Introduction
Folksonomies and Image Tagging: Seeing the Future?

by Diane Neal, Guest Editor

Folksonomies

Folksonomies are one of today's hottest Internet trends. They are but one part of Web 2.0, which, in part, refers to the ability of Internet users to add, change and improve World Wide Web content. A folksonomy is created as users of a website add "tags" (keywords) to describe items on a website. The users choose their own keywords; few or no restrictions are imposed on their choices. The terms are not chosen from a previously existing controlled vocabulary, a strict taxonomy or any other officially sanctioned method of bibliographic description.

According to information architect Thomas Vander Wal, who created the term *folksonomy*, folksonomies are created when people tag items online for their own later information retrieval purposes. This makes folksonomy an extremely useful tool for online personal information management, since the tags are coined in the user's own words, not in the words imposed by the system. The secondary benefit is the social aspect, including the ability of other users to use those tags for search and retrieval of previously undiscovered items and the community created by and centered on users' tags.

Websites utilizing folksonomies, such as the photograph sharing website Flickr, the social bookmarking website del.icio.us and the video sharing website YouTube, have enjoyed exponentially growing numbers of registered users since their relatively recent inception. It is no wonder that this growth has occurred: tagging is fun! Your inner cataloger will love using LibraryThing to tag each item in your personal collection of books, compact discs and DVDs. One of my former students has even used it to

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catalog her church's library collection. Using Digg, you can "digg" and tag your favorite online news articles.

The online retailer Amazon allows its users to tag anything for sale and to work with the tags in many useful ways. Figure 1 shows the tag section of the amazon.com page used to sell the Canon PowerShot A550 7.1MP Digital Camera with 4x Optical Zoom. Not only can you tag the camera, you can choose tags that others have already used, find discussions and people related to those tags and tag it for Amazon Search. Tags submitted for inclusion in Amazon search must adhere to a set of guidelines, and they must be approved by amazon.com.

FIGURE 1. Customer tags for an Amazon product description

On del.icio.us, you can store all your "Favorites" or "Bookmarks" online, tag them and access them on any computer – no need to remember whether you bookmarked a website on your home or your work computer. Figure 2 (see page 8) illustrates some websites I have included in my del.icio.us account. Using del.icio.us, you can also see which websites others have tagged, how many people have saved given websites into their favorites, and the most popular and recent tags. Hence, websites such as del.icio.us are called "social bookmarking" websites.

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FIGURE 2. Display from del.icio.us showing user tagging and the number of people who have added each website to their list of favorites

Tag clouds, or visual representations of the most popular tags on a website utilizing folksonomies, provide insight into the collective knowledge, or at least the collective interests, of the users. Figure 4 (see page 9) shows a portion of the tag cloud representing the most active tags on CiteULike, a website for organizing and tagging online scholarly resources. The most popular tags, such as *clustering* and *evolution*, are in larger type, while the slightly less popular tags, such as *communication* and *climate*, are in smaller type.

Social communities form around tags. On Flickr, for example, users can join groups focused on individual tags such as *beautiful, LOVE IT!* and *Ulster* (a province in Northern Ireland). In other cases, the people who can tag in a given area are limited to a particular online community. Users can only join some Flickr groups via invitation or moderator approval.

FIGURE 3. Collaborative tagging in Flickr

Unintentionally collaborative?

Figure 3 illustrates a tagged picture on Flickr. I took this photo of my husband Jason standing by a sculpture located in front of the Fort Worth Museum of Modern Art. I added the tags "Vortex," "Fort Worth" and "The Modern." Someone else who viewed the picture tagged it with "Richard Serra," which is the sculptor's name. I was pleased that the person added the sculptor's name, since Jason and I did not know it. This demonstrates the social utility of folksonomies – as a secondary benefit, all users are able to contribute their knowledge to the folksonomy. Consequently, the tags serve as a representation of the collective knowledge of the users. Tagging and folksonomy are sometimes called *social classification*.

FIGURE 4. Portion of a tag cloud from CiteULike

Everyone's Tags
Most active tags on CiteULike

Filter:

adaptation agents
algorithm algorithms
analysis architecture
attention bacteria
bayesian
bioinformatics biology
brain cancer cell
classification climate
clustering
collaboration
community complexity
control culture data
database depression
design detection
development
distributed dna
drosophila dynamics
education evaluation
evolution
expression fmri gender
gene genetics genome
genomics graph health
history human image
imaging Information
interaction internet

Speaking of community, many libraries provide outlets for their staff and patrons to participate in tagging and folksonomy creation. The Ann Arbor District Library's catalog allows users to tag its items. A tag cloud of the tags applied to the Edmonton Public Library's subject guide pages is visible at CiteULike. Libraries can opt to use LibraryThing tags within AquaBrowser Library, a faceted visual search engine. AquaBrowser Library provides a demo of this mashup for the Queens Library. Libraries such as the Thomas Ford Memorial Library in Western Springs, Illinois, have tagged photos on Flickr that can feature anything of interest to its community. Examples include a book sale, a guest speaker or digitized photos from the library's historical collection. The library staff, library patrons and any other viewer of the library's photo collection can tag the pictures. For the library, a Flickr account provides free marketing and excellent publicity. For its patrons, it provides a way to participate in local community and a way to connect with the library in the domain where many patrons already live – online!

Tagging methods focused on people's specific interests are emerging. For example, geography enthusiasts can participate in geotagging. The practice of geotagging records geographical information about a document. For example, geotagged Flickr photos provide information about where the photo was shot. They have the tag "geotagged" and may include verbally oriented place information such as "Germany" or "my sister's house." A more technically accurate geotagging method involves listing the latitude and longitude associated with the item. Using this approach, a picture of Durham, North Carolina, would be geotagged with "geo:lat=5.910440" and "geo:lon=-78.906380."

Not just for technogeeks?

Attendees of the ASIS&T 2006 Annual Meeting in Austin may remember June Abbas' and Jennifer Graham's poster session titled "So let's talk about tagging, user defined/applied descriptors: A research and curricular agenda." Abbas and Graham provided markers and sticky notes for conference attendees to place tags on their poster. In the end, we tagged the poster, ourselves, our colleagues, objects around the hotel and anything else we could find. For the remainder of the conference, I enjoyed wearing a sticky note on my badge displaying a tag I created – *me*.

Many Web 2.0 components, such as folksonomies, are not simply singular technologies, but rather technically based manifestations of human tendencies. When Vander Wal created the word *folksonomy*, he combined the words *folk* and *taxonomy*. In a folk taxonomy, members of a society create words, categories and classifications for things in order to describe the world in a way that holds relevant meaning for them. Similarly, a folksonomy allows members of a group, such as one that uses the same OPAC or one that likes pictures of cute puppies, to search for and retrieve documents, communicate with each other and share their knowledge online in a way that means something to them.

The ability to create tags that hold personal meaning is important to Internet users. We are probably more likely to remember our own tags for searching than terms belonging to a predetermined system. (Could our own sets of tags be considered individualized controlled vocabularies?) Some folksonomy researchers have concluded that the emotion and affect elicited by a document play a large part in users' tag choices; they may tag and search for beautiful or expansive pictures. In "Two Kinds of Power: An Essay on Bibliographical Control," Patrick Wilson wrote, "What seems to stand out to us depends on us as well as the writing, what we are ready to notice, what captures our attention." Document description subjectivity has been well-documented in information science research, so it makes sense to allow users to apply their own tags to their own documents.

> **The ability to create tags that hold personal meaning is important to Internet users.**

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You can't see it that way?

Representation of visual documents, such as images and videos, is particularly susceptible to subjectivity. Although "a picture is worth a thousand words," no words accompany a picture or video to guide our tag choices. Vision research has demonstrated our tendency to first look at what interests us the most in a picture. So different groups of visitors to an online museum exhibit – an artist, a casual visitor and an art scholar, for example – may find different elements of interest in the same painting.

For my dissertation research, I investigated photojournalism professionals' preferences for search and retrieval methods of digital news photographs in online photo archival systems. These professionals rate photographer-supplied keywords (tags) as a highly preferred method, which is the method employed by most of the newspapers I studied. In this case, tagging is necessary: likely only the photographer knows the name of the person in a given photo, the location in which he shot a photo and so on. However, my research uncovered some issues that potentially inhibit successful photo retrieval, such as misspelled tags and various inconsistencies in the photographers' tagging practices.

I have little doubt that tag quality may be an issue in many contexts. Certainly, if keywords in any form are misapplied or misspelled, they will hinder successful retrieval. However, it may be difficult to determine whether tags are truly incorrect in the user's context. One possibility for improving tag quality may include a system that suggests accurately spelled tags or provides an "if you liked this tag, you'll love this other tag" option.

In the end, many online users need and want control over the representation of their own documents. The sheer volume of tags and folksonomies present in today's online environment (and, we must assume, the success users find in searching on their own tags for later retrieval) provides sufficient evidence that information professionals should not attempt to impede the folksonomy phenomenon. Some folksonomy skeptics argue in favor of more traditional, controlled approaches to online document representation, such as top-down hierarchical taxonomies and faceted schemes. These methods certainly hold value in many contexts, but

Resources

For Further Reading

O'Connor, B. C., & Wyatt, R. B. (2004). *Photo provocations.* Lanham, MD: Scarecrow Press.

Vander Wal, T. (2007). *Folksonomy.* Retrieved August 13, 2007, from www.vanderwal.net/folksonomy.html

Wilson, P. (1968). *Two kinds of power: An essay on bibliographical control.* Berkeley, CA: University of California Press.

Websites Mentioned in the Article

Amazon – www.amazon.com/

AquaBrowser Library - www.medialab.nl/

CiteULike – www.citeulike.org

del.icio.us – http://del.icio.us/

Digg – www.digg.com/

ESPGame – www.espgame.org/

Flickr – www.flickr.com/

LibraryThing - www.librarything.com/

Wikipedia – www.wikipedia.org/

YouTube – www.youtube.com/

Examples of Tagging Applied in Libraries

Ann Arbor District Library Catalog – www.aadl.org/catalog/

Edmonton Public Library Subject Guide Pages tag cloud – www.epl.ca/EPLCloudNine.cfm?all=yes

Queens Library AquaBroswer demonstration – http://aqua.queenslibrary.org/

Thomas Ford Memorial Library photo tagging – www.flickr.com/photos/thomasfordmemoriallibrary/

it seems counterproductive to simply dismiss the value of user-assigned descriptors. It seems more productive for us to work with users in the development of mostly unfettered, but still appropriately controlled, tagging systems. This practice is becoming known in some circles as *collabulary*.

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So how do we start?

Both the personal information management dimension and the social dimension of folksonomy warrant further thought, research and development. I hope that this special section on folksonomies and image tagging will provide you with ideas for some directions that information professionals can take to improve the "bottom-up" intellectual access to information that is so popular online today.

P. Jason Morrison's article "Why Are They Tagging, and Why Do We Want Them To?" further defines the utility of folksonomy; its main use is to support successful information retrieval, but he discusses other uses as well. He also explains some of the reasons why users tag. These include retrieving information, gaining exposure and sharing opinions. More reasons can be found in his article.

As users contribute tags and other information to a website, certainly there will be some disagreement about the contributed content. In "Trouble in Paradise: Conflict Management and Resolution in Social Classification Environments," Chris Landbeck explores the different conflict resolution methods available on three websites that allow tagging: Flickr, Wikipedia and ESPGame.

In keeping with our emphasis on image tagging, Elaine Ménard's article "Image Indexing: How Can I Find a Nice Pair of Italian Shoes?" explores the special issues associated with images and image users. She compares the usefulness of image tagging with the value of controlled vocabularies used for image indexing. Also, Joan Beaudoin's "Flickr Image Tagging: Patterns Made Visible" discusses a categorization study of 140 Flickr tags. Based on her model and analysis, the most frequently used categories of tags include names of places, things and people associated with the photograph. ∎

Consolidated List of Websites mentioned in the Special Section on Foksonomies

Amazon – http://www.amazon.com/

AquaBrowser Library – http://www.medialab.nl/

CiteULike – http://www.citeulike.org/

del.icio.us – http://del.icio.us/

Digg – http://www.digg.com/

ESPGame – http://www.espgame.org/

Furl – http://www.furl.net/

Flickr – http://www.flickr.com/

LibraryThing – http://www.librarything.com/

Mealographer – http://www.mealographer.com/

Reddit – http://reddit.com/

Slashdot – http://slashdot.org/faq/tags.shtml

StumbleUpon – http://www.stumbleupon.com/

Technorati – http://www.technorati.com/

Wikipedia – www.wikipedia.org/

WordPress – http://wordpress.org

YouTube – http://www.youtube.com/