Investigating social tagging and folksonomy in art museums with steve.museum

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ABSTRACT

Museums want audiences to engage with their collections and ideas, but recognize that traditional methods of unidirectional on-line and in-gallery communications have limited access and dialog. Supporting social tagging of museum collections, and providing access based on the resulting folksonomy, opens museum collections to new interpretations that reflect visitors' perspectives rather than institutional ones. This co-operation between museums and visitors bridges the gap between the professional language of the curator and the popular language of the museum visitor, and helps individuals see their personal meanings and perspectives in public collections. The steve consortium, a collaboration of museum and museum informatics professionals, is developing tools and techniques and exploring the experience of social tagging and folksonomy in the context of art museums; our research questions, prototypes and findings are also relevant to other domains.

Categories and Subject Descriptors

H.3.5 **Online Information Services** Web-based services

H.3.1 **Content Analysis and Indexing** – Indexing methods

H.3.7 **Digital Libraries –** Dissemination, User issues

General Terms
Design, Theory.

Keywords

steve.museum, social tagging, folksonomy, museum, art gallery, social engagement, visitor experience, user experience, collections documentation

1. The Challenge of Museum Collections On-line

Museums build collections of objects and works of art that embody our cultural and natural heritage, to preserve and convey cultural meaning. Information about collections is often as important as the objects themselves: many kinds of museum objects "receive their significance only through the thoughts that cluster around them" [1]. Museums have traditionally communicated through exhibitions, catalogues, publications, lectures, tours, and school programs, and have been exploring the potential for technology-mediated access to collections for over five decades [2, 3]. Museum on-line programs have developed within a museological context of increasing openness, and reflect a growing awareness of museums' diverse roles in a broad community (shown, for example, at the annual Museums and the Web conferences [4]-[5]). However, museum collections on-line have not proven to be as engaging as they might be for the general public.

The parts of museum Web sites that focus on collections tend to be either highly authored, linear exhibition and educational "titles" or un-interpreted collections databases. Authored materials have a *very strong* museum "voice" [6]. Exhibitions represent a curatorial point of view, lesson plans express pedagogy, and even "free-choice" interactive learning environments are developed with a specific message in mind. In contrast, collections databases describe individual objects (by creator, size, materials, use, provenance, etc) without context and in isolation from related works. Museum collections are typically comprised of objects that seem very similar to the "un-trained eye; consider, for example, chairs, textiles, or the ubiquitous *Untitled* work of modern art. It takes the knowledge and perspective (or guidance) of a specialist to distinguish one work from the next. While museum on-line databases provide many details important to the scholar, things that might seem exceptional to the general viewer – that a painting is *of dogs playing poker* – might not be mentioned at all.

Neither the authored nor the database model of collections information fully supports museums' goals to enable use and understanding of the objects in their care. Collections are available, but not necessarily accessible.

2. Folksonomy: Filling a Semantic Gap

Interpreting works of art to the general public requires bridging the distance between the professional, curatorial language of art history and public perceptions reflected, for example, in the way that searches are made of public art resources [7-10]. Typically, art historical museum documentation is written by and for art historians and is mostly focused on the business of museums [11, 12]. To make art collections more accessible, documentation needs to represent the perspectives of others. Folksonomy, or the "socially constructed classification" system [13] that results

from social tagging – where "tags" or keywords are supplied and shared on-line by the general public – appeals to art museums because it appears to fill gaps in current documentation practice. Tagging offers an additional means of access to art that could enhance and possibly subvert institutional perspective.

Preliminary explorations show that professional perspectives differ significantly from those of 'regular people'. At The Metropolitan Museum of Art, early studies indicate a significant variation between the existing collections documentation – recording artist, date, medium, dimensions, and iconography – and the words that are supplied by naïve viewers, describing the visual elements of an image and what it 'literally' depicts [14-16].

Figure 1. Alvin Langdon Coburn (British, born America, 1882–1966), *The Octopus*, 1912. The Metropolitan Museum, New York (1987.1100.13). Ford Motor Company Collection, Gift of Ford Motor Company and John C. Waddell, 1987

For example, the museum description of Figure 1, on the MMA Web site reads:

> Alvin Langdon Coburn
> (British, born America, 1882–1966)
> *The Octopus*, 1912
> Platinum print; 41.8 x 31.8 cm (16 7/16 x 12 1/2 in.)
> Ford Motor Company Collection, Gift of Ford Motor Company and John C. Waddell, 1987 (1987.1100.13)

The art historian describes it physically and stylistically:

Couched in the soft velvety nap of the platinum paper, composed in the languid lines of Art Nouveau, and softly focused, this photograph of New York's Madison Square employs many elements of Pictorialism at its best. However, the dizzying effect of Coburn's aerial view and his fascination with the skyscraper are distinctly and precociously modern. The blend of Pictorialist technique and fresh vision was characteristic of the transitional moment when Alfred Stieglitz, Coburn, Karl Struss, and Paul Strand began to celebrate contemporary urban experience. [17]

This is very different from the "terms you would enter if you were trying to find this image" supplied by a group of volunteers in a pre-test at The Metropolitan Museum of Art [15] shown in Table 1.

1. 20th century	29. octopus
2. abstract	30. outdoors
3. abstraction	31. park
4. aerial	32. park in winter
5. aerial topography	33. park-goers
6. areal perspective	34. parks
7. black and white	35. paths
8. black and white contrast	36. pedestrians
9. cities	37. photography (b/w)
10. city	38. public spaces
11. cityscape	39. roads
12. cityscape in winter	40. shadow
13. Coldness	41. shadow (tower)
14. contrasts	42. shadows
15. empty park	43. sledders
16. Flat Iron Building	44. Sledding
17. geography as art	45. sleighs
18. geography in art	46. snow
19. landscapes	47. snowscape
20. Late 19th/early 20th century	48. street scene
21. Madison Square	49. street scenes
22. Madison Square (New York)	50. tower (shadow)
23. New York	51. trees
24. New York City	52. urban
25. New York City in winter	53. urban landscapes
26. New York City winter	54. view from a window
27. New Yorkers	55. walking
28. NY	56. Winter
	57. winter

Table 1: Fifty-seven unique terms describing Figure 1 supplied by volunteers in a pre-test at The Metropolitan Museum of Art, December 2005.

While diversity of form in these terms raises all the questions about synonymy, orthography, and controlled vocabulary that characterize discussions of the utility of folksonomy [18], it is clear that they represent many concepts not found in the museum's record.

Anecdotal evidence also shows that 'professional' catalogues find the basic description of visual elements surprisingly difficult: a curator exhibited significant discomfort during this description task. When asked what was wrong, he blurted out "everything I know isn't in the

picture" [Michael Jenkins, personal communication]. Putting aside previous knowledge may be difficult, and could skew museums' attempts to offer this kind of description themselves.

3. Social Tagging and Community

Museums want their communities to connect with their collections [19]. Projects that explore this challenge, such as Every Object Has a Story [20] encourage users to interpret works of art by placing them in their personal narrative. Built on constructivist educational theory, that emphasizes personal meaning-making and a user-centered focus in the development on-line and in-gallery experiences [21, 22], these projects strive to provide a unique and compelling engagement with works of art.[1]

Social tagging appeals to museums because it embodies these self-directed learning philosophies: tagging is a dialog between the viewer and the work, and the viewer and the museum. A tag is a user's assertion that a work of art is about something. Tagging offers a way for people to connect directly with works of art, to own them by labeling or naming them – one of the aspects of sensemaking [25]. Tagging also lets users assert personal perspectives and associations between objects. Small individual efforts aggregate into unique pathways through a complex context. Embracing these alternative perspectives is a significant departure for museums, reflecting a growing understanding of museums' places in a diverse community, and a desire to enable social engagement.

Tagging in a museum context may differ from social bookmarking because of pre-existing types of social relationships. Tagging projects could help foster and maintain links with specialized groups like volunteers and docents, or support the work of teachers and students. Rather than being motivated by personal gain [26], a social altruism kicks in. This is reflected in the way the Cleveland Museum of Art links to its on-line tagging tool: "Help others find this object" [27]. It has also proven true at the Powerhouse Museum, where the Electronic Swatchbook project [28] is collecting terms but not deploying them immediately (in an apparent violation of one of the roles of social tagging to provide immediate feedback).

What distinguishes tagging as a form of visitor engagement from other kinds of "interactive" museum programs is that the impetus lies not with the institution but with the individual; the visitor initiates and completes the experience. Tagging is a personal investment in the museum's collection. The visitor adds value for the museum, for themselves, and for other visitors by revealing distinct perspectives and communities.

Museums can use analysis of tags to learn more about their visitors and to support their use of collections. We readily imagine tag-powered visualizations (like Chudnov's visualizations of data from *unalog* using Starlight [29]), "flythrough" navigations (like that of the Digital Depot in the Museum Boijmans van Beuningen, Rotterdam [30]) that exploit relationships between tags and existing museum documentation, or more 'fun' tools (like flickr Tag Fight [31]). Sharing common tags, or pushing a "feed" of works of art based on tag subscriptions, could also facilitate the personal exploration of collections and offer more active connections between museums and users.

4. steve.museum

steve.museum is a multi-institutional collaboration to explore both sides of the social tagging / folksonomy coin, and develop tools and techniques that facilitate engagement with art museum collections and support study and use of the resulting terminology [32, 33]. Participants in steve come from many backgrounds, and work inside museums and in organizations that support them technically and intellectually. Steve is an open collaboration with an experimental methodology. We have pooled raw data, resources and research results in a distributed fashion. Each participant can move ahead in a way that intersects with immediate institutional needs, requirements and abilities, and reflects diverse (and sometimes almost conflicting) rationales for participation. While some institutions are more interested in the social side of steve, and others in the folksonomy side, the same tools and methods enable the exploration of both.

Our process is also a reflection of our evolving understanding of tagging. During our exploration of options, our own nomenclature evolved from a "community cataloguing" or "cataloguing by crowd" focus on the terminology resulting from tagging, to the more inclusive, ambiguous, and non-representational "steve".[2]

4.1 Shared Research Agenda

Within steve, we have identified a series of questions about social tagging and folksonomy in the museum, focused on getting, using, and analyzing terminology, and grasping the potential social impacts of tagging. We're developing experiments that build a data set for collective analysis, and creating a tagging tool with an easily customizable front-end that enables us to vary conditions of use in controlled ways [34-36]. Our data model consciously captures research-related data documenting users' environments, so that we can analyse the impact of particular deployment choices [37].

4.2 Interface Questions

In the limited experience we have with tagging in the museum context, we've seen significant variation in the

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[1] Museums have experimented with ways to enable more personalized experiences of collections, mostly through the creation of interactive Web spaces. For example, both the Fine Arts Museums of San Francisco's "MyGallery," [23] and The Metropolitan Museum of Art's "My Met Gallery," [24] support the creation of on-line personal "exhibitions"; users can group, annotate and share works in their own on-line space. These personal collections are a form of individual expression: their construction reinforces later recollection; their assemblage reflects personal meaning.

[2] For background on the naming of steve, see
http://www.steve.museum/index.php?option=com_content&task=view&id=53&Itemid=51

way that users respond to interfaces. The large data entry box in the Cleveland Museum of Art's initial application prompted essay-like responses [38]; the redesigned interface of the 'gray prototype' (now on steve.museum) is limiting responses to single terms or phrases. But we are just learning about the inter-relationship between interface and tag quality.

More research is needed to understand how to help users through the tagging process, how to motivate, guide and reward them so that they want to participate, enter useful tags and return to the system again. Do we need to make tagging fun? [39] How will the results change if we prompt with facets as a way of guiding tagging? How do we adapt interfaces to different needs and expectations (mirroring the different uses museums see for tagging and the resulting terms)?

4.3 Deployment and Analysis

Social tagging applications have evolved in two distinct ways. Tag servers, such as del.icio.us, citeUlike.com, PennTags or dogear [40], store tag data separately from the source being tagged. A museum tag server could interface with a existing data servers, and offer tagging on museum Web sites where on-line visitors already exist. Centralized applications such as flickr store tags and data on the same system, and require users to come there to participate. This model (currently deployed at steve.museum) requires either moving data from multiple museums into a single steve application, or launching a totally distributed set of applications, comprised of local implementations of commonly designed tools. We need to understand the pros and cons of these paradigms and appreciate how they influence the experience for individuals, communities and the museum.

Architectural choices have research implications, as different deployment models result in separate or shared data sets. Single institution implementations might be easier to deploy, but complicate inter-institutional data analysis. We need to understand how to best manage the relationships between tags and museum resources (both to create an experimental data set for analysis and to produce data that is useful to support museum functions.). Ultimately, we need to determine how folksonomic data can be incorporated into museum systems of all kinds, so that we can leverage it to improve visitors' experiences. Folksonomies are evidence of what non-art historians see as significant. By analyzing the nature of tags and studying how they correlate (or don't) with museum data we can learn a great deal about public perceptions.

4.4 Social Questions

The social affordances of tagging in museums offer the possibility of cultivating new relationships between museums and their users. But can many different experiences be supported by a common implementation of steve? While one museum may simply see tagging as a method to support a better form of search, another may want to create open-ended data sets that visitors can reuse and repurpose in unimagined ways. Yet another may see a venue for visitor studies and market research to inform new kinds of content and experiences. Will we require different

implementations for each experience to feel uniquely good, rather than comprehensively bland?

5. Next Steps

The museum offers a unique social context within which to explore tagging and folksonomy. Both sides of the dynamic – the act of naming and the name assigned – provide useful insight into the relationships between museums, collections and visitors. We understand that works of art are multi-dimensional and that the diverse meanings they communicate are not well understood. We sense a strong potential for social tagging and folksonomy to connect institutions with individuals, and culture with those who live it. We are interested in building collaborations with the technical tagging community so that we can learn together, and are willing to have steve.museum be a testbed for ideas, technologies, tools that advance our collective understanding.

6. Acknowledgements

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8. Authors

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A Partner in Archives & Museum Informatics, Trant is co-chair of Museums and the Web and International Cultural Heritage Informatics Meeting (ICHIM) conferences, and has served on the program committees of the Joint Digital Libraries (JDL) and the Digital Libraries (DL) conferences, the Culture Program Committee of the International World Wide Web Conference, and the Board of the Media and Technology Committee of the American Association of Museums. She was the Executive Director of the Art Museum Image Consortium (AMICO) from 1997-2005, and Editor-in-Chief of *Archives and Museum Informatics: the cultural heritage informatics quarterly* (Kluwer Academic Publishers) from 1997-2000. She has worked with the Arts and Humanities Data Service, King's College, London, England, and the J. Paul Getty Trust's Art History Information Program (for whom she managed the Imaging Initiative and directed the activities of the Museum Educational Site Licensing Project (MESL)). She also managed disciplinary review and prepared the first edition of the report of the Art Information Task Force (AITF), entitled *Categories for the Description of Works of Art* for the College Art Association and AHIP. Trant has worked with automated documentation systems at the National Gallery of Canada and the Canadian Centre for Architecture, Montréal. In addition to her consulting practice, Trant is enrolled in the PhD program of the Faculty of Information Studies at the University of Toronto, where she is researching the role of folksonomy in museums. A full vita and publications list can be found at http://www.archimuse.com/consulting/trant.html

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