

Tagging the OPAC: Social tagging systems in the library catalog

In 2003, a new type of website was born that changed the way people organize their information. That year, del.icio.us, the first site of any kind to use social tagging (Smith, 2008), was born. The site, along with the countless competitors that have since cropped up, allows users to bookmark resources, store the bookmarks online, and assign tags to them. Tags are user-generated metadata consisting of whatever keywords a user chooses to use to describe or identify an item. The tags from all users are aggregated and shared with the community at large. Users are able to explore the collections of others and discover other web sites that may be of interest to them.

Something interesting began to develop on social bookmarking websites, thanks to their social tagging systems. When viewed collectively, tags create what is termed a “folksonomy.” Derived from the words folk and taxonomy, folksonomy is literally a vocabulary created by the people. It is a democratic taxonomy where users create an unspoken consensus about a resource via the tags they apply to it. The users of the tagging system do not set out to create this folksonomy; rather, it is a by-product of users tagging items for their personal use.

Information professionals quickly took notice of these folksonomies, realizing that they were potentially beneficial ways to organize the internet. There was a flurry of research and lively debate revolving around folksonomies in 2004 and 2005 (Speller, 2007; Macgregor & McCulloch, 2006).

During that time, librarians discovered a number of ways to utilize the social bookmarking sites, strategies that are commonly used in libraries today. Librarians can use them to organize their own research and other personal information. In a public library environment, a librarian can create reading lists, linking to records for each item. Arch (2007) shows how such sites are used by academic librarians. Bookmarking sites allow librarians to compile navigable lists of quality internet sources to aid students in their research. Librarians

can use also them to share sites with their liaison department faculty and vice versa. Gibbons (2007) argues that academic libraries should make efforts to promote student use of social bookmarking sites for research because it helps efficiently organize sources and can aid in discovery (72).

The conversation surrounding folksonomies and their uses for organizing information naturally found its way into libraries. Though it was discussed earlier in blogs, the idea of somehow using these folksonomies in library catalogs emerged in the literature in 2006. Since then, the library community has seen social tagging, with its accompanying folksonomy, gradually make its way in library online public access catalogs (OPACs).

Scope, objective and place in the literature

The present literature review guides the reader through the benefits of, and problems with social tagging systems; discusses the co-existence of tags and subject headings in the library catalog; introduces several examples of current OPACs with tagging systems; and discusses whether tagging systems in libraries would actually be used when implemented.

Literature reviewed in this paper is limited to written work subject to an editorial or peer-reviewed process, such as journal and magazine articles, published books, conference papers, and theses. Whenever possible, sources of an academic nature were used. Excluded from this review is the large body of work on this topic that is self-published informally online in blogs and on web pages. This review incorporates international literature and the information included is relevant for an international audience. Every attempt was made to provide the most current information available on this rapidly developing topic, and, as such, all sources were published between 2006 and 2008. No other literature review addressing folksonomies or social tagging in the context of the library catalog is known to exist.

Individuals interested in tracing the development of social tagging prior to 2006 should refer to literature reviews by Macgregor and MacCulloch (2006) and Speller (2007). Macgregor and MacCulloch published the first literature review on the topic of collaborative tagging in February 2006. The authors discuss the advantages and disadvantages of controlled vocabulary, introduce social tagging, outline research and debate on the topic, and identify areas for further

research. Speller’s literature review, published in the online peer-reviewed *Library Student Journal*, provides an overview of tagging, discusses the advantages and disadvantages of folksonomy, and briefly discusses whether folksonomies can replace traditional cataloging. Speller’s February 2007 review is nearly two years old, and it cites nothing dated after 2006. Neither Macgregor and MacCulloch nor Speller addresses the issue of social tagging in the library catalog.

Tagging: Benefits and problems

Though virtually every piece of literature mentions some benefits of and problems with social tagging systems, Bonino (2007), Kroski (2007) and Spiteri (2006) provide the most complete discussions, including detailed examples of each. Table 1 outlines the benefits of tagging systems and the accompanying folksonomies as described by the above authors.

Table 1. Positive aspects of folksonomies.

Current	Changes in word use or current events can be reflected immediately
Inclusive	Include both the dominant view as well as all alternative views
Cheap	Metadata gleaned is far less expensive than traditional cataloging
Discovery aids	Allows for effective browsing
“Non-binary” (Kroski, 2007)	Do not have to make things fit into category or a particular word
Usable/easy	Small learning curve for users
Social	Social: Provide a sense of community, let user feel involved

In addition to these factors, tagging systems are beneficial because they provide users with what they want using the wording they want to use. Lastly, tagging systems are valuable because they allow us to observe user’s information-seeking behavior.

The problems of tagging systems identified by Bonino (2007), Kroski (2007) and Spiteri (2006) are outlined in Table 2. Most are related to the lack of authority control.

Table 2. Negative aspects of folksonomies.

Lack hierarchy/relationships	Unable to connect between terms
Plural/singular	Dog and dogs are distinctly separate terms in a folksonomy
Synonyms	Cat, kitten, and feline are distinctly separate terms
Multiple forms of the same word	Words such as clothes and clothing have the same meaning but are not related in a folksonomy
Phrases	What do you do with multiple word terms? “Electrical engineering,” “electricalengineering,” and “electrical_engineering” can all occur
Ambiguous terms	Is this java the coffee? Java the programming language?
Messy tags	Including misspellings and typos
Too personal	Tags such as “toread” have no meaning for anyone other than the tagger using it
Searches of tags lack recall	Incomplete results as a result of lack of vocabulary control
Searches lack precision	Difficult to find items on a specific topic

Some efforts are being made to improve folksonomies but there is debate over whether doing so is a good idea. Noruzi (2007) argues that folksonomies need a thesaurus of some kind to be more useful. Such a thesaurus could be a web document that users refer to in order to select the best possible tag or a behind-the-scenes interface that links similar or related terms for the user at the point of search. Regardless of the format, the author states that a thesaurus could be used to create needed standardization of terms; assist with collocation; institute a hierarchy; account for differences in word form and word choice; link related terms; and correct misspellings and typos. Noruzi recognizes that “not everyone agrees on the need for a controlled vocabulary or thesaurus in folksonomy-based systems” but insists that it is the only way that a folksonomy can be consistent (1).

Smith (2008) does not present an opinion on whether to clean up tags but offers ways to do so. One can provide suggested tags to influence tag choice, create conventions and encourage their use, and link related tags after submission, either manually or with an automatic clustering algorithm.

However, in some ways trying to make a folksonomy into a sort of controlled vocabulary goes against the very nature of the system. Guy and Tonkin (2006) offer methods for improving folksonomies but warn that doing so may discourage users so “they simply do not bother to tag further resources” (1). Kroski (2007) warns of going too far with efforts to control folksonomies. She says that developers of social tagging systems “walk a fine line between refining folksonomic organization and restricting users’ freedom. If tagging becomes too difficult, or the creative capabilities diminish too profoundly, users will no longer have adequate incentive to participate in the activity” (100).

Can tags and subject headings co-exist?

The drawbacks of folksonomies in their current form ensure that they cannot replace controlled vocabularies in libraries. Fortunately, tagging systems can be used along subject headings within the library catalog. This co-existence increases usability of the library catalog because it allows users to take advantage of the benefits of both systems. Etches-Johnson (2006) wrote that it was okay that folksonomies were flawed because they are in the catalog to enhance, not replace, traditional subject headings. They improve discovery and anything that does this, she argues, should be embraced by the library community.

Macgregor and McCulloch similarly argued for the co-existence, though in 2006, they did not forecast that they would both be present in the library catalog. Rather, they felt that they would each be present in the realm for which they were most suited: controlled vocabularies for formal situations, such as for academic research, and tagging systems for informal situations, such as for recreational research.

West (2007) states that using tags alongside subject headings improve catalogs, making records easier to find because it provides “more access points” (58). Other authors arguing for co-existence of tags and subject headings for the benefit of patrons include Lyons and Tappeiner (2008), Peterson (2008), and Guy and Tonkin (2006).

In addition to improving information discovery, tagging systems have another added benefit for the catalog. Smith (2008) states that seeing the way users classify items can help libraries determine better methods for subject indexing.

Rather than replacing controlled vocabulary, folksonomic tags appear alongside subject headings, providing a supplementary way of navigating resources. Table 3 shows some of the ways folksonomies and subject headings can complement each other within the OPAC. Folksonomies cannot and should not replace subject headings in the catalog because of the problems they have due to lack of authority control.

Table 3. Some ways in which folksonomy and controlled vocabulary complement one another.

Folksonomy	Library of Congress Subject Headings
Includes everyone’s vocabulary and viewpoint without bias	Preferred term, by definition, is biased, reflecting only one view
Quickly adapts to changes in language or current events as people enter new tags	Slow to change due to rules of literary warrant and lengthy review process
Possible for all alternative terms to be present, including slang	Impossible for all possible alternative terms to be added and mapped to preferred term
Natural language entry allows for flexibility and increased understanding	Often uses outdated or odd terminology, such as “cookery” for cooking.
Users display their needs and desires for organization of information	Subject indexer and LCSH editors must presume or guess at user needs
Nuances between terms preserved since users can select best term for personal meaning	Nuances between terms are lost as they are all grouped under preferred term
Items tagged NYC or Newyorkcity will not appear in search for New York City	User can be confident they found all documents on a topic using preferred term
Relationships between tags not identified	Hierarchical relationships are outlined, allowing user to broaden or narrow search

The argument for including tags in library catalogs is not exclusive to literature focused specifically on social tagging. Markey (2007) is among many that list the inclusion of user-generated metadata among a laundry list of other changes that must occur to renew the relevance of the library catalog. The author insists that encouraging users to participate in “metadata assignment” in the form of tagging is essential (Markey, 1). She further encourages analysis of tags to discover the types of metadata users want, and then adding these types of metadata to the catalog in the form of subject headings. Similarly, Casey (2007) lists tagging as but one of numerous “ingredients for Catalog 2.0,” the term he uses for the next generation catalog (18). In both Markey and Casey, tagging is presented as just one part of the overhaul

catalogs need to compete with the likes of Google. Tags alone will not carry the catalog into the future, but should be considered among other 2.0 tools.

Mercun and Zumer (2008) also call for the use of tagging systems as one part of creating the next generation OPAC. However, the authors argue that libraries are getting ahead of themselves by focusing on 2.0 features, such as social tagging, before making badly needed improvements to basic functionality, such as searching capabilities. In their article exploring five library catalogs employing web 2.0 technologies, they states that Library search engines must function like the popular commercial search providers in order to compete and remain relevant for users. Relevance ranked results, spell-check capabilities (“did you mean...?”), and faceted navigation tools are among the necessary improvements the author calls for. Only when this “basic functionality of the catalogue is improved should they go to the next level and apply Web 2.0 tools” (259). Web 2.0 technologies, though certainly necessary for the next generation catalog, are not a cure-all for OPAC inadequacies.

OPACS with social tagging components

Libraries have, in fact, taken notice of folksonomies and have begun implementing social tagging system into their public access catalogs. As Gibbons (2007) states, “While many libraries are debating the pros and cons of adding user tags to their catalogs, others are simply doing it” (74). A few of these libraries are discussed here.

An early pioneer in the move toward social tagging in the OPAC was the University of Pennsylvania library. Their PennTags system is a social bookmarking tool designed specifically to organize the academic research process. It is unique from commercial services, such as del.icio.us in the ways it works with the library’s resources. It is designed to work with records in the library catalog and in journal databases, in addition to open web. It works with the catalog in another important way as well. Tags assigned to a catalog record will appear in that record for everyone to see.

The PennTags system is widely mentioned in recent tagging literature (Arch, 2007; Etches-Johnson, 2006; Gavrilis, Kakali, & Papatheodorou, 2008; Gibbons, 2007; Kroski, 2008; Peterson, 2008; Rethlefsen, 2007), though few works discuss the system in any depth. Allen and

Barnhart (2008) and Sweda (2008) are intimately involved in the PennTags project and offer an insider's perspective. In addition to giving an excellent overview of the project, Allen and Barnhart discuss their motivations behind the project and its evolution. They explain that the project is still in its infancy and has not yet been opened to the University community at large, though it will be soon. Sweda writes in a humorous, informal manner about how her participation in the PennTags helped her to recognize that tagging could improve many of the catalog's shortcomings by providing a supplement to the subject headings. This self-proclaimed "old-school" cataloger also provides inspiration for those having difficulty accepting the idea of letting users create metadata in the catalog.

The OPAC in the Danbury, Connecticut public library utilizes LibraryThing for Libraries (LTFL). LTFL is a product put out by the popular web site, LibraryThing, which allows users to catalog and tag their personal book collections. LTFL imports the tags, ratings and reviews from LibraryThing into the OPAC system. However, users in the catalog are unable to contribute such data from within the library catalog. Smith (2008) provides a nice description of how navigating that catalog looks and feels. Robbins (2007) provides an excellent discussion about LTFL. Kroski (2008) and Rethlefsen (2007) each give an excellent introduction to the LibraryThing web site and discuss how libraries, including Danbury, are utilizing the web sites library directed services.

Ann Arbor's SOPAC, discussed in more depth in the following section, is barely mentioned in the literature. Similarly, Hadro (2008) provides the sole article found focusing on the SOPAC 2.0 system in place at the Darien library (also discussed in the following section). Oder (2008) briefly discusses the new BiblioCommons, a for-profit OPAC software similar to SOPAC 2.0.

Unfortunately, very little has been written on the majority of library catalogs currently incorporating tagging systems, and virtually no research has been published on their successes or failures. Gavrilis et al. (2008) is an obvious exception, though their sample was not representative. The 2008 study by Mercun and Zumer is another, though theirs was largely focused on search quality and aesthetics of the catalog, and it did not involve user feedback.

These examples described in this section demonstrate that folksonomies can peacefully co-exist alongside traditional subject headings within the library catalog, providing users with another means of browsing by subject.

Will people tag the catalog?

The success of a folksonomy relies heavily on a substantial user base. There is widespread agreement that tagging systems improve as activity increases (Bonino, 2007; Guy & Tonkin, 2006; Hadro, 2008; Kroski, 2007; Mercun & Zumer, 2008; Oder, 2008; Smith, 2008). With a large number of tags, low quality tags tend to disappear in favor of more popular tags. Imagine a resource tagged by only one person. The resource is about the breeding of cats, but the user tags the resource with the term “horse.” Users looking for material on horses would be guided to this cat material. Now imagine that one hundred people tag the resource. The one “horse” tag would have very little power in a tag cloud or search because terms like “cat” and “breeding” would be used by a large number of taggers. In a large system, tags that are idiosyncratic, designed for personal use, containing a misspelling, or are otherwise odd would have less impact than in a smaller system. The point at which a folksonomy becomes usable, that is the point at which it has “enough” users is referred to as critical mass. Due to lack of research on the topic, it is not possible to say how many users or how many tags is “enough.”

The question of whether a library tagging system could attract enough users is a valid and vitally important one. The dominant opinion seems to be that users will make use of tagging systems within the library OPAC, as evidenced by current successful examples.

Gavrilis et al. (2008) cites the growth and success of the original SOPAC, in place at the Ann Arbor District Library where Blyberg was formerly employed, as evidence that users desire such social library systems and that they will use them. He goes on to briefly discuss several other similar recently developed systems that have seen success at their early stages. Rethlefsen (2007) similarly mentions the success of Ann Arbor’s SOPAC as proof that tagging systems will be used if implemented.

The current successes of systems already in place show promise that tagging systems will be used. However, most systems currently in place are simply too new to reach any solid conclusions about their success in reaching critical mass (Peterson, 2008).

Some OPAC developers and libraries implementing them are taking actions to make reaching critical mass a more likely possibility. Hadro (2008) reports that SOPAC 2.0, an open-source library interface created by John Blyberg for the Darien Library in Connecticut, is designed to aggregate the tagging data from each of the libraries using the software. By sharing the tags that each participating library receives, even a small community library implementing this system could experience the benefits of a tagging system incorporated in the catalog. Special incentives may also be used to encourage user participation. Oder (2008) reports that some libraries have implemented such programs. Participants earn credits for tagging and participating in a number of other collaborative activities within the OPAC. The credits can be redeemed for “special borrowing privileges” or other prizes (Oder, 1). Such incentives may increase use, bringing participation to critical mass.

However, the conclusion that OPAC-based tagging systems could reach critical mass is not universally held. Mercun and Zumer (2008) concludes that libraries would be unable to reach critical mass, citing a 2008 OCLC study that found that less than 10% of those surveyed would “contribute content, self-publish or join discussion groups if a library were to offer these services” (OCLC, 2008, p. 5-1). However, Mercun and Zumer’s conclusion about the report may be faulty. Firstly, they do not seem to recognize the overall message the report’s authors convey. The reports state clearly, a number of times in the introductory and concluding sections, that libraries must become part of the social Web by creating interactive and social opportunities for their users in order to remain relevant. The OCLC report authors argue that interactive participation with web objects is quickly becoming a user expectation, a view shared by Peterson (2008).

Secondly, using this survey’s results to argue that people would not participate in tagging systems might be considered a bit of a leap. The survey did not ask participants about social tagging specifically. Rather they were asked about participation in library notifications, cataloging personal collections online (think LibraryThing), viewing the collections of others,

self-publishing works, sharing videos/photos, providing feedback to the library, participation in online discussion groups, and meeting others with similar interests (5-2).

Furthermore, the value of the results themselves may also be questioned. Though the OCLC survey was well done, quite comprehensive with a large sample of participants in numerous countries, the very nature of asking someone if they would participate in something abstract is problematic. The OCLC report recognizes this possibility, stating that “this lack of interest or excitement may be a result of relatively few examples of library ‘social’ services” (p. 5-1). People simply do not know what participatory services, including tagging systems, would look like. Would people have a different opinion after seeing and using such a system within a library OPAC?

The impact of surveying a user after they have seen a tagging system at work in a catalog may be demonstrated by the research of Gavrilis, Kakali and Papatheodorou (2008). These researchers implemented a prototype social OPAC (OPACIAL) in a Greek academic library and evaluated its success by conducting extensive interviews with participants. Unlike the OCLC survey, in this experiment, users were given the opportunity to interact extensively with the system before providing feedback. Garvilis et al. found that users very much liked the OPAC’s tagging system and 89.5% felt having the tags in addition to subject headings was helpful. 100% of the participants would use the system again and would also recommend it to a friend. Of course, this research has its own problems. The sample of those interviewed was very small, only 19 people. All of the participants were highly educated, far more so than the general public surveyed in the OCLC study, and most were working on or had completed post-graduate degrees. All were very familiar with academic research using a library system, experience that many of the general public would lack. Though a larger study would be necessary to make broader conclusions, this research does show promise for using tags in an academic library.

It is possible to create a system that users will be more likely to participate in. Smith (2008) points out that system design plays a big part in encouraging use. Systems need to be easy to use and provide a distinct benefit for the participant. Tagging is done for personal benefit, not for altruistic purposes (Bonino, 2007; Garvilis et al., 2008; Kroski, 2007; Noruzi, 2006; Rethlefsen, 2007; Smith, 2008; Spiteri, 2007). It is unrealistic to believe that people will

go out of their way to come into your catalog and offer metadata to help you out. Offering a means for self-expression, for collaboration and community building, and for management of research and information in general may encourage users to participate, depending on their individual needs and desires (Bonino, 2007; Morrison, 2007; Smith, 2008).

Conclusion

Over the past few years, social tagging use in libraries has moved from social bookmarking web sites to inclusion of tags in library catalogs. The next few years will undoubtedly see more widespread use within OPACs. This review showed how social tagging systems can be beneficial for library catalogs when used in conjunction with existing subject headings. It provided examples of how libraries are currently using such systems and explored whether users might participate in library-based tagging systems.

As for where future research might be performed, there are many questions yet to be answered regarding social tagging in libraries. Are tags in the catalog helpful to users? If so, how much better are catalogs with both tags and subject heading than catalogs with just the latter? Are they helpful for collocation, browsing, and/or searching? How serious are the problems of tagging when used in a library catalog? Will people use these systems if libraries have them? Can tagging systems in libraries reach critical mass? Can tagging systems be improved without stifling the freedom of tagging? In what ways can this be done?

Social tagging is a very new phenomenon, having been around for only five years. Relatively little research has gone into tagging as a whole and virtually none has been conducted looking at social tagging systems in libraries specifically. At this point in time there far more questions than answers. Undoubtedly, with the popularity of social tagging systems and their inevitable shift into library catalogs, such research will be performed. Just as the reviews by Speller and Macgregor et al. became obsolete within just a couple years, the rapid development of the study of folksonomies will make this review obsolete as well.

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