

The social nature of social tagging: relationships within the museum community

In her 2006 essay, Rhiannon Mason explains that for much of museum history, the paradigm of communication has focused on one-way transmission. According to Mason, the visitor has traditionally been positioned as nothing more than a “recipient as an empty vessel waiting to be filled with information or knowledge” (201). The increase in museum professionalism after the Second World War, however, actively began to question this model and shift toward a model of greater visitor engagement. Since then, museums have been making great efforts to overcome the static model and to incorporate more participatory modes of communication with the visitor.

A recent example of such an effort involves the online collection. Art museums have begun incorporating social tagging as a means of soliciting visitor participation while simultaneously improving image retrieval from online collections. Energized by the prospect of cheaper, more extensive indexing, much of contemporary information studies research focuses on the outcomes of the tagging process, defining parameters by which to evaluate it and the motivations that cause some users to tag. However, little research explores the way in which the tagger is affected by her participation in the tagging.

This paper is an attempt to fill one small part of this gap in information studies research. Specifically, this paper will examine the ways in which the tagging process influences the taggers’ relationships to the museum, its objects, and the community created by the museum. The paper begins with an examination of the

current state of communication between the art museum and the public. Explained in this section are the difficulties in the current communication model that tagging is primarily meant to address. In the following section the paper assesses the extent to which tagging currently achieves its primary purpose: information retrieval. It will be argued that tagging works best when it is done in a highly social context. The possible benefits of social tagging will be discussed with respect to various museum-user relationships. Finally, the paper will explore the extent to which social tagging might change the power dynamic within the museum community.

Relationship problems

The difficulties art museums have communicating the importance of art works with their audience is most acutely represented by contemporary art. Though people in contemporary society are immersed in visual signals, many visitors to art museums feel estranged by unfamiliar or difficult pieces.

Chris Whitehead uses the example of ongoing controversy over recipients of the Tate Gallery's Turner prize as an example of the failure of the art museum to properly engage its public in dialogue. The prize is frequently awarded to experimental and conceptual artists that are less likely to garner public appreciation although they are respected by the art establishment. Even though the Tate remains one of the most visited museums in the world, the resulting bitterness from the miscommunication between the public and the institution can be seen in a comment by Nicolas Serota, director of the Tate, who said in a press conference, "We give them the purest, most dematerialized installation, and they still complain" (BBC

2001). The public “complaints” range from pickets to fiery editorials and even a parody contest named the Turnip Prize for bad art in which many entries are turned away for being too good (Bad Art Wanted: no effort allowed 2008).

The ongoing debate over the prestigious prize highlights the gap between the art institutions’ notion of good art and the public’s notion of good art. The art museum, however, is not completely unsympathetic to the public opinion. Even Serota himself acknowledges that preparation and study are required for the appreciation of modern art as much of it “is at first sight, unnerving” (Serota 2000). However, with a mandate from ICOM to serve the public, art museums must find a way to work through such difficulties.

As this example illustrates, the public has become increasingly distrustful of the art museum as an authority. This seems to be because much of the contemporary art that is highly respected by museum curators does not fulfill the public’s expectations for what art is or should be. However, curators cannot simply curate to the public’s current taste. Beyond their current expectations of art, the public expects that art museums will show them work that they will *come to recognize* as great art.¹ In other words, the burden remains on the museum to challenge the public’s preconceived notions.

But how can museums do this without increasingly alienating the public? The answer, it appears, is *communication*. By cultivating an active and interactive discourse with public, museums stand a good chance of keeping the public engaged

¹ Discovery is a subset of the recreational factor that Hood calls “doing something worthwhile.” If this is a motivating factor in museum visitation, then discovery would seem to imply the surprise engagement with difficult works (Hood, 1983).

with exhibitions. However, this is where art museums face a difficulty particular to their discipline. While many other museums may use a didactic approach to communication, art museums, not wanting to suggest that a work of art has only one “correct” interpretation, strongly resist relying on a narrow explanation of a work’s interpretation (Mason 2005, 209). This hesitation can cause art museums sometimes to take this approach too far, and they may end up denying the viewer any resources to facilitate her ability to arrive at her own interpretation.

A more beneficial model for constructive engagement with a difficult piece is a dialogue between a museum professional and the visitor. The ability to engage a visitor in conversation would alleviate much of the conflict occurring between the viewer and the museum institution by validating the viewer’s concerns and frustration while providing a space in which to lead the viewer to a better understanding of why the work may be important or meaningful without implying that the viewer herself must revere the work. Unfortunately, this option is largely prohibited by cost. The only scenarios allowing for this type of communication comes in the form of guided tours, and even these often have strict didactic curricula that may not allow for extended dialog.

Though ongoing dialog is out of the question as a standard in the physical museum, the virtual world offers new ways of engaging the viewer in a more mutual relationship. A small step toward such a goal is evident in museums’ effort to acquire user tags for museum objects. Briefly, the process of tagging in this context is when the museum website solicits users to contribute keyword terms associated with an object. Partially out of the museum’s own need to better index its visual

surrogates, tagging is seen as an area in which viewer contribution may be valuable for both parties involved. Because of its structure, tagging doesn't allow for direct interaction between the museum visitor and the museum professional. However, it does offer a new way to experience art work in the virtual museum and may have an impact on the user's attitude toward objects and the institution in the event the user visits the physical museum.

Tagging

Tagging can be defined as the process of assigning useful terms to an object. Depending upon the context and tagger, these terms may be quite disparate in nature. Within the context of the museum, tagging is used to supply useful descriptive terms to images of objects in the museum's collection. The vocabulary that grows out of tagging systems is often called folksonomy, originally coined by Vander Wal and shaped by the academic community (Vander Wal, 2005; Trant, J. 2009b). Folksonomy is a combination of "folks" referencing the crowd of non-professionals producing the terms and "taxonomy" referencing the resulting classification that arises from their contributions. Furner offers a concise definition as "any set of terms (a.k.a. tags) that represent the categories or classes to which the items (a.k.a. resources) in a given collection are thought by the various members of a given group (a.k.a. taggers) to belong" (Furner, 2009, 1). Because tagging came into popularity less than a decade ago, the field of study surrounding its implications, use, and user motivations is still in its infancy. However, the literature is quickly growing.

Recent comparisons of folksonomies with the language of professional cataloguers reveal a striking dissimilarity. In the Steve tagger project, several comparisons of tagging language with that of the curatorial language revealed significant proportions of new words assigned by taggers (Trant 2009a, Chun et al., 2006; Trant, 2006; Trant & Wyman, 2006). Such disparities, up to 90% difference in one case (Trant, 2009a), are evidence that laypeople and professional people use different sets of terms to describe the same objects. Many of these increases may result from the likelihood of a tagger to contribute terms describing things depicted in an object with greater frequency than cataloguers (e.g. assigning the term “tree” to a painting with a tree in the background).

Expanding the amount of objects identified within a work may affect the results of keyword or subject searches. For example, user tagging may increase the number of returns from a search for ‘tree’, but the returns may be unsatisfactory if most of the objects only feature trees in the background. However, there may also be cases in which the professional would shy away from specificity for the sake of

authority. For example, Giacomo

Balla’s famous futurist work, *Dynamism of Dog on a Leash* (fig. 1) at the Knox-Albright Gallery might be catalogued with a keyword of ‘dog’, but it is unlikely the cataloguer would go further to label the specific breed if she cannot be certain. The tagger, not



Figure 1. Giacomo Balla (1871-1948), *Dynamism of Dog on a Leash (detail)*, 1912, oil on canvas, 35³/₈ x 43¹/₄ in. ARTstor slide gallery © Artists' Rights Society

weighted down by the need for authoritative accuracy, might instead assign more specific labels such as 'dachshund' or perhaps even 'wiener dog' (a term likely to aid small children in searches for the oddly-shaped canines).

Unlike museum professionals, in most instances of tagging users are not limited to the controlled vocabulary of the museum or even a shared discourse from which to draw terminology. This relative freedom may allow taggers to ascribe words to objects that might be considered too vernacular or perhaps might not be considered at all. The uncontrolled nature of tagging may supplement institutional cataloging and provide fuller descriptions of objects. These fuller descriptions, however, may be problematic precisely due to the lack of institutional control. Inappropriate or inaccurate tags might also be assigned, and these tags are likely not to be applied consistently; museums are still investigating methods of addressing this issue.

The difference in terminology between the produced folksomony and the controlled vocabulary is often presumed useful if it aids user searches of the collection (Trant, 2009a). However, little research has been conducted matching search terms to tagging terms to determine the extent to which tagging aids retrieval. One recent study does indicate that tagging terms alone may not increase retrieval, but a combination of tagging and other metadata may slightly improve retrieval (Hoe-Lian Goh, et al, 2009). Experiments in tagging like the Steve Project reveal that users respond differently to different tagging environments, and this may suggest different levels of efficacy corresponding to tagging environments. The amount of metadata, other tags or some combination thereof may produce different

responses from the users. Of particular interest is whether there will be timidity among users to assign tags when museum metadata and/or tags appear with an object and the use or disuse of tagging terms when these appear (Trant, 2009a). Further complicating tag accuracy in retrieval are instances in which the user is invited to participate in a game in order to assign tags, such as the ESP game (<http://www.gwap.com/gwap/gamesPreview/espgame>) where users try to match tags with each other in timed intervals. In an effort to 'win' the game the vocabulary may stray from words a user would normally use to describe an image (Lawley 2005). Given the diversity of tagging environments, further studies comparing these environments are necessary to determine the most effective strategies within each.

Moreover, the informational value of tagging should not be narrowly confined to the provision of additional index terms or manpower for conquering the vast amount of objects in a museum's collection. Though few have explored the possibilities, there may be a wealth of information to be gained about the user and her relationship to the museum, the museum objects and other museum visitors. The sensitivity of user responses to the environment of tagging might indicate that the environment itself conveys a type of subtle information about the perceived expectations for the user, the authority of the museum description, and the outcomes of the user's efforts. It also suggests that tagging may be a useful space within which the museum can alter community relationships as perceived by the tagger.

Relationships in Social Tagging

The space within which most museums offer tagging applications is passively social. Social tagging, though difficult to define, can range from passive sociality—such as the simple knowledge that the user is working to help other users ‘find an object’—to a more active sociality that allows for users to contact each other, work together, and share information.

A perceived social element within a tagging structure may not only increase the amount of tags but the way in which users tag (e.g. perhaps a tagger would not use ‘to read’ or ‘for project’ but rather descriptive terms such as ‘landscape’ and ‘sunset’) (Lee, 2006). Placing tagging within a social context would seem to remind the user of both the end goal for their contributions and the types of users benefiting from them. Shirky points out that when users find value in tagging, “much more data about any given object” will be produced “than if you pay a professional to tag it once and once only.” Moreover, allowing for sociality may help deal with the relationship and communication issues discussed at the beginning of this paper. The section below is devoted to explaining this.

User-museum relationship

Unlike the physical museum setting, in which the user is largely forced to accept curatorial texts and decisions as authoritative, within the realm of social tagging the user may actively participate beside the curator to give a fuller description of museum objects. In the physical gallery, a visitor might read a wall label and think to herself, “I just don’t see that” but has no recourse for having her

reading acknowledged by others. Within the space of social tagging, the user has the chance to describe the object in her own words, inherently giving her more ownership over the object and the process of looking than she might otherwise feel in the museum gallery setting. The process of authorship, even in such a minimal way as assigning tags, might go a long way towards removing the feeling of disenfranchisement the visitor sometimes feels when her conception of art doesn't align with the curator's.

Science museums largely present facts and evidence the museum visitor feels are beyond her range of experience, so the user is more inclined to defer to the museum's authority and perceive the overall experience as a valuable learning opportunity. In contrast, art museums largely contain objects that are immediately accessible on a surface level because everyone with sight has experience with visual culture, yet many of the objects may have complicated or ambiguous meanings making it difficult to leave the visitor with a feeling of having 'gained something.' The space of tagging may temper the user's disappointment with the curatorial approach to interpretation and lead the user into a space where she can create her own sense of connoisseurship. With this sense, her enjoyment of physical museum visits may be increased as she feels empowered to make her own decisions concerning what a work is about or why she feels it is important or why she doesn't like a work and can now pass by it in the museum to view other objects.

In addition to adding what might be an element of empowerment to the user, social tagging within the online museum context brings museum objects out of the museum and places them into the user's personal space. Whatever the

motivation of the tagger, the tagging will be done divorced from the austerity of the physical museum and placed into the users' home and work place. If social sharing mechanisms are available, the tagger may be encouraged to share her discoveries through tagging with friends and family in other virtual spaces such as Facebook, Twitter, and Delicious.

Because the tagging is voluntarily done, it might be integrated into part of the user's relaxation or play. In this recreational state of mind, the user may be primed for the introduction of the museum on different terms. Rather than slating a biannual or quarterly visit to the museum, the museum has the opportunity to enter into the tagger's life in a more routine way if the user is induced to return repeatedly to the tagging experience. The Brooklyn Museum currently exploits this new, less-formal relationship by allowing users to 'unlock' videos featuring museum staff and other interesting clips in both their tagging and tag removal games. These videos feature museum staff thanking the taggers for their participation in the *Tag! You're It* game and interesting vintage video in the *Freeze Tag* game. An example of one of the videos "unlocked" is the appearance of Salvador Dali on the game show *What's my Line?* Such humorous and less formal offerings of information, including information that might add to the user's knowledge about artists or cultural contexts, may give the tagger a sense of the museum as a collection of gregarious individuals rather than a cold, faceless institution.

Beyond simply changing the relationship dynamic between user and the museum, social tagging may have the ability to inform the museum of the nature of its user. A recent analysis of trends among popular online networks incorporating

social tagging such as Flickr and YouTube revealed that particular user groups might be distinguished from their tagging behavior (Ding, et al., 2009). Tags on the photo-sharing site, Flickr showed two distinct user groups: professional photographers using Flickr as a platform for presenting their work and non-professional photographers using the site to share with friends and family. The terms and frequency of tagging used by these groups varied with non-professionals assigning greater numbers of descriptive tags and professionals assigning fewer tags with more technical language (e.g. Canon, D40).

Using similar methods, the museum might be able to determine the type of user participating in the tagging. Because the make-up of user groups participating in tagging is seen as representative of the group using the website, such determinations can be used proactively to adjust content and curatorial language or to determine which user groups are not participating at all. To date, little research investigates these types of trends in museum tagging but further research has the potential to reveal important trends in user participation.

Tag tracking may also reveal shifts in interest that could aid curatorial staff in their selection of exhibition material. Ding and Jacob's study of tagging trends on Delicious, a bookmark-sharing website, reveals that some tags change in popularity over time. This may be useful, because a majority of the top tags remained stable over time, and thus the ones that do rise or fall in popularity may correlate strongly with current user interest. The study's findings showed that the terms *xml*, *science*, *search*, *games*, *technology*, *security*, *imported*, *research* and *internet* dropped out of the top 20 tagging terms from 2005 to 2007, while the terms *development*, *howto*,

tutorial, webdesign, free, and opensource are introduced into the list in the same period. The shift in popular tags may indicate a corresponding interest shifting toward the use of the internet and Delicious for sharing resources that enable design information-sharing or toward an emerging DIY culture. Tracking such trends within the museum context might help curators pinpoint issues around which to focus exhibitions or areas of the online collection that might need further description or revised description. Awareness of such trends might increase museum response not only to areas of interest shown by the public but also areas where more promotion or dialog is necessary. Allowing social tagging to open means of communication between the museum and its public, no matter how indirect, may thus go a long way toward alleviating some of the distrust with which the two parties view each other.

User-object relationship

The relationship between the user and the object within a system of social tagging should not be understood as a simplistic scenario of prolonged viewing where the user gains a greater understanding of an object. In fact, trying to label a work the user doesn't understand may only lead to further frustration. The potential gains in user-object relationship may lie in *utilizing the tags* provided by users rather than relying on the tagging experience alone.

As artists and art historians employ high levels of browsing in their information-seeking, methods to facilitate such browsing in new and interesting ways would vastly improve the experiences of these two large user groups (Frank,

1999). Improved or more flexible browsing would also seem to improve the experience for casual users whose primary goal in using the museum website is recreational exploration. It seems that tags may be of important use in this regard facilitating the development of mechanisms to enhance browsing.



Figure 2. left: Matthew Ritchie, *Universal Cell* (installation view), laser-cut aluminum, 2005, image © Matthew Ritchie; right: Terry Winters, *Good Government*, oil on canvas, 1984, 101 ¼ in x 137 ¼ in, image © Whitney Museum of American Art

Rather than simply visiting a museum site to find images of a particular artist and then leave, the museum might have an opportunity to use social interaction as a means of bringing the user further into the collection than they might otherwise have gone. Tags can be used to suggest works to a user in a way similar to those that are used by sites such as Amazon and Netflix. For example, after seeing *Universal Cell* by Matthew Ritchie exhibited at the Whitney Museum of American Art, a user may search for this piece on the museum's website. The museum could then suggest other artists or artworks that use similar biological inspirations, such as *Good Government* by Terry Winters (fig. 2). Though these works share loosely similar visual features, it is doubtful that in the absence of user tags such works in different media would appear in the same search results or be available through the same browsing path. A user originally attracted by Ritchie's slick, technologically savvy installations in the Whitney's exhibition, *Remote Viewing*, might find a new interest

in Winters' oil paintings or his series of lithographs of cells. Museums' collection websites are ideally placed for implementation of such uses of the long tail.² Blockbuster exhibitions and canonical artists form a base of high collective interest while the extensive collections of museums present the more obscure possibilities of works that might be introduced to the user.

There are different ways in which to implement the Amazon-like suggestion mechanism. A combination of user tags that associate images and view counts that might suggest image popularity could be combined to form suggestions of works similar to the original work sought by the user. To further improve the process, the museum could allow registered users to select a work as a "favorite" or as a "liked" object while they are in the process of tagging or searching the collection. In the same way Netflix suggests the favored movies of viewers who have shown similar interests, the museum site could suggest images to encounter based off of users with similar tastes.

Moreover, the use of such relationships through tags rather than traditional classifications used in museum settings offers a potential for aiding the user in learning how to interpret works for herself. Using tags to form suggestions for other objects the user might be interested in certainly would not always create useful groupings, but it has the potential to periodically present the user with informative image groups. For example, if the user were viewing the Boccioni painting *The City Rises*, a futurist piece depicting the motion of men and horse, the system might

² The long tail phenomenon as explained by Anderson stems from the relationship between relatively small proportions of objects that are wide-reaching in their appeal and high levels of objects that may have an audience but likely a geographically dispersed one (Anderson, 2004).

suggest Muybridge's *Galloping Horse*, a series of photographs that study the different positions of a horse in motion. The user, perhaps unaccustomed to the futurist style, might be able to recognize in the blurry and overlapping lines of *The City Rises* the different positions of the horse in motion by studying Muybridge and gain a better understanding of what Boccioni was trying to accomplish. While this scenario might not occur with frequency, allowing for greater means of association through larger pools of descriptive words (tags) increases the likelihood of such serendipitous associations.

User-to-user relationships

Though users may be aware that they are part of a tagging community, there are few, if any, museum tagging structures that allow for the same type of direct user-to-user contact in as popular social sites such as Flickr and Delicious. The majority of user-to-user socialization is mediated by a game structure (e.g. a form of the ESP game), competition structure (e.g. keeping track of user 'scores') or simply the acknowledgement that the tagger is aiding users like herself. This social interaction is largely aimed at homing in on appropriate and *shared* terminology or enticing prolonged participation in tagging rather than offering useful social interaction among users. Without introducing other elements such as access to personal portfolios between users or user profiles, it is unlikely any great gains can be accomplished with such limited social interaction.

In contrast, by providing a platform for direct interaction, the museum facilitates the development of a community of museum users with access to each

other. If this access includes the ability to share collections of images users gather from the museum collection, this relationship could further discovery and provide insight into how other users relate works. Because they are made visible to each other within the context of the museum, individual users may gain a sense of the communal making of meaning frequently referred to by museum scholars.

Conclusion

To date, social tagging systems within museums have largely focuses on bridging the gap between the terminology used by the academic insularity and the museum's public. This is normally construed as attributing to greater efficacy of image retrieval. However, although the terminological disparities produced by social tagging have been studied in some detail, the efficacy of social tagging in terms of image retrieval remains largely unknown. Moreover, merely looking at social tagging's implications within the realm of image-retrieval is short-sighted at best and doesn't mirror the same careful considerations museums put into curatorial or collection development decisions. The rest of this paper will explore some of the other potentials (both positive and negative) for social tagging.

In the same way that the physical architecture of museum buildings carries with it information about the museum as an entity and the museum's relationship to the user (as one of authority), so too can the architecture of the virtual museum space carry with it information on how the museum views its relationship to the user. Placing the user in a less formal and more social space for interaction with the

museum staff, its objects and even other users signals the museum's intent to work toward interpretations arrived at communally.

Though social tagging does give museum users agency to author material, the material they are allowed to author might be of marginal importance to the overall function of the museum. However, as museums make room for users to submit vernacular terms to describe their collections, they ought to consider other modes of enabling user authorship to the benefit of the museum community. Museums might be able to provide spaces for dialog about museum pieces where users could argue, raise questions or offer explanations and personal narratives about pieces. One option for museums is to study other popular sites of collective work that enable social experiences such as interpretation (e.g., in Wikipedia) or information discovery (e.g., in Ffffound). Through the lens of these systems, users' inhibitions toward experiencing the unknown in art might break down as a dialog not just between the museum and the public but also among members of that public.

Such potential for a community to be formed around an art museum must be tempered with the very real chance that even that community might not serve as a place for the dissemination of interpretive methods for contemporary art. As Crooke points out,

[The construction of a visible community] can set up mythological ideals that are hard to realize or, by making community appear static, make change harder to achieve. By grounding a community in a particular history or experience, those who do not share that history are at risk of being excluded.

(177)

If it turns out that only those within the arts disciplines participate in these online communities, the relational problems between the museum and a public often resistant to contemporary art may only worsen. Users outside the discipline who try to enter a shared informational space such as a forum might be more repulsed by the numbers of members who all seem to share a certain 'artspeak'. Additionally museums run the risk of hierarchies forming within social networks where frequent users become authorities within the network and may set much of the tone of conversation. These risks might be avoided if the museum recruits volunteers or museum professionals to participate actively in such forums and moderate areas for entry-level discussion. Communication within these less formal situations could allow for members of the public to force museum and arts professionals to clarify technical terms with vernacular language.

Social tagging systems indicate that it may be possible to use online relationships to change information authoring and distribution practices in art museums. Yet critical questions affecting how museums move toward goals of developing better communication methods for facilitating users to build interpretation on their own remain to be defined and answered. Studies on user feelings when engaged with different types of social tagging, or on the correlation between tagger behavior and level of social interaction available, may provide clues into forming information systems that are better for all types of users.

Works Cited

- Anderson, Chris. October 2004. The Long Tail *Wired Magazine*. Available: http://www.wired.com/wired/archive/12.10/tail_pr.html.
- Bad art wanted: no effort allowed. October 29, 2008. *BBC Online Archive: BBC Somerset*. Retrieved December 4, 2009 from http://www.bbc.co.uk/somerset/content/articles/2008/10/29/turnip_prize_2008_feature.shtml
- BBC. 2003. Art connoisseur faces his critics in the north. Retrieved on December 7, 2009 from http://www.bbc.co.uk/Pressoffice/pressreleases/Ories/2003106_iunel02/inside~out~brian_sewell.shtml.
- Chun, S., Cherry, R., Hiwiller, D., Trant, J., & Wyman, B. 2006. Steve.museum: An Ongoing Experiment in Social Tagging, Folksonomy, and Museums. *Museums and the Web 2006: selected papers from an international conference*, Albuquerque, NM. J. Trant & D. Bearman (Eds.). Retrieved December 7, 2009 from <http://www.archimuse.com/mw2006/papers/wyman/wyman.html>.
- Crooke, Elizabeth. 2006. Museums and community. In *A Companion to Museum Studies* ed. Sharon L. McDonald, 170-185. Malden, MA: Blackwell Publishing.
- Ding, Ying, et al. December 2009. Perspectives on Social Tagging. *Journal of the American Society for Information Science and Technology* 60 no. 12 : 2388-2009.
- Frank, Polly. 1999. Student artists in the library: An investigation of how they use general academic libraries for their creative needs. *The Journal of Academic Librarianship* 25, no. 6: 445-455.
- Furner, Jonathan. Forthcoming. Folksonomies. In *Encyclopedia of Library and Information Sciences, 3rd edition*, ed. Marcia Bates and Mary Niles Maack. Boca Raton, FL: CRC Press.
- Hoe-Lian Goh, Dion, et al. 2009. Resource discovery through social tagging: a classification and content analytic approach. *Online Information Review* 33, no. 3 : 568 – 583.
- Hood, Marilyn G. 1983 (2004) Staying away: Why people choose not to visit museums. Reprinted in *Reinventing the museum: Historical and contemporary perspectives on the paradigm shift*, ed. Gail Anderson, 150-157. Lanham, MD: AltaMira Press.
- Lawley, Elizabeth. 2005. Social consequences of tagging. In *Many2Many [blog]*. http://many.corante.com/archives/2005/01/20/social_consequences_of_social_tagging.php

Lee, Kathy. 2006. What Goes Around Comes Around: An analysis of del.icio.us as social space. Proceedings of the 2006 20th anniversary conference on Computer supported cooperative work, ACM Press, New York, NY (2006):191-194.

Mason, Rhiannon. 2005. Museums, galleries, and heritage: sites of meaning-making and communication. In *Heritage, Museums and Galleries: an introductory reader*, ed. Gerard Corsane, 200-214. New York, NY: Routledge Press.

Serota, Nicolas. 2000. Who's Afraid of Modern Art? Presented November 21 as the Dimpleby Lecture. London, England. Retrieved on December 7, 2009 from: http://web.archive.org/web/20010306001212/http://www.bbc.co.uk/arts/news_comment/dimpleby.shtml.

Shirky, Clay. Ontology is Overrated: Categories, Links and Tags. In *Clay Shirky's Writings About the Internet [blog]*.
http://www.shirky.com/writings/ontology_overrated

Trant, Jennifer. 2009a. Studying social tagging and folksonomy: A review and framework. *Journal of Digital Information* 10, no. 1. Available online at: <http://journals.tdl.org/jodi/article/view/269/278>.

Trant, Jennifer. 2009b. Tagging, folksonomy and art museums: Early experiments and ongoing research. *Journal of Digital Information* 10, no. 1. Available at: <http://journals.tdl.org/jodi/article/view/270/277>.

Trant, Jennifer. 2006. Social Classification and Folksonomy in Art Museums: early data from the steve.museum tagger prototype. *Advances in Classification Research*, Volume 17; Proceedings of the 17th ASIS&T Classification Research Workshop, Austin, TX. J. Furner & J.T. Tennis (Eds.). Retrieved November 28 from <http://archimuse.com/papers/asist-CR-steve-0611.pdf>.

Vander Wal, T. 2005. Folksonomy Definition and Wikipedia. *Off the Top [blog]*. Retrieved December 8, 2009 from <http://www.vanderwal.net/random/entrysel.php?blog=1750>

Whitehead, Chris. 2005. Visiting with suspicion: recent perspectives on art and art museums. In *Heritage, Museums and Galleries: an introductory reader*, ed. Gerard Corsane, 89-101. New York, NY: Routledge Press.