Lyceum: A Blogsphere for Library Reference

Jeffrey Pomerantz
School of Information and Library Science
University of North Carolina at Chapel Hill
100 Manning Hall, CB #3360
Chapel Hill, NC 27599-3360
919-962-8064
pomerantz@unc.edu

Frederic Stutzman
ibiblio.org
213 Manning Hall, CB #3420
Chapel Hill, NC 27514-3240
919-962-5646
fred@ibiblio.org

ABSTRACT

In this paper we discuss the use of blogs in libraries, and specifically the potential of blogs for use in library reference services. We describe Lyceum, an open source software project designed by ibiblio.org, which is a facilitator of blogspheres and a tool for intelligent automatic information management within blogspheres. We discuss ways in which Lyceum and blogs in general may facilitate library reference services.

INTRODUCTION

The earliest digital reference services were offered via email, as outgrowths of existing reference desk services in academic and special libraries (Kittle, 1985; Howard and Jankowski, 1986). These digital reference services were developed both to extend the hours of availability of the reference desk, and to experiment with the new technology provided by campus-wide networks. Many physical reference desks – in academic, special, and public libraries – continue to offer email-based reference services. Most of these services also maintain webforms for question submission, which may output questions as email messages or database entries.

A new type of reference service began to appear online around 1997: so-called "real-time" or "live" reference services. This form of reference utilizes chat (Francoeur, 2001) or instant messaging (Foley, 2002) functionality to conduct a synchronous reference transaction, along with web page-pushing, graphical co-browsing, queue management, and a number of other functions.

One of the major differences between reference services offered via different media is the degree of interactivity between the librarian and the patron, as this interactivity is dictated in part by the limitations of the media. Asynchronous media frequently leads to reference transactions that have only two steps: the question from the patron and the response from the librarian. While this may detract from the richness of the reference transaction, the delay may allow the librarian time to conduct more in-depth research and to formulate a better response than might have been possible in a synchronous environment (Abels, 1996). Synchronous media lead to reference transactions that have pacing similar to face-to-face conversations, but this may lead to the librarian feeling rushed to provide a response quickly rather than taking the time to conduct more research and formulate a better response (Kaske & Arnold, 2002).

The weblog (blog) offers a distinctly asynchronous, conversation-based forum for reference service. Much like the more familiar tools discussion forums and bulletin boards (Jacobs, 2003), blogs provide native, web-based functionality for information transactions, while maintaining an authorial presence. This allows the blog author and information consumer the ability to create a running, public thread of malleable conversation. Each authored blog entry is anchored by a permalink (Searles & Sifry, 2002), establishing "place" – a location that allows information consumers to permanently, statically refer to the conversation thread. While tools like discussion forums and bulletin boards are relatively limited in their scope of use, reference authors and consumers stand to greatly benefit from the tools that are built and integrated for intra- and extra-blog information sharing.

BLOGS

It can be reasonably argued that for every blog author and consumer, the precise definition of a blog is different. This is a testament to the personal and dynamic capacity of a blog. Searles and Sifry (2002) offer a stark, yet effective definition: "Blogs are journals." Doctorow and others (2002) offer a more detailed definition:

A blog is a web page that contains brief, discrete hunks of information called posts. These posts are arranged in a reverse-chronological order (the most recent posts come first). Each post is uniquely identified by an anchor tag, and it is marked with a permanent link that can be referred to by others who wish to link to it.

In these definitions we can estimate a common ground – a blog is a web-based tool that allows an author (the blogger) the ability to post information for consumption by others. Indeed, blogs are journals – but blogs require us to reinvestigate our understanding of the term. Just as some might post their most private thoughts on blogs (a more traditional understanding of a journal), other bloggers might use their blog to create running journals of news events (media blogs), political happenings (campaign blogs), war stories (war blogs), technological achievements (tech blogs) and reference transactions (reference blogs). Indeed, the scope of blog topics reflected here vastly under-represents the potential number of blog topics. It is estimated that in 2004, there will be over ten million

unique blogs worldwide (Henning, 2003). We can assume that blogs will grow to reflect any and all topics in which people are interested.

As there are limitless topics for bloggers to discuss, there exists a plentitude of blog software, ancillary toolsets for information sharing, and hosting services for bloggers. First, we should define the conceptual framework of a blog. At its core, a blog is a web application, managing a database (of any sort), which contains blog "entries." These entries are usually handled as dynamic, relational objects, from which the blog framework extracts a large part of its extensibility. The data object is related, within the blog framework, to a number of elements. These elements can serve any number of purposes – from something as simple as providing a time and date stamp for a blog entry, to providing a mechanism for relating the blog entry to an RSS newsfeed. Of course, this list is not complete; using the relational model, blog developers have fashioned a large number of tools which allow for creative blog information sharing.

Perhaps the most widely-accepted and utilized tool inside the blogsphere is RSS. RSS, which stands for Rich Site Summary, is an XML-compliant schema for content syndication. In a nutshell, RSS offers a schema for document formatting that allows weblogs to communicate with each other. The RSS specification allows for extensible selection of elements through which blogs can automatically classify themselves. As the blog entry is related to the RSS classification data, it is formed into an XML-compliant document available for syndication. Formatted, this RSS document looks like little more than an awkward emulsion of code and text. When interpreted, the RSS document provides nearly limitless intelligent information-share opportunities for webloggers.

Currently, content syndication is handled by a number of methods. RSS data is often integrated into other blogs – commonly, the newsfeeds located in the sidebars of webpages are RSS syndicated streams. Content aggregators, such as NewsGator, act as client-side tools that collect and display these streams for users. Stream-aggregation sites, such as Syndic8.com, offer a huge list of streams available for syndication. Just as people have already found many different ways to extract value from RSS data, the future holds nearly limitless opportunity for how we might be able to more efficiently organize data streams with RSS.

Future directions for RSS involves placing syndicated streams into a database, allowing automatic content classification; users would be able to select and monitor feeds based on classification data impregnated into the RSS stream. This data would allow for more intelligent and efficient consumption of streams – and would eventually allow for a reliable scheme for stream indexing. These possibilities create strong opportunities for blogs in reference situations; when the convenience of a blog is combined with powerful, automatic classification schema, we see the possibility for highly valuable information sharing within a reference environment.

Blogs in Libraries

Within the past few years libraries have started experimenting with blogs (Hane, 2001; Embrey, 2002). Many of these library blogs were begun essentially as electronic bulletin boards, providing a location for library-related announcements: recent acquisitions, news about the library, information on reserving rooms or changes to hours.

Simultaneously, many blogs have been created on topics related to librarianship. These blogs are not maintained by libraries but rather by individual librarians, and serve as sources for news on topics related to librarianship (see for example, Gary Price's www.resourceshelf.com), or as journals for the authors to discuss their views on issues in librarianship (see for example Jessamyn West's librarian.net).

Blake Carver, the creator of LISnews.com, a collaborative weblog "devoted to current news in the world of Library and Information Science," makes the case for weblogs in libraries. Carver alludes to blogs as information sharing tools as a fundamental element of the future of libraries (Carver, 2003). Big or small, libraries stand to benefit from the open information sharing that is facilitated by blogs.

To date, the authors have not identified any blogs or literature mentioning blogs being used in a library reference service, though a few articles discuss the possibility of this being done. It is the authors' belief that blogs are a natural fit for use in library reference service. The subsequent sections describe Lyceum, a software package for developing blogspheres, and ways in which the authors foresee Lyceum being utilized in library reference services.

LYCEUM

Lyceum is an open source software project, designed by ibiblio.org; it is free to use, share, and modify, and is available at sourceforge.net/projects/lyceum. Lyceum is a facilitator of blogspheres; Lyceum is also a tool for intelligent automatic information management within blogspheres.

Perhaps the best way to explain Lyceum is to describe the function of its components. Once each piece is described, it is fairly easy to see how the software package fits together. The component that most users will come into contact with is the web interface. The web interface serves as a "dashboard" of sorts, allowing a central management point for the users' blogs, RSS feeds and, most importantly, information on intra-blogsphere activity.

This leads us to Lyceum's second component, which is actually less a component then a methodology. As users generate a blog inside a Lyceum blogsphere, data entities become aware of the blog. First, the blog is user-classified with a set of standardized meta-descriptors. These meta-descriptors are then registered with the centralized Lyceum database (the third component), creating a searchable repository of blogsphere

information. Depending on classification criteria, other actors in the blogsphere become aware of the new blog, via an XML-RPC broadcast.

The Lyceum database aggregates the classification data for blogs, creating a searchable central repository for actors within the blogsphere. One can see how this centralized system is valuable to information-seekers. In the traditional blogsphere model, actors are inherently unaware of others' activity. With Lyceum, blogsphere actors are kept up-to-date on blog activity that occurs within their user-defined criteria; this information sharing is all managed inside the front-end dashboard. This "connectivity" provides a substantial leap forward in both the automation and relevance of content users see within a blogsphere.

We demonstrate this through a comparison of models. Currently, RSS streams, the most popular means by which bloggers are made aware of others content, are streams of data that are then "read' by an aggregator. When one subscribes to a RSS stream, one receives both relevant and irrelevant data (for example, topical and personal blog posts). Lyceum's architecture allows blogsphere actors to subscribe to a large number of streams, receiving posts that fit only their relevance criteria. The analogy best fitting the current RSS model envisions a listserv of hundreds, discussing not only a specific topic, but everything else. The signal-to-noise ratio of such a list would make work nearly impossible. Lyceum's model envisions a listserv of hundreds talking on-topic, but with the robust advantages of a blog compared to a listserv.

Collaborative Reference

Blogs have to date been used by libraries primary as high-tech bulletin boards. We suggest, however, that blogs may be fruitfully used by libraries for other, more interactive purposes. Several library services may lend themselves to being conducted via blogs, but we propose the use of blogs specifically for use in reference services.

Library reference has been modeled as a conversation between the librarian and the patron (Radford, 1996). In the idealized version of this conversation, the patron initiates the conversation by asking a question to the librarian. The librarian then proceeds to interview the patron to elicit more information about the patron's information need, until it is possible for the librarian to provide the patron with information and/or information sources that accurately and completely answer the original question.

Decades of research on reference service, however, has demonstrated that this ideal of the reference transaction is rarely achieved. As Lynch (1978) found, in fewer than half of reference transactions does the librarian conduct any sort of interview, and when an interview is conducted only 10% of the time are these questions open-ended. Hernon and McClure (1986) found that only 55% of reference transactions for quick fact and bibliographic questions conclude with an accurate and complete answer to the patron's question.

Whatever the cause of these failures of the reference transaction, we suggest that one possible solution is to expand the conversation to include more than two participants. Of course there must be an individual in the role of the patron to ask the original question that sets the conversation in motion. There may, however, be more than one individual in the role of the librarian. A blog is, by definition, a community exercise, encompassing a community of readers and posters. If one individual posts a question, a community of librarians and other patrons may read that post and respond to it. In this way, the blogsphere may be utilized to create a "reference sphere," in which an information-seeking transaction may be conducted as community exercise.

Examples of this model of community reference work already exist. One of the better-known fora for community reference work is Stumpers (domin.dom.edu/depts/gslis/stumpers/), a listserv for librarians to discuss reference questions to which they are unable to find answers. These "stumper" questions are posted to the list and hopefully answered by other members of the list.

Another model of collaborative information service provision is the wiki. Ciffolilli (2003) discusses Wikipedia, a free online encyclopedia (en.wikipedia.org). Wikipedia is a collaborative effort; any user can edit any Wikipedia entry. One might assume that "graffiti attacks" would degrade the quality of the encyclopedia entries over time, and yet this has not occurred, Ciffolilli suggests, in part because making a poor contribution may damage a user's reputation among the Wikipedia community. Indeed, Ciffolilli points out that in 2002 one user was banned from posting to Wikipedia for making contributions that were seen to present a strong political bias. Certainly there are important distinctions between a wiki and a blog, both in terms of functionality and usage. Wikipedia demonstrates, however, that it is possible to create a high-quality information source – indeed, a genre of source that is commonplace in library reference work – collaboratively and publicly.

Similarly, a blog is a tool through which communities of information-seekers and information-providers can collaborate. Blogs act as organizers of data; each element in a blog is a standard data object that can be referenced. This simple, open data model allows for the creation of protocols and ancillary toolsets that enable information sharing. The value of blogs is found not only in the software, but in the tools that can plug-in to enable the intelligent sharing of information. Lyceum's value-add technologies are a perfect example of this practice. As Lyceum utilizes the blog at the core of its service, each of Lyceum's information toolsets reference the blog as a central data object, to which value is added. This model marries the simplicity of a blog with high-powered information and data analysis functionality. A blog, like Stumpers, is a forum for information sharing, and Lyceum, like Wikipedia, over time becomes an increasingly thorough information source.

Blogs as Reference Environments

There is a long tradition of utilizing a variety of measures in desk reference services, as a means for evaluating the reference transaction and the service itself. Even the most

thorough set of desk reference measures does not, however, capture the actual reference transaction, merely a thin representation. It took the digital reference community no time at all to realize that this was a problem that simply didn't exist any more: the nature of electronic media allowed the entire reference transaction to be captured, verbatim, and completely unobtrusively. The transaction itself, conducted electronically, creates an artifact that may be stored until deliberately deleted. This simple fact has two important implications. First is that the reference transaction, once captured, may itself be utilized as an information resource. Second is that the reference transaction becomes in effect an annotation to any information resource to which it refers.

An email-based transaction may create a "thread" of email messages; chat-based transactions create a transcript of the entire conversation. A blog combines these features, creating a thread of an entire conversation, in much the same way that a bulletin board does. Just as the archives of bulletin boards are searchable, so too are the posting threads of blogs. In this way, previously-answered questions (PAQs) may become a part of the collection maintained by the reference service.

Pomerantz and others (2004) present a 5-step model of the processes involved in providing digital reference service. One of these steps is Tracking: the quantitative and qualitative monitoring of repeat questions for trends. Another step is Resource Creation: the creation of new materials for inclusion in the collection maintained by the reference service, either directly by archiving PAQs, or indirectly through the use of tracking data to indicate areas in which collections of information resources should be developed.

As posts are sent to Lyceum's database, a parser can analyze the posts to look for specific information. The parser may analyze data such as hyperlinks and RSS data, thus enabling the tracking of data such as intra- and extra-blogsphere references, the most popular links and the most prolific link-posters, as well as the sources and content of RSS-fed data. Library reference services create pathfinders, and digital reference services create FAQ lists on topics on which they receive frequent questions. This data may be captured formally, through collection of statistics and measures at the reference desk, or informally, through librarians' intuitive sense of which questions are asked frequently. Lyceum allows data to be captured through a database query, so that it is possible to capture a much richer set of measures: not only frequently-asked questions, but frequent topics, frequent links, frequent linkers, and frequent views, and all of this can be further organized by time or any number of other criteria.

As more and more individuals make contributions to the conversation initiated by the original question, a thread grows. As a thread grows, it comes to contain more and more information related to the original question, and from more and more individuals' perspectives. In this way, the thread increases in value as a response to the original question, as over time it comes to contain broader coverage of the topic at hand and a more complete response. Completeness is one of the traditional measures of the success of the reference transaction; accuracy is another (Hernon & McClure, 1986). The advantage of blogs in this respect is that they are a community exercise; if inaccurate information is posted by any one individual, there is a community of other individuals

who are in a position to correct that inaccuracy. In this way, the thread increases in value, as over time it also comes to contain a more accurate response.

The second implication of the use of electronic media for reference is that as a thread grows, and an increasing number of posts address the original question, the question itself "accretes" resources that answer or at least address it. Posts, and the information resources included in or linked to from the posts, become annotations to the original question and other postings to which they are a response. Further, the responses and the information resources provided in the posts may be tracked, and this data may be utilized to develop profiles of resources: what resources are useful for answering what questions.

Another function of library reference that blogs may revolutionize is the function of referrals. Reference services have always received questions that are outside their scope of service; rather than simply turn a patron away without an answer, librarians will often refer the patron to another reference service or organization for which the question is in scope. The difference between referrals from a desk reference service and from a digital reference service is who has the responsibility for completing the referral. In desk reference, if a patron is referred from one service to another, the burden is generally on the patron to contact that other service. In digital reference, on the other hand, it is not the patron that is sent from one service to another, but the patron's question: the burden is on the service that received the question from the patron to perform the referral, and on both services to work out the details of that exchange.

In a blogsphere, on the other hand, referrals may never even be necessary. A patron may post a question in a reference blog that is out of scope for that particular blog or library. However, in a blogsphere, that post may then be automatically meta-indexed in a meta-blog. That post may then be seen by librarians and users of other blogs for which that question is in scope. Thus, a question may be effectively referred without any effort on the part of the patron or the librarian.

An example of a such a conversation-based reference transaction occurred on Spicysashimi, the blog of Austin, TX-based law student Aaron Pollack. Pollack, a New Jersey resident, posted the question "Is Saccone's really a Jersey slice?" (Pollack, 2003 − referring to Saccone's Pizza & Subs in Austin). The post chronicles the author's attempt to find a slice of pizza that best represents the traditional New Jersey form. Pollack's blog is syndicated to the community meta-blog austinbloggers.org; his question generated a significant discussion that occurred on Pollack's blog. Users who viewed Pollack's syndicated question clicked-through to his blog, and engaged in a subjective discussion thread. In this thread, a number of locations were presented as possible locations for "Jersey" slices; Pollack refined the conversation thread and eventually promised to check out the suggestions.

While Pollack's question is perhaps not a typical reference question, it is not unusual for reference librarians to receive questions asking for recommendations on any number of topics: books, local activities, restaurants, etc. A single reference librarian, in response to Pollack's question, might have provided him with a book or magazine guide to local

restaurants, or might have spoken from his or her own experience. Because Pollack's question was syndicated to a meta-blog, however, many individuals were able to contribute their own experience to the conversation, thus greatly increasing the value of the reference transaction, and ultimately providing a far richer response to the question than would have been possible with a single answerer.

Issues in Using Blogs for Reference Service

This sort of community information-seeking runs counter to the tradition of library reference, which has historically been a one-to-one interaction between librarian and patron. To suggest the use of blogs for reference begs the question of whether a one-to-many interaction is even a scalable method of providing reference service. As stated above, models of community reference work already exist – but Stumpers and other reference listservs may be special cases. Can community reference work serve the needs of all types of patrons with all types of information needs? Or is it necessary that the community be constrained by a common interest in difficult questions or some other limiting characteristic?

Another way in which the use of a blog for reference service runs counter to the tradition of library reference is in the matter of credentials. A great deal has been made in the reference literature about the proper role of paraprofessionals in providing reference service (Whitson, 1995): without a Masters degree in Library Science, should paraprofessionals be allowed to provide the same level of service that professionals provide? If paraprofessional librarians are suspect in their ability to provide quality reference service, then surely so will be the general public, even if the members of that public are regular library users.

FUTURE DIRECTIONS

As mentioned above, to date blogs have not been implemented in library reference service. As mentioned above, however, blogs have started to gain use in libraries. Indeed, one of the libraries at the University of North Carolina at Chapel Hill, where the authors are located, has been using a blog essentially as a bulletin board since April 2003. The authors intend to work with this or another library at the University or in the community to implement Lyceum for reference work.

When Lyceum is implemented in a library and being utilized by a reference service, the authors will study how it is used. At the 2003 Virtual Reference Desk conference in San Antonio, Radford (2003) presented the methodology that was used in the analysis of the Samuel Swett Green Award (www.vrtoolkit.net/greenaward.htm), to identify exemplary virtual reference transactions. This methodology is based on conversation analysis performed on face-to-face interactions, and involves identifying such elements of the interaction as: factors that facilitate or hinder the relationship between the librarian and the patron, use of language by both participants, negotiation of conversational opening and closing sequences. While conversation analysis is best suited to two- or few-participant interactions, it may serve as a basis for studying the interaction that takes

place between many participants in a blog environment. Indeed, the authors suggest that a highly fruitful avenue for future research on blogs – whether in a reference setting or not – would be studies of the conversational interactions and community building that take place in and through blogs.

It will also be interesting to address the issues discussed above in using blogs for reference service. What is the appropriate role of paraprofessionals in providing reference via blogs? Is the one-to-many interaction of blogs a scalable method of providing reference service? These questions may be answered as blogs are implemented in reference services − in all types of libraries, used by all types of librarians to answer all types of questions asked by all types of patrons. The authors agree with Hane (2001) that blogs are a natural for librarians and for libraries. The authors go one step further to claim that blogs are a natural for library reference services. It is the authors' hope that this paper has demonstrated the potential of community reference service for providing accurate and complete answers to patrons' questions, and of the potential of blogs for providing community reference service.

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