Oxford University Press.
- Jaeger, P. T., & Burnett, G. (2010). *Information worlds: Behavior, technology, and social context in the age of the Internet*. New York, NY: Routledge.
- Kling, R. (1999). What is social informatics and why does it matter? *D-Lib Magazine*, 5(1). doi:10.1045/january99-kling
- Lynch, C. (2005). Where do we go from here? The next decade for digital libraries. *D-Lib Magazine*, 11(7/8). doi:10.1045/july2005-lynch
- Pomerantz, J., & Marchionini, G. (2007). The digital library as place. *Journal of Documentation*, 63, 505–533. doi:10.1108/00220410710758995
- Raber, D. (2003). *The problem of information: An introduction to information science*. Lanham, MD: Scarecrow Press.
- Sawyer, S., & Tapia, A. (2007). From findings to theories: Institutionalizing social informatics. *The Information Society*, 23, 263–275. doi:10.1080/01972240701444196
- Smith, L. C. (1991). Memex as an image of potentiality revisited. In J. N. Nyce & P. Kahn (Eds.), *From memex to hypertext: Vannevar Bush and the mind's machine* (pp. 261–286). Boston, MA: Academic Press.
- Star, S. L. (1989). The structure of ill-structured solutions: Boundary objects and heterogeneous distributed problem solving. In L. Gasser & M. N. Huhns (Eds.), *Distributed artificial intelligence* (Vol. 2, pp. 37–54). San Mateo, CA: Morgan Kaufmann.
- Star, S. L., Bowker, G. C., & Neumann, L. J. (2003). Transparency beyond the individual level of scale: Convergence between information artifacts and communities of practice. In A. P. Bishop, N. A. Van House, & B. P. Buttenfield (Eds.), *Digital library use: Social practice in design and evaluation* (pp. 241–269). Cambridge, MA: MIT Press.
- Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, 'translations' and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social Studies of Science*, 19, 387–420. doi:10.1177/030631289019003001
- Strauss, A. (1978). A social world perspective. In N. K. Denzin (Ed.), *Studies in symbolic interaction: An annual compilation of research* (Vol. 1, pp. 119–128). Greenwich, CT: JAI Press.
- Talja, S. (2002). Information sharing in academic communities: Types and levels of collaboration in information seeking and use. *The New Review of Information Behavior Research*, 3, 143-159. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.96.163&rep=rep1&type=pdf>

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- Tuominen, K., & Savolainen, R. (1997). A social constructionist approach to the study of information use as discursive action. In P. Vakkari, R. Savolainen, & B. Dervin (Eds.), *Information seeking in context: Proceedings of an international conference on research in information needs, seeking and use in different contexts* (pp. 81–96). Los Angeles, CA: Taylor Graham. Retrieved from http://informationr.net/insic/ISIC1996/96_Tuominen.pdf
- Van House, N. A. (2003). Digital libraries and collaborative knowledge construction. In A. P. Bishop, N. A. Van House, & B. P. Battenfield (Eds.), *Digital library use: Social practice in design and evaluation* (pp. 271–295). Cambridge, MA: MIT Press.
- Veinot, T. C., & Williams, K. (2012). Following the “community” thread from sociology to information behavior and informatics: Uncovering theoretical continuities and research opportunities. *Journal of the American Society for Information Science and Technology*, 63, 847–864. doi:10.1002/asi.21653
- Weinberg, D. (2009). Social constructionism. In B. S. Turner (Ed.), *The new Blackwell companion to social theory* (pp. 281–299). Wiley.
- Yin, R. K. (2003). Designing case studies. In *Case study research: Design and methods* (3rd ed., pp. 19–56). Thousand Oaks, CA: Sage.