

**An Evaluation of Crowdsourcing and Participatory Archives Projects  
for Archival Description and Transcription**

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## Introduction

Archivists and digital librarians feel a fundamental tension today between two types of well-established standards, practices and workflows employed by most academic research libraries. For several decades archivists have promoted collective or aggregate description of materials using finding aids that usually describe materials to the series or folder level. These descriptions are produced in compliance with national and international archival descriptive standards such as [Encoded Archival Description \(EAD\)](#), [Describing Archives: A Content Standard \(DACS\)](#) and the [General International Standard Archival Description \(ISAD\(G\)\)](#).

A much older and deeper tradition of manuscript and library cataloging standards focused on the “item in hand” and the production of one catalog record for one item, be it a monograph, a single manuscript letter, or a single digital audio file. While US research libraries have led the development of digital repositories and developed families of descriptive standards that translate the item-level cataloging traditions into modern digital contexts (e.g. [Dublin Core](#), [PB Core](#), [VRA Core](#)), these strategies have enabled and delayed the availability of large quantities of online digital archives. Creating compliant descriptions usually requires detailed physical examination and semantic analysis of each object performed by or under the direction of professional librarians and archivists. Library and archives professionals believe descriptive standards enable more effective and precise discovery of individual online archival materials through search engines such as Google, but the quantity and quality of descriptions that can be produced by professional staff is increasingly limited given growing collections and staff reductions in difficult economic times. Archivists and curators who have knowledge of the individual digital materials can produce generalized subject headings and authoritative textual descriptions based on an examination of a specific item, but often their contextual or historical knowledge of the item or its significance is limited and cannot be quickly rendered in the description without detailed historical research.

Traditional library cataloging standards and systems do not enable community participation in cataloging and discussion of the context and meaning of digital objects. Every day scholars in our Luhrs Reading Room walk out of our facility with contextual knowledge about our materials that we are unable to capture and present in our information systems. Other visitors to the [ASU Digital Repository](#) or our social media sites have useful contextual knowledge, but there is no efficient way for that knowledge to be recorded, preserved and shared with the university or other researchers. How can we enhance what we know about materials in our collections by capturing and disseminating this knowledge? Research libraries have the opportunity to engage scholars and members of the community in dialogue about their materials and serve as a vital hub of discussion, debate and detailed information about our holdings.

Other research institutions, especially in the UK and Australia, are engaging scholars and the broader community through “crowdsourcing” or “participatory archives” in which researchers upload, identify and/or describe materials. They may also discuss the materials and add information from their work alongside object descriptions. Large numbers of such participants have the potential to substantially increase the number and quality of archival materials described online, although they could also deliver a flood of informal conversational data that conceals or confuses our knowledge of the materials.

This research study will discover and evaluate information about existing crowdsourcing or participatory archives projects devoted to archival description, indexing or transcription. Many related projects that use crowdsourcing for collecting archival materials from the public are not specifically addressed here. I have specifically sought evaluative information about exemplary projects that lead to useful specifications for a participatory archives system at Arizona State University Libraries. As we will see, the scope and functionalities of such a system depend on how the ASU Libraries views its role in scholarly communities, in public communities, and in relation to the design aspirations of the New American University.

## Executive Summary

- Crowdsourcing has its origins in early 21<sup>st</sup> century crowd funding initiatives. There are important distinctions between crowdsourcing, social engagement and participatory archives.
- Participatory archives seek public contributions of work or information that expands our useful knowledge of culture and history. It is more than conversational social engagement as seen in Facebook or Flickr.
- Huvila's progressive view of participatory archives is characterized by "decentralised curation, radical user orientation, and contextualization of both records and the entire archival process".
- While large numbers of individuals visit crowdsourcing projects, few make sustained and useful contributions. Powerful feelings of ownership, belonging and connectedness are derived from feedback provided by the crowdsourcing system or the associated community, and these feelings along with a sense of shared authority motivate the most dedicated participants.
- "Rethinking the relationship between official and unofficial knowledge is probably the main challenge that cultural institutions have to face when undertaking a crowdsourcing process." (Carletti et al)
- Project developers have experimented with a number of methods to improve the quality of knowledge or metadata production by combining social participation with standards or systems based solutions. Projects seem to be moving toward separate professionally curated and socially curated spaces, although linkages between the spaces are clumsy and manual in most current applications.
- Mediation can improve quality, but it is work-intensive and can leave the host institution vulnerable to claims of censorship, especially when the rules of engagement are not clearly stated in advance. Participants may have an expectation that their posts will be permanently preserved. Peer mediation can be more effective than professional mediation.
- Several technologies can be used to improve quality such as heat maps, transcription version comparisons, personalization features and reward systems. Open source gaming solutions for improving metadata quality are now available.
- "Computational techniques" can be applied to extract, normalize, and disambiguate terms used in social tags.
- The choice of technical solutions is greatly dependent upon institutional goals for social engagement and/or participatory archives, and the levels of programming support and curatorial support an institution can devote to this work. Several of the aspirational goals of The New American University can justify social engagement and participatory archives, but sources of programming and curatorial support may require collaborations with units outside of the University Libraries.

## Origins/Theory

*Marketing that's built in the world of scarcity will be challenged to work in the world of abundance. There's a new model of marketing emerging, it no longer tries to control the brand, but recognizes that a brand exists in the collective consciousness of culture....(through the work of)... "brand curators"...*<sup>1</sup>

The idea of crowdsourcing in libraries and archives has its origin in early 21<sup>st</sup> century crowd funding projects that sought to leverage public interest in an event or program and acquire monetary gifts or resources through websites that solicit support. A number of successful early projects determined that such activities could attract attention and participation at massive scales, and so literature in computer science, marketing and sociology was produced that studied the behavior of crowds and how their resources and energies could be attracted for philanthropy or applied to specific tasks. The phenomenon was originally recognized and documented in [James Surowiecki's](#) 2005 monograph *The Wisdom of Crowds*.

The transition from crowd funding to "crowdsourcing" is generally associated with Jeff Howe's 2006 article in *Wired Magazine* entitled "The Rise of Crowdsourcing". Howe defined the term in his blog: 'Crowdsourcing is the act of taking a job traditionally performed by a designated agent (usually an employee) and outsourcing it to an undefined, generally large group of people in the form of an open call'.<sup>2</sup> A deeper understanding of crowd behaviors and motivations was presented in 2009 by Clay Shirky in his book *Here Comes Everybody: The Power of Organizing Without Organizations*. Shirky presented a clearer distinction between uses of Web 2.0 technologies for social engagement and crowdsourcing that was echoed by Australian librarian Rose Holley. Holley described the important distinction this way:

"Social engagement is about giving the public the ability to communicate with us and each other; to add value to existing library data by tagging, commenting, rating, reviewing, text correcting; and to create and upload content to add to our collections. This type of engagement is usually undertaken by individuals for themselves and their own purposes... Crowdsourcing uses social engagement techniques to help a group of people achieve a shared, usually significant, and large goal by working collaboratively together as a group. Crowdsourcing also usually entails a greater level of effort, time and intellectual input from an individual than just socially engaging. For example correcting the text of a newspaper article, or transcribing a complete shipping record involves more input than quickly adding a tag to a photograph, or rating a book on a scale of 1-5. Crowdsourcing relies on sustained input from a group of people working towards a common goal, whereas social engagement may be transitory, sporadic or done just once."<sup>3</sup>

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<sup>1</sup> R. Liebling, Everyone is Illuminated: A Primer on Crowdsourcing - the Creative, Business and Social Implications of a Controversial Technique." *Slideshare* 54 PowerPoint slides, #5 (2010).

Accessed June 7, 2012. <http://www.slideshare.net/eyecube/everyone-is-illuminated-3129260>.

<sup>2</sup> Jeff Howe, "The Rise of Crowdsourcing" *Wired* 14(6) June, 2006.

<http://archive.wired.com/wired/archive/14.06/crowds.html>; Dimitra Anastasiou and Rajat Gupta, "Comparison of Crowdsourcing Translation with Machine Translation." *Journal of Information Science* 37.6 (2011): 638. [Link](#)

<sup>3</sup> Rose Holley, "Crowdsourcing: How and Why Should Libraries Do It?" *D-Lib Magazine*, 16(3/4) March/April, 2010 <http://www.dlib.org/dlib/march10/holley/03holley.html>

This is a critical distinction for libraries and archives who are interested in justifying crowdsourcing projects within their institutions. Much of the subsequent library and archives literature surrounding crowdsourcing attempts to address controversy surrounding issues of quality and authority and how to attract sustained high quality work by public volunteers. While many commercial sites such as Amazon and Netflix find sufficient return (and one assumes product sales) by hosting social engagement functions, libraries and archives are seeking higher quality data that expands useful knowledge and accessibility of online materials. In crowdsourcing, social engagement techniques and tools are leveraged to complete large projects requiring intensive and sustained effort, usually by uncompensated participants.

Meanwhile, some museums have embraced both social engagement and crowdsourcing as a way to advance their educational missions. Historically museums have been focused on public education and were less likely to adopt rigorous descriptive or metadata standards for their object collections. [steve.museum](#) is believed to be the first large-scale project to enable crowdsourced tagging in the cultural heritage sector. Launched in 2005, several US and UK museums posted collection items to an online system that permits tagging by registered users. In two years, [steve.museum](#) received “36,981 terms comprised of 11,944 terms in 31,031 term/work pairs”. By the end of 2010, this number had reached 468,120.<sup>4</sup>

Museums led cultural institutions in exploring connections between social engagement, crowdsourcing, curatorial authority and their institutional missions. [Take Two: A Study of the Co-Creation of Knowledge on Museum Web 2.0 Sites](#), provides guidance on the shifting role of museums from provider of content to facilitator of interaction with content. Museums have been especially attentive to new roles for curatorial staff and questions of professional knowledge and authority. For example, Satwicz and Morrissey determined that “an analysis of strings of online Buzz conversations consistently showed the highest incidence of evidence of learning occurring when museum staff engaged in the online dialogue.”<sup>5</sup> Kuo, Tchen and Ševčenko presented “at least three different ideas, or layers, of a ‘dialogic museum’...with different implications for sharing authority”:

“The first idea of a dialogic museum is one that promotes public discussion of a truth that has been forgotten or deliberately suppressed... The second idea of a dialogic museum is based on the kind of community curation...“dialogue” is between academic historians and people with lived experience; the established exclusionary narrative and the individual story that challenges it; and between the different perspectives of each individual story....The third idea builds on both of the first two, but goes a step further, opening the museum as a space for using new truths about the past as the starting point for discussion about their unresolved legacies, and what we should do about them. Here, “dialogue” is more literal, direct face-to-face discussion among visitors— tourists and those with direct experience alike— on questions of shared concern, such as Who is American? and What responsibilities do we have to each other?”<sup>6</sup>

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<sup>4</sup> J. Oomen and L. Aroyo. (2011). “Crowdsourcing in the Cultural Heritage Domain: Opportunities and challenges.” *Proceedings of the 5th International Conference on Communities and Technologies*. 19 June–2 July. Brisbane, Australia., p144.

<sup>5</sup> Tom Satwicz and Kris Morrissey, “Public Curation: From Trend to Research-Based Practice”, in Bill Adair, (Editor), Benjamin Filene (Editor) and Laura Koloski (Editor). *Letting Go? : Sharing Historical Authority in a User-Generated World*. Walnut Creek, CA, USA: Pew Center for Arts & Heritage, 2011. p 202-203.

<http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=203>

<sup>6</sup> John Kuo, Wei Tchen and Liz Ševčenko, The ‘Dialogic Museum’ Revisited: A Collaborative Reflection” in Adair, Filene and Koloski *Letting Go?* 84-85. <http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=85>

Museums began to classify types of public engagement as a way of understanding their possible roles and responsibilities in a Web 2.0 or Web 3.0 world. In *The Participatory Museum* (2010) Nina Simon proposed four models of public participation:

**Public participation models (based on Simon, 2010)<sup>7</sup>**

Public Participation Model	Description
1. Contributory projects	Visitors are solicited to provide limited and specified objects, actions, or ideas to an institutionally controlled process. Comment boards and story-sharing kiosks are both common platforms for contributory activities.
2. Collaborative projects	Visitors are invited to serve as active partners in the creation of institutional projects that are originated and ultimately controlled by the institution.
3. Co-creative projects	Community members work together with institutional staff members from the beginning to define the project's goals and to generate the program or exhibit based on community interests.
4. Hosted projects	The institution turns over a portion of its facilities and/or resources to present programs developed and implemented by public groups or casual visitors. This happens in both scientific and cultural institutions. Institutions share space and/or tools with community groups with a wide range of interests, from amateur astronomers to knitters.

In 2011 Australians Oomen and Arroyo proposed “a classification of crowdsourcing linked to standard activities carried out by heritage organizations”:

**Table 1. Classification of Crowdsourcing Initiatives (Oomen and Aroyo, 2011)<sup>8</sup>**

Crowdsourcing Type	Short Definition
Correction and Transcription	Inviting users to correct and/or transcribe outputs of digitisation processes
Contextualisation	Adding contextual knowledge to objects, e.g. by telling stories or writing articles/wiki pages with contextual data

<sup>7</sup> Laura Carletti, Gabriella Giannachi, Dominic Price, and Derek McAuley, “Digital Humanities and Crowdsourcing: An Exploration”, *MW2013: Museums and the Web 2013 Conference*, April, 2013.

<http://mw2013.museumsandtheweb.com/paper/digital-humanities-and-crowdsourcing-an-exploration-4/> cites N. Simon, *The Participatory Museum*. <http://www.participatorymuseum.org/read/>

<sup>8</sup> Carletti, Giannachi, Price, and McAuley, “Digital Humanities and Crowdsourcing”.

<http://mw2013.museumsandtheweb.com/paper/digital-humanities-and-crowdsourcing-an-exploration-4/> cites Oomen and Aroyo. “Crowdsourcing in the cultural heritage domain: Opportunities and challenges.”

<b>Complementing Collection</b>	<b>Active pursuit of additional objects to be included in a (Web)exhibit or collection</b>
<b>Classification</b>	<b>Gathering descriptive metadata related to object in a collection. Social tagging is a well-known example.</b>
<b>Co-curation</b>	<b>Using inspiration/expertise of non-professional curators to create (Web)exhibits</b>
<b>Crowdfunding</b>	<b>Collective cooperation of people who pool their money and other resources together to support efforts initiated by others.</b>

While museums worked to classify the kinds of participation they might engage in, other museum professionals questioned assumptions about the benefits of this activity. “Perhaps the most basic assumption is that engaging visitors in contributing content has benefit. But in most cases, museums and designers have not articulated or assessed the actual benefit, identified who benefits (museum, current visitors, future visitors, contributors, or consumers), or articulated indicators of that benefit. Is the goal to increase learning (an educational goal) or to build community among current users (a social goal) or to entice new audiences (a marketing goal)?”<sup>9</sup>

Meanwhile, libraries and archives began to explore the potential of crowdsourcing and a new conception of participatory archives. Isto Huvila’s landmark paper in 2008, based upon a study of two participatory projects by Shilton and Srinivasan, fully identified and contextualized the idea of participatory archives. “The fundamental characteristics of the proposed approach are decentralised curation, radical user orientation, and contextualization of both records and the entire archival process.”<sup>10</sup> Huvila traced archival thinking about participatory archives back to Terry Cook and other archivists who placed archives in a post-modern context. “In a post-modern view, nothing in an archive or in the archival process can be neutral or even truly transparent (Cook 2001). Archivists, archival records, and users represent a plethora of viewpoints, which all contribute to the formation of common and individual understanding of archives and archival materials. In the post-modern sense, the notion of participation is built into any human interaction with information, which makes it and its implications also essential in the archival and records management contexts.”<sup>11</sup>

Huvila clarified the distinction between his participatory archive and the participatory archiving *model* of Shilton and Srinivasan in this way:

The first difference in the approaches is that Shilton and Srinivasan seem to discuss essentially building, appraisal, provenance, ordering and description of an archival collection, and participatory development of archival ontologies instead of working with an archive as an evolving corpus of process-bound information with self-emerging ontologies. The second major difference is that in the participatory archiving model, communities are an actor, and the archive will be based on a consensual community ontology of the participating community members set

<sup>9</sup> Satwicz and Morrissey, “Public Curation” in Adair, Filene, and Koloski “Letting Go?” 198.

<http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=199>

<sup>10</sup> Isto Huvila, “Participatory Archive: Towards Decentralised Curation, Radical User Orientation, and Broader Contextualisation of Records Management”, *Archival Science*, Volume 8, Number 1 (2008),16.

<http://www.springerlink.com/content/u5p1365616q56r80/> or [Link](#)

<sup>11</sup> Isto Huvila, “Participatory Archive”18. <http://www.springerlink.com/content/u5p1365616q56r80/> or [Link](#)



within a theoretical framework based on archival science. In a participatory archive, there is no predetermined consensual community. The ‘community’ is a sum of all individual structures, descriptions, orders, and viewpoints contributed by individual participating archive users whether they are users or contributors, archivists, researchers, administrators, labourers, or belong to marginalised communities or the majority.<sup>12</sup>

Shortly after Huvila, Americans Anderson and Allen presented a postmodern utopian vision for participatory description in the “archival commons”. “The authors envisage ‘a decentralized market-based approach to archival representation’ (elsewhere referred to as a ‘democratic culture’), representing a ‘sea change in how users engage’ with archives online. They anticipate a shift away from ‘singular arrangement’ towards a more flexible, constantly evolving, descriptive practice to reflect the ‘constantly changing views and meanings’ of archives. This is a vision of archives for a global, interactive, networked society.”<sup>13</sup> Information scientists like Huvila and Anderson and librarians like Allen presented a philosophical, even utopian vision of the future of archives with little attention to standards or professional status. In this regard they may have presented a view more consonant with that of a rapidly evolving public community that rejects authority and despises gatekeeping, while archivists like Canadian Heather MacNeil still wrestled with issues of authority and professional roles:

“The rise of participatory culture in the wake of Web 2.0 is encouraging users to shift from being passive consumers of archival descriptions to becoming active contributors to those descriptions; that shift, in turn, is pushing archival institutions in the direction of promoting greater user engagement and peer production of finding aids (Theimer 2011a, b; Yakel 2011a, b). As archival institutions make provision for users to tag and annotate online descriptions, where do these user contributions sit in relation to the so-called “authoritative” descriptive record? How much or how little moderation is necessary or desirable from the point of view of the archival institution and from the point of view of users? Moderation protocols for managing user-contributed content are an emerging meta-genre and like other meta-genres such protocols have the potential to both enable and constrain users because they dictate the forms of social participation and social organization allowable within the descriptive genre system.”<sup>14</sup>

While the archivists struggled with the philosophical and professional underpinnings of participatory archives, librarian Rose Holley asserted more practical justifications for crowdsourcing in the esteemed *D-Lib Magazine*:<sup>15</sup>

- Achieving goals the library would never have the time, financial or staff resource to achieve on its own.
- Achieving goals in a much faster timeframe than the library may be able to achieve if it worked on its own.
- Building new virtual communities and user groups.
- Actively involving and engaging the community with the library and its other users and collections.
- Utilising the knowledge, expertise and interest of the community.

<sup>12</sup> Isto Huvila, “Participatory Archive” 26. <http://www.springerlink.com/content/u5p1365616q56r80/> or [Link](#)

<sup>13</sup> Alexandra Eveleigh, “Welcoming the World: An Exploration of Participatory Archives”, [unpublished paper] International Council on Archives, Brisbane, Australia August 2012, p 3. <http://ica2012.ica.org/files/pdf/Full%20papers%20upload/ica12Final00128.pdf>

<sup>14</sup> Heather MacNeil, [What finding aids do: archival description as rhetorical genre in traditional and web-based environments](#), *Archival Science*, ISSN 1389-0166, 12/2012, Volume 12, Issue 4, pp. 496

<sup>15</sup> Rose Holley, “Crowdsourcing: How and Why” <http://www.dlib.org/dlib/march10/holley/03holley.html>

- Improving the quality of data/resource (e.g. by text, or catalogue corrections), resulting in more accurate searching.
- Adding value to data (e.g. by addition of comments, tags, ratings, reviews).
- Making data discoverable in different ways for a more diverse audience (e.g. by tagging).
- Gaining first-hand insight on user desires and the answers to difficult questions by asking and then listening to the crowd.
- Demonstrating the value and relevance of the library in the community by the high level of public involvement.
- Strengthening and building trust and loyalty of the users to the library. Users do not feel taken advantage of because libraries are non-profit making.
- Encouraging a sense of public ownership and responsibility towards cultural heritage collections, through user's contributions and collaborations.

Most recently, archivist and blogger Kate Theimer also focused on practical outcomes when she revised her definition of participatory archives to read: “An organization, site or collection in which people other than archives professionals contribute knowledge or resources resulting in increased understanding about archival materials, usually in an online environment... Participation is different from engagement.”<sup>16</sup> The key distinction for Theimer and Rose Holley is in separating social engagement from social participation. Simply commenting on a photo doesn't necessarily constitute participation in this definition, useful knowledge must be added.

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## Motivations

*The assumption that expertise inherently confers authority and power makes it almost impossible to support the open invitation to conversation and exploration that is essential to the life of the museum. Successful conversations require reciprocity and a mutual respect among participants, as well as mutual interest and a balance of contributions.*<sup>17</sup>

*The most successful crowdsourcing projects in libraries, archives, and museums have not involved massive crowds and they have very little to do with outsourcing labor.*<sup>18</sup>

<sup>16</sup> Kate Theimer, “Participatory Archives: Something Old, Something New”, [presentation slides w/annotations] Midwest Archives Conference Spring 2012 Meeting, 2014. <http://www.slideshare.net/ktheimer/theimer-participatory-archives-mac-keynote>

<sup>17</sup> Kathleen McLean, “Whose Questions, Whose Conversations”, in Adair, Filene, and Koloski. *Letting Go?* p 72. <http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=73>

<sup>18</sup> Trevor Owens, “Digital Cultural Heritage and the Crowd”, Curator The Museum Journal, [Volume 56, Issue 1](#), January 2013, pp121.

Who is the crowd and why should they care? What motivates crowd participation, and how can we attract quality contributions that advance our knowledge of cultural heritage? Crowdsourcing projects and the data generated by them have been rich sources for understanding motivations and incentives for effective participation. Wikipedia, YouTube and Amazon were early sources of crowd behavior information, but the emergence of large scale participatory archives and digital humanities projects has provided richer and more cogent data for those working in cultural institutions.

Trevor Owens' statement above suggests some surprising insights about the quantity of active participants in crowdsourcing projects. In a study of fifteen large crowdsourcing projects participants numbered "from a few hundred to thousands to tens of thousands; however, most of them involve around or less than 5,000 to 6,000 participants..." UK digital humanist Carletti and her colleagues suggest that "the participants in the digital humanities crowdsourcing projects are still a limited number. A few hundred or thousands of participants in a crowdsourcing initiative may be a significant number; nonetheless, it seems narrow when we consider the millions of people surfing the Web on a daily basis..."<sup>19</sup> At the [Roy Rosenzweig Center for History and New Media](#) of *George Mason University* "760 people have signed up for accounts in their War Office Papers transcription project but only 125 actively transcribed in a 90 day period...Finding participants has been the biggest challenge, says Sharon M. Leon, director of **public** projects..."<sup>20</sup> Nielsen asserted that 90% of participants are 'lurkers' who never contribute, whereas 9% contribute a little and 1% of users account for all the action.<sup>21</sup>

Rose Holley presented a volunteer profile<sup>22</sup> based on a large scale study cosponsored by Distributed Proofreaders, FamilySearch Indexing, the Wikimedia Foundation and Australian Newspapers:

- Although there may be a lot of volunteers the majority of the work (up to 80% in some cases) is done by 10% of the users.
- The top 10% or 'super' volunteers consistently achieve significantly larger amounts of work than everyone else.
- The 'super' volunteers have long session durations and usually remain working on the project for years. They are working on your project as if it was a full-time job.
- Age of volunteers varies widely. The 'super' volunteers are likely to be a mix of retired people and young dynamic high achieving professionals with full-time jobs.
- Public moderator roles and roles with extra responsibilities are likely to be taken by volunteers aged 30-40 who are in full-time employment.
- Disabled, sick, terminally ill, and recovering people are among the volunteers since working at home is convenient, gives purpose and structure to the day, and gives feelings of value and reward.
- Many people find the time to do voluntary activities because they do not watch much television and as Clay Shirky describes it use this 'cognitive surplus' time for social endeavours.

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<sup>19</sup> Carletti, Giannachi, Price, and McAuley, "Digital Humanities and Crowdsourcing"

<http://mw2013.museumsandtheweb.com/paper/digital-humanities-and-crowdsourcing-an-exploration-4/>

<sup>20</sup> Marc Parry, "Historians Ask the Public to Help Organize the Past: But is the Crowd Up to it?" *The Chronicle of Higher Education* 59.2 (2012)Print. [Link](#)

<sup>21</sup> Anastasiou and Gupta "Comparison of Crowdsourcing Translation with Machine Translation." 641. [Link](#)

<sup>22</sup> Rose Holley, "Crowdsourcing: How and Why" <http://www.dlib.org/dlib/march10/holley/03holley.html>

- Half of the active volunteers are doing it because they are very personally interested in the subject matter, and half are doing it because they want to do some voluntary activities and see it as a good cause.
- Having a minimum level of computer/keyboard/internet knowledge is not a pre-requisite to volunteering. Many volunteers have low levels of PC proficiency and build up their levels of IT literacy by volunteering for online work. Having never used the Internet or a computer before is not a block for many volunteers.
- Volunteers appreciate that they can learn new things as they go along and many of the projects could be termed 'educational' in some respect.
- Many volunteers (especially genealogists) help on several different online projects.
- Volunteers are much more likely to help non-profit making organisations than commercial companies, because they do not want to feel that their work can be commercially exploited. (This places libraries and archives in a very good position for crowdsourcing.)
- Volunteers continue to work because they find it personally rewarding, and they want to help achieve the main group goal.
- The amount of work volunteers achieve usually exceeds the expectations of the site managers.
- Some volunteers like to be able to choose subjects, and types of work they do, whilst others prefer to be directed to what to do next. Therefore most sites offered a 'pick your work' and a 'do the next thing that needs doing' option.
- Some volunteers like the idea of communicating with other volunteers, but some others just wanted to get on with the job. Generally volunteer moderators were keen communicators and 'super' volunteers were 'head down' types.
- On significant projects e.g. FamilySearchIndexing, Australian Newspapers, Galaxy Zoo, many volunteers describe the work as being 'addictive' or getting 'hooked' or 'sucked in' and time quickly gets away from them, hence they spend far longer than they actually intended to in voluntary work.

While large numbers of individuals visit crowdsourcing projects, few make sustained and useful contributions. The volunteer profile compiled by Holley suggests several types of participants and different motivations associated with them. What attracts the most productive crowdsourcing participants? Advertising executive Evan Fry of Victor and Spoils described the brand loyalty that crowdsourcing affords commercial organizations when "...their customer base and culture at large feels ownership and love because they helped make it".<sup>23</sup> Clay Shirky cited the research by Yochai Benkler and Helen Nisembaum: "They divide social motivations into two broad clusters - one around connectedness or membership and the other around sharing and generosity...Next to these social motivations listed above, altruism, fun and competition are also regarded as important incentives for users to participate."<sup>24</sup> Laura Carletti cited studies that suggested correlations between active engagement and personal

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<sup>23</sup> Sally Ellis, "A History of Collaboration, a Future in Crowdsourcing: Positive Impacts of Cooperation on British Librarianship", [Libri: International Journal of Libraries & Information Services](http://www.degruyter.com.ezproxy1.lib.asu.edu/view/j/libr.2014.64.issue-1/libri-2014-0001/libri-2014-0001.xml;jsessionid=AD44DE5DE3285D5165B060F21296D97A). Mar2014, Vol. 64 Issue 1, p 4. <http://www.degruyter.com.ezproxy1.lib.asu.edu/view/j/libr.2014.64.issue-1/libri-2014-0001/libri-2014-0001.xml;jsessionid=AD44DE5DE3285D5165B060F21296D97A>

<sup>24</sup> Oomen and Aroyo. (2011). "Crowdsourcing in the cultural heritage domain" 146.

interests in cultural crowdsourcing initiatives.<sup>25</sup> Beer and Burrows emphasized the importance of play in popular cultural archives: "...*play* is crucial in understanding the new social data and the social life of this data and of the methods that work through it...this is about how people generate and create data both actively and passively through their engagements with popular culture, as they have fun and as they find and consume stuff."<sup>26</sup>

Powerful feelings of ownership, belonging and connectedness can be derived from feedback provided by the system or the associated community. Nina Simon states "But all of these participatory activities are only meaningful when combined with a system that will respond to users' actions. All those uploaded photos and videos and ratings and status updates would be useless if the websites that house them did not share them, showcase them, and use them to affect the visitor experience."<sup>27</sup> HP Labs studied a very large YouTube dataset which revealed that participants respond with increased productivity when they are rewarded by increased download statistics. The reverse correlation also proved to be true in this research, that fewer downloads or uses of videos resulted in fewer subsequent uploads by the author.<sup>28</sup>

In addition to system based motivators, in their *What's On the Menu?* project the New York Public Library used gaming techniques that offered small rewards, called flash events, hosted dinner parties and competitions, and catered to participants' compulsions and addictions in other ways that sustained their interests.<sup>29</sup> Creating the climate for engagement is an important part of their success.

Crowdsourced transcription projects provide interesting views of crowd motivation because the work is often difficult and it requires sustained attention. "The task of deciphering 18<sup>th</sup> and 19<sup>th</sup> century handwriting is decidedly non-trivial, and so participants become self-selecting, dropping out when they find the undertaking too heinous or difficult...transcribers are unlikely to persevere unless they are up for the challenge and able to attain some sense of achievement from their participation."<sup>30</sup> The Australian National Library transcription site *The Hive* presented container lists of government records for transcription by the public. "There is a definite preference for the lists rated hard (handwritten) and ones that involve names..."<sup>31</sup> Jon Newman learned from his study of *Mandeville Legacy* crowdsourcing projects in the UK that "it was easier, faster and more productive to get focus group members to respond to visual material".<sup>32</sup>

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<sup>25</sup> Carletti, Giannachi, Price and McAuley, "Digital Humanities and Crowdsourcing"

<http://mw2013.museumsandtheweb.com/paper/digital-humanities-and-crowdsourcing-an-exploration-4/>

<sup>26</sup> David Beer and Roger Burrows, "Popular Culture, Digital Archives and the New Social Life of Data." *Theory, Culture & Society* 30.4 (2013): 50-51. [Link](#)

<sup>27</sup> Nina Simon, "Participatory Design and the Future of Museums", in, Adair, Filene, and Koloski *Letting Go?* 22. <http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=23>

<sup>28</sup> Anastasiou and Gupta, "Comparison of Crowdsourcing Translation" 641. [Link](#)

<sup>29</sup> Barbara Taranto, "Crowd Sourcing Metadata", Coalition for Networked Information (CNI) Fall 2011 Membership Meeting, 2011. <http://www.youtube.com/watch?v=ktsWNKt5MjE>

<sup>30</sup> Alexandra Eveleigh, "History in Harmony: Exploring Collaboration" [video] American Historical Association Annual Meeting, Chicago, Illinois, USA, January 7, 2012.

<https://www.youtube.com/watch?v=qglalo7f7v0>

<sup>31</sup> Rose Holley, "National Archives of Australia embraces crowdsourcing and releases 'The Hive'", *Rose Holley's Blog*, November 10, 2012.

<http://rose-holley.blogspot.com.au/2012/11/national-archives-of-australia-embraces.html>

<sup>32</sup> Jon Newman, "Revisiting **Archive** Collections: Developing Models for **Participatory** Cataloguing". *Journal of the Society of Archivists*. Apr2012, Vol. 33 Issue 1, p69.

The very existence of cultural institutions and changing perceptions of the value of authority are significant factors in the choice to participate in hosted projects. According to Nina Simon, “Participatory techniques can address these commonly expressed forms of dissatisfaction with cultural institutions”<sup>33</sup>:

1. Cultural institutions are irrelevant to my life. By actively soliciting and responding to visitors’ ideas, stories, and creative work, cultural institutions can help audiences become personally invested in both the content and the health of the organization.

2. The institution never changes— I’ve visited once and I have no reason to return. By developing platforms in which visitors can share ideas and connect with each other in real time, cultural institutions can offer changing experiences without incurring heavy ongoing content production costs.

3. The authoritative voice of the institution doesn’t include my view or give me context for understanding what’s presented. By presenting multiple stories and voices, cultural institutions can help audiences prioritize and understand their own view in the context of diverse perspectives.

4. The institution is not a creative place where I can express myself and contribute to history, science, and art. By inviting visitors to participate, institutions can support the interests of those who prefer to make and do rather than just watch.

5. The institution is not a comfortable social place for me to talk about ideas with friends and strangers. By designing explicit opportunities for interpersonal dialogue, cultural institutions can distinguish themselves as desirable real-world venues for discussion about important issues related to the content presented.

Rose Holley presented the following activities that increased the motivation of participants:<sup>34</sup>

- Adding more content more regularly to the site for them to work on.
- Raising the bar and increasing the challenge/end goal, e.g., identify all the galaxies in the universe; correct all the text in all newspapers; digitise every out of copyright book.
- Creating an online environment of camaraderie for the virtual community by use of forums so that the digital volunteers feel part of a team and can give each other support and help.
- Being very clear about what, how and when things should be done (instructions, FAQ, policies).
- Acknowledgement of the digital volunteers in various ways.
- Rewarding high achieving digital volunteers.
- Being able to see the progress of the big goal and their place in that (by transparent statistics).

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<sup>33</sup> Nina Simon, “Participatory Design and the Future of Museums” in Adair, Filene, and Koloski. *Letting Go?* 21-22  
<http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=22>

<sup>34</sup> Rose Holley, “Crowdsourcing: How and Why” <http://www.dlib.org/dlib/march10/holley/03holley.html>

Shared authority and a new perspective on the possible roles of online participants are prominent in the existing literature of crowdsourcing and participatory archives. Kathleen McLean expressed a progressive vision for shared authority: “We need to embrace the contributions of expert knowledge and at the same time expand our definitions of “expert” and “expertise” to include broader domains of experience. And we need to consider new roles for visitors as they engage more actively in our programs and exhibitions. Rather than perceiving visitors as novices, we would do well to consider them “scholars” in the best sense of the word— people who engage in study and learning for the love of it.”<sup>35</sup> Laura Carletti and her colleagues echoed that view at the Museums and the Web 2013 conference: “Crowdsourcing seems to require a mutual exchange between institution and public, as well as an alternative conceptualisation of knowledge as a ‘history of interaction between outsiders and establishments, between amateur and professionals, intellectual entrepreneurs and intellectual rentiers’. Rethinking the relationship between official and unofficial knowledge is probably the main challenge that cultural institutions have to face when undertaking a crowdsourcing process.”<sup>36</sup>

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## Authority and Quality

*“User participation initiatives in archives are haunted by a fear that a contributor might be wrong, or that descriptive data might be pulled out of archival context, and that researchers using collaboratively authored resources might somehow swallow all of this without question or substantiation.”<sup>37</sup>*

Archivists, librarians and curators have traditionally believed that authority is the sole source of metadata or knowledge quality in collections description. For professionals, authority is derived from knowledge and skills: Domain or subject specific knowledge is compiled from scholarly research and detailed examination of collections and materials to be described, and professional skills of analysis and descriptive standards compliance are associated with formal and continuing education, professional mentoring and lengthy experience. But as we have seen above, crowdsourcing participants are often motivated by a sense of shared authority, a sense that their knowledge and/or opinions are valid additions to social engagement and even to participatory archives as Rose Holley and Kate Theimer defined it. Professional communities, especially museum curators, are quickly warming up to the idea that social engagement can lead to expansion of knowledge as well as entertainment and satisfaction for participants. “Two decades after Michael Frisch heralded oral history for enabling “shared authority,” museums feature first-person voices with less and less narrative mediation. Contemporary artists, too, question the institutional authority of museums— sometimes lamenting, sometimes lampooning the illusion of objective curatorial interpretation.”<sup>38</sup>

But as Alexandra Eveleigh suggests, librarians and archivists have been more reluctant to share authority especially in terms of metadata quality and standards compliance. Eveleigh cites American archivist Beth Yakel’s argument:

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<sup>35</sup> Kathleen McLean, “Whose Questions, Whose Conversations”, in Adair, Filene, and Koloski. *Letting Go?* 71.

<http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=72>

<sup>36</sup> Carletti, Giannachi, Price and McAuley, “Digital Humanities and Crowdsourcing”

<http://mw2013.museumsandtheweb.com/paper/digital-humanities-and-crowdsourcing-an-exploration-4/>

<sup>37</sup> Alexandra Eveleigh, “Welcoming the World” 1.

<http://ica2012.ica.org/files/pdf/Full%20papers%20upload/ica12Final00128.pdf>

<sup>38</sup> Adair, Filene, and Koloski. *Letting Go?* 11. <http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=12>

“the **authority** claimed here is a kind of cognitive influence - the archivist and archives institution acting in concert as a proxy for personal knowledge of the accuracy of archival finding aids and the authenticity of the records described therein (Yakel 2011; Wilson 1983). Some users may be willing to accept this authority, since it implies no ‘right to command’, and lessens the filtering and verification burden on research user. But it was also found in this study to be vulnerable to allegations of censorship, as well as to false or offensive user representations, even where the archives operated a relaxed moderation policy.”<sup>39</sup>

The museum community and their institutional missions may value social engagement at a higher level than knowledge and metadata quality. Museums seem to welcome the conversation, while libraries and archives want accuracy and specificity in search results and they expect the conversation to occur in classrooms and other places outside the library. This appears to be changing as libraries and archives consider new roles and new human or automated sources of metadata.

In the Web 2.0 and Web 3.0 worlds, some automatically compiled metadata has an assumed level of authority because it is derived from specific user behaviors. Beer and Burrows note the existence of recombinant data forms “...popular culture incorporates the data it creates while also then generating another set of by-product data: for example, visualizations, charts and so on which can shape understandings, actions and the like. Culture is now ‘code/space’ in that it, like many dimensions of the social world, relies on code to function; it ‘occurs when software and the spatiality of everyday life become mutually constituted, that is, produced through one another’ (Kitchin and Dodge, 2011: 16).”<sup>40</sup> But there are also signs that such automatically generated metadata can be misleading, as in this example regarding social tagging and tag cloud displays: “The much-vaunted digital feature of the form, changing a term’s fontsize display to reflect the strength of user interest via “hits,” provides what is frequently a highly misleading map generated by the limits of crowd psychology. A browsing user confronted with a forbidding wall of microscopic terms among which are three or four lifted into legible size will predictably click on one of those terms in order to find out “what’s up.” Over time, that term becomes much larger and attracts still more attention, none of which is necessarily informed by genuine user interest in the term. The resulting cloud drifts out to sea, far from any credible claim to be a gauge of the information’s significance for users.”<sup>41</sup>

Most of the metadata quality concerns of the library and archives community come from dubious results of social engagement, but the higher standard of desired knowledge contribution expressed by Holley’s and Theimer’s participatory archives is attractive. Oomen and Arroyo compiled a useful list of quality issues with crowd sourced metadata:<sup>42</sup>

- Maintaining/resolving conflicting information.
- Maintaining and presenting extensive (ever growing) provenance information.
- Creating open and clear reviewing procedures.
- Evenly distributing the contributions of the users over the entire collection.
- Indicating when an annotation is ‘good’ or ‘finished’

Project developers have experimented with a number of methods to improve the quality of participation and knowledge or metadata production by combining social participation with standards or systems based solutions.

<sup>39</sup> Alexandra Eveleigh, “Welcoming the World”. 5.

<http://ica2012.ica.org/files/pdf/Full%20papers%20upload/ica12Final00128.pdf>

<sup>40</sup> Beer and Burrows, “Popular Culture, Digital Archives”, 67-68. [Link](#)

<sup>41</sup> Adair, Filene, and Koloski, *Letting Go?* 134. <http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=135>

<sup>42</sup> Oomen and Aroyo. “Crowdsourcing in the cultural heritage domain” 146.



Early efforts to improve online language translation have led some to recommend starting with automated translation software and then “proofreading by [a] well selected and managed volunteer community.”<sup>43</sup>

An early adopter of social tagging, the Powerhouse Museum in Sydney, Australia launched OPAC2.0, an online public access catalogue that posted online descriptions of over 70 percent of their collection online. “Results from the first six months of OPAC2.0 showed that user tagging and folksonomies did indeed improve navigation and discovery of the online collections, particularly since user keywords were often generally descriptive. However, early trials led Chan to conclude that the benefits of tags were greatest when they were partnered with detailed collection records and presented in the context of formal taxonomies (Chan 2007).”<sup>44</sup> Sally Ellis suggests that complimenting crowd sourced metadata with “authoritative vocabularies and established taxonomies” can improve results.<sup>45</sup>

Other solutions focus on varying levels of professional or peer mediation. The City of Memory site distinguishes “between contributed stories and curated stories...” Staff ultimately decided that editors should evaluate contributed stories first and then selectively present them.<sup>46</sup> Another approach is periodically “recurring” a site by removing posts and leaving only the most useful contributions online “permanently”.<sup>47</sup> These forms of professional mediation are work-intensive and leave the host institution vulnerable to claims of censorship, especially when the rules of engagement are not clearly stated in advance. Participants may have an expectation that their posts will be permanently preserved, and they may not have read the details of any participation agreements that authorize an institution to make preservation decisions without contributor input. New York Public Library digital curator Barbara Taranto recently expressed concerns about her authority to make selection and preservation decisions for online contributions to digital humanities projects.<sup>48</sup>

Eveleigh suggests that there may be crowd leaders or other expert participants who can serve as trusted mediators between the crowd and the host.<sup>49</sup> Maria Popovais’ expressed the idea as meta-curation: “An exercise in controlled serendipity, where each information consumer curates a list of curators whose opinions to trust and whose content to consume, but happily relinquishes control over the specific content items... perhaps meta-curatorial networks, rather than individual content curators or the crowd, would be the filter for what we deem interesting and noteworthy, allowing authority and credibility to trickle down controlled degrees of separation.”<sup>50</sup>

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<sup>43</sup> Anastasiou and Gupta, "Comparison of Crowdsourcing Translation" 654. [Link](#); Tina Budzise-Weaver, Jiangping Chen, and Mikhaela Mitchell. *“Collaboration and Crowdsourcing”*. *The Electronic Library*, 30(2). Oxford: Emerald Group Publishing, Limited, 2012. p. 230.

<http://www.emeraldinsight.com.ezproxy1.lib.asu.edu/journals.htm?articleid=17026321>

<sup>44</sup> Susan Cairns, “Mutualizing Museum Knowledge: Folksonomies and the Changing Shape of Expertise”, *Curator: The Museum Journal*, [Volume 56, Issue 1](#), pp 107–119, January 2013

<sup>45</sup> Sally Ellis, “A History of Collaboration” 5.

<http://www.degruyter.com.ezproxy1.lib.asu.edu/view/j/libr.2014.64.issue-1/libri-2014-0001/libri-2014-0001.xml;jsessionid=AD44DE5DE3285D5165B060F21296D97A>

<sup>46</sup> Steve Zeitlin, “Where Are the Best Stories? Where is My Story? - Participation and Curation in a New Media Age” in Adair, Filene, and Koloski. *Letting Go?* 35. <http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=36>

<sup>47</sup> Steve Zeitlin, “Where Are the Best Stories?” in Adair, Filene, and Koloski, *Letting Go?* 40.

<http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=41>

<sup>48</sup> Barbara Taranto, “Crowd Sourcing Metadata”, <http://www.youtube.com/watch?v=ktsWNNk5MjE>

<sup>49</sup> Alexandra Eveleigh, “History in Harmony” <https://www.youtube.com/watch?v=qglalo7f7v0>

<sup>50</sup> R. Liebling, 2010. “Everyone is Illuminated” #22.

<http://www.slideshare.net/eyecube/everyone-is-illuminated-3129260>.

Overall, experienced project directors appear to have tempered some of the early enthusiasm of the theorists for completely democratized description and shared authority. A more refined vision for valuable participation is emerging that seeks to maintain the benefits of social engagement, make processes more transparent and accessible, generate useful knowledge and increase discoverability. Several projects are currently rebuilding their workflows, evaluating their results and judging them against the significant investment of staff time necessary to achieve quality results. While many cultural institutions came to the table imagining a feast of free work by the public, they now understand there is no free lunch and that the participants must also be served in ways that sustain their trust and their interest.

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## Methods and Examples

*The networking of knowledge in the Internet age is calling into question the relationship between experts and non-experts in the development, preservation, and communication of knowledge. There is a growing movement towards knowledge co-creation and "mutualization." These changes in the roles of expertise will have implications for museums as traditional gatekeepers of knowledge.*<sup>51</sup>

Institutional experiences with social engagement and participatory archives have caused project managers to adjust their workflows and think about the refinements necessary to ensure valued and sustained productivity. Many of the lessons learned regard generalized advice about system functionalities, and more specific improvements have been identified in certain areas such as social tagging.

Establishing the target audience and related communication plans is recommended by the *Transcribe Bentham* project. They identified three priority groups of participants: the UK schools sector through direct promotion to teachers, particularly those with responsibilities for 16–18 year-olds; the academic sector, including educators in paleography and humanities and researchers and law, economics and history; "amateur historians, Bentham enthusiasts and interested members of the general public." The communication plans include workshops, press releases and advertisements in academic publications and magazines.<sup>52</sup>

Laura Carletti and her colleagues suggested that the most effective projects are segmented in smaller thematic sub-projects which can be quickly completed.<sup>53</sup> This may allow for more precisely targeted marketing and rapid rewards for participants.

Alexandra Eveleigh recommended identifying a core group of participants to share the work of moderation, rewards and project management.<sup>54</sup>

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<sup>51</sup> Susan Cairns, *Mutualizing Museum Knowledge: Folksonomies and the Changing Shape of Expertise*, *Curator: The Museum Journal*, Volume 56, Issue 1, pp 107, January 2013

<sup>52</sup> Martin Moyle, Justin Tonra, and Valerie Wallace. "Manuscript Transcription by Crowdsourcing: Transcribe Bentham." *Liber Quarterly : The Journal of European Research Libraries* 20.3/4 (2011): 347-56. [Link](#)

<sup>53</sup> Carletti, Giannachi, Price, and McAuley, "Digital Humanities and Crowdsourcing" <http://mw2013.museumsandtheweb.com/paper/digital-humanities-and-crowdsourcing-an-exploration-4/>

<sup>54</sup> Alexandra Eveleigh, "History in Harmony" <https://www.youtube.com/watch?v=qglalo7f7v0>

Scientist Dana Rotman felt that getting the right task to the right people is an important aspect of the work. "The use of Watchlists (as on Wikipedia) that notify a user when changes are made to a page they are "watching" can help people stay abreast of changes but doesn't point users to gaps in the existing content. Cosley, Frankowski, Terveen, and Riedl (2006) suggested bridging this gap in the Wikipedia community with their automatic task routing tool that uses past editing behavior to recommend new pages a user may want to edit."<sup>55</sup>

Uneven work across the collection has been addressed by the New York Public Library's use of heat maps "for publically identifying which materials were receiving the most attention from volunteers." The disadvantage of this approach is that it may defeat quality control measures like duplicate transcription comparison.<sup>56</sup>

Personalization is a solution for engagement long employed by major commercial organizations like Amazon and Netflix. Adair, Filene and Koloski suggested that quality and productivity is improved when "visitors are guided by smart question prompts, stencils, or menus of choices."<sup>57</sup> *The Hive* transcription project presented user-specific data such as a "progress chart, recent activity, points scoring system, rewards, optional login using Open ID e.g. their Google ID, ability to search and choose items..."<sup>58</sup>

Rose Holley's "Crowdsourcing Tips" provide a helpful list of considerations for effective projects:<sup>59</sup>

*Tip 1: Have a transparent and clear goal on your home page (which goal MUST be a BIG challenge).*

*Tip 2: Have a transparent and visible chart of progress towards your goal.*

*Tip 3: Make the overall environment easy to use, intuitive, quick and reliable.*

*Tip 4: Make the activity easy and fun.*

*Tip 5: It must be interesting.*

*Tip 6: Take advantage of transitory and topical events if they help you.*

*Tip 7: Keep the site active by addition of new content/work.*

*Tip 8: Give volunteers options and choices*

*Tip 9: Make the results/outcome of your work transparent and visible.*

*Tip 10: Let volunteers identify and make themselves visible if they want acknowledgement.*

*Tip 11: Reward high achievers by having ranking tables and encourage competition.*

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<sup>55</sup> Dana Rotman, et al. "Supporting Content Curation Communities: The Case of the Encyclopedia of Life." *Journal of the American Society for Information Science and Technology* 63.6 (2012): 1104

<http://onlinelibrary.wiley.com.ezproxy1.lib.asu.edu/doi/10.1002/asi.22633/abstract>

<sup>56</sup> Barbara Taranto, "Crowd Sourcing Metadata", <http://www.youtube.com/watch?v=ktsWnKt5MjE>

<sup>57</sup> Adair, Filene, and Koloski, "Introduction" in *Letting Go?* p 12.

<http://site.ebrary.com/lib/asulib/Doc?id=10500139&ppg=13>

<sup>58</sup> Rose Holley, "National Archives of Australia embraces crowdsourcing and releases 'The Hive'", *Rose Holley's Blog*, November 10, 2012.

<http://rose-holley.blogspot.com.au/2012/11/national-archives-of-australia-embraces.html>

<sup>59</sup> Rose Holley, "Crowdsourcing: How and Why" <http://www.dlib.org/dlib/march10/holley/03holley.html>

*Tip 12: Give the volunteers an online team/communication environment to build a dynamic, supportive team environment.*

*Tip 13: Treat your 'super' volunteers with respect and listen to them carefully.*

*Tip 14: Assume volunteers will do it right rather than wrong.*

Another important choice in the development of crowdsourcing projects is whether to leverage existing social media websites or to build project specific or institution specific software and platforms. Leveraging existing social media has disadvantages in that the participatory conversations and contributions may be physically separate or poorly integrated with the catalogs or professionally managed descriptive systems. This represents the distinction between Web 2.0 systems where professional descriptions and digitized content are served to the audience, and Web 3.0 where the audience actively engages in the act of description and cataloging and there is no boundary. Several sources indicated the combination of professional description and social tagging is optimal, but traditional library and archives professionals may be more comfortable with a distinct separation. Alexandra Eveleigh effectively described the distinction:

**“These third-party participation sites [e.g. flickr, HistoryPin] are usually poorly integrated with finding aids and other archives web resources, however, this severely restricts the impact that the interaction with users might otherwise have had upon professional descriptive practice. User participation in this vein also seems to require a bedrock structure of professional description onto which users are invited to add embellishments. User contributions are treated as supplemental rather than fundamental, and the boundaries between ‘us and them’ remain substantially intact, particularly where access to the contributed content is also only provided through third-party spaces.”**<sup>60</sup>

In addition to the issues around separation or integration of public and professional spaces, the quality of tagging and compilation of folksonomies has been studied at length. Susan Cairns cited this definition of folksonomies: “Freely applied, without a consistent vocabulary or enforced semantic rules, folksonomies are a form of social communication first utilized by social networking sites such as Flickr and Youtube. The process of social tagging allows users of a Web resource to contribute to the data lifecycle of the resource, while interacting with both the online object and other users. Tagging of images, in particular, provides a linguistic association for an image, through which it can enter into the economy of the digital search industry (Rubinstein [2010](#), 198). Ultimately, folksonomies are a form of social metadata that can facilitate content location and interpretation (Smith-Yoshimura and Shein [2011](#), 10)”<sup>61</sup>.

However as noted earlier in this paper, achieving quality in social tagging continues to be a substantial challenge. In a study of structured and unstructured tagging in Israeli and Jewish cultural archives, Bar-Ilan and colleagues confirmed that structured tagging provided more detailed descriptions but non-expert users were discouraged by the ambiguities of “predetermined metadata elements”<sup>62</sup>. A more recent project to apply computational linguistics to build quality control tools has had some encouraging results in “harvesting and disambiguating user generated content.” The *T3: Text, Tags, Trust* project “showed that there were multiple computational techniques that could

<sup>60</sup> Alexandra Eveleigh, “Welcoming the World” 5.

<http://ica2012.ica.org/files/pdf/Full%20papers%20upload/ica12Final00128.pdf>

<sup>61</sup> Susan Cairns, “Mutualizing Museum Knowledge” 109.

<sup>62</sup> Susan Cairns, “Mutualizing Museum Knowledge” 112.

be applied to the extraction, normalization, and disambiguation of terms used in social tags, making an array of rich content more accessible.”<sup>63</sup>

The Smithsonian Institution’s experience with *Flickr* demonstrated some of the advantages and challenges of leveraging existing social media platforms. Martin Kalfatovic suggests that *Flickr* provides some technologies that may be helpful: “An application used within Flickr (and accessible via the Flickr API), machine tags, also known as triple tags, are commonly used in programming (Flickr 2009). Simply put, machine tags use a special syntax to describe extra information about a tag. The faceted syntax includes a namespace, a predicate, and a value; i.e. “medium: paint = oil.”<sup>64</sup> However the separation of social and professional spaces resulted in less increased traffic from the social space to the professional space than the Smithsonian desired.<sup>65</sup>

From June through October, 2008 the Smithsonian Institution’s statistics illustrated the level of their success:<sup>66</sup>

- 254 photographs had comments (22% of overall photostream); total of 513 comments overall
- Comments per image: high: 29 comments; average of 2 comments/image; average of one comment for every 2,089 views
- 559 photographs were favorited (48% of overall photostream); total of 2,344 favorites overall
- Favorites: High: 251 favorites; average of 4 favorites/image; average of 1 favorite for every 949 views
- 25 images have notes (2% of overall photostream); total of 60 notes overall
- Notes: High: 10 notes; average of 2.4 notes/image; average of 1 note for every 8,842 views

Conversely, the Library of Congress had “overwhelmingly positive and beneficial” experiences with *Flickr* in their 2008 pilot project. “2,518 unique Flickr users added 67,176 tags to 4,548 photographs. Fewer than 25 instances of user-generated content were removed as inappropriate. Visitation to the Library of Congress prints and photographs Web pages increased by 20 percent...compared to the same period during the previous year (Springer et al. 2008, iv).”<sup>67</sup>

Larger public institutions and universities leveraging federal and foundation grants have built software and platforms to experiment with participatory archives, crowd sourced annotation and transcription. In 2008 Isto Huvila presented some specific functional requirements for software to support his vision for participatory archives:<sup>68</sup>

Multiuser browsing, editing and maintenance:

- Unlimited number of user accounts with three levels of rights: administrator, contributor (read/write) and guest (read)
- Tools for collaborative coordination of the maintenance

Versions and tracking of changes on the level of individual contributors:

- Version tracking

<sup>63</sup> Cairns, Susan, “Mutualizing Museum Knowledge”, 112.

<sup>64</sup> Kalfatovic, Martin R et al. "Smithsonian Team Flickr: A Library, Archives, and Museums Collaboration in Web 2.0 Space." *Archival Science* 8.4 (2008): 273. [Link](#)

<sup>65</sup> Kalfatovic, Martin R et al. "Smithsonian Team Flickr" 272-273.

<sup>66</sup> Kalfatovic, Martin R et al. "Smithsonian Team Flickr" 274-275.

<sup>67</sup> Susan Cairns, “Mutualizing Museum Knowledge” 111.

<sup>68</sup> Adapted from table format at Isto Huvila, “Participatory Archive” 23.  
<http://www.springerlink.com/content/u5p1365616q56r80/>

- Cumulative edit history (unlimited levels)
- Records of all edits and their authors

#### Flexibility of data and structure:

- Users with contributor rights can easily create new record types (including e.g. images and archaeological data) and add necessary data fields (and data) to existing records

#### Flexibility of description:

- All records can be described how the different users consider it as applicable. Descriptions may consist of formal descriptions, free text, diagrams, pictures etc
- Template system (or similar) to guide users to contribute as uniform descriptions as possible

#### Searchability and formalization of descriptions:

- Formal descriptor and data field based searching facility (e.g. for specific authors on author field, keywords on keyword field)
- Possibility to search for ranges of numeric values and e.g. dates
- Full-text search facility

#### Standard file formats:

- The archive needs to be usable (read/write) using a common web browser (Internet Explorer, Firefox, Safari) without additional plugins
- If needed, publicly available and supported client-side plugins may be considered for presenting alternative content

#### Standard, inexpensive and easily transferable software:

- Documented e.g. XML-based machine readable export of all contents of the archive
- Software runs on PHP/Perl/Java/Python using only a limited set of additional libraries and at least on both MySQL and PostgreSQL databases

Huvila ultimately suggested employing the semantic wiki software *Mediawiki*,<sup>69</sup> which was probably the most robust solution available at the time, but it would be difficult to integrate into standards based archival workflows.

The wildly successful *Civil War Diaries* project at the University of Iowa attempted a relatively low tech solution to integrate participatory archives into their digital library workflow. They wrote PHP pages to strip diary page images from their digital archive and display them with an adjacent comment box. Visitors could transcribe the page and then send it to the curatorial staff via email. Staff would review (and probably edit) the transcription and then paste it back into the metadata in their digital library system. They chose this workflow because they felt they had more curatorial staff available than programming staff. Iowa's digital library was overwhelmed with volunteer submissions when Reddit.com posted their project. Nicole Saylor remembers "On June 9, 2011, we went from about 1000 daily hits to our digital library on a really good day to more than 70,000." In addition to the large scale of contributions, participant effort was wasted when multiple individuals transcribed the same page, especially since their technology did not leverage that work by comparing transcription versions for quality control.<sup>70</sup>

One of the more intriguing and collaborative projects in progress is the *Shelley-Godwin Archive*, which currently presents digitized journals and manuscripts but has a substantial vision for scholarly engagement based upon future technologies:

<sup>69</sup> Isto Huvila, "Participatory Archive" 23-24. <http://www.springerlink.com/content/u5p1365616g56r80/> or [Link](#)

<sup>70</sup> Bill Lefurgy, "Crowdsourcing the Civil War: Insights Interview with Nicole Saylor", *The Signal: Digital Preservation* [blog], Washington: Library of Congress, December 6, 2011

“Mr. Fraistat's team at MITH built the Shelley-Godwin Archive using the [Shared Canvas linked-data model](#), created by Stanford University, Los Alamos National Laboratory, and the Open Annotation Collaboration. It "allows you to take any single image, like a page image," and add annotations and layers to it, Mr. Fraistat says. The next step is to finish building an expanded technological framework, called Skylark, to make possible the kind of participatory experience the archive's organizers would like to create.”

“Down the road, though, the organizers hope to develop the site into something far more robust and participatory, recruiting users to flag errors, transcribe manuscripts, and so on. Beginning with the Frankenstein notebooks, texts in the archive will be color-coded to signal how much work has already been done on them, according to Mr. Fraistat. Green will indicate that a manuscript is "fully curated," transcribed, and encoded; yellow will indicate that some work has been done on that particular text, but more remains; and red will mean "you're just looking at a page" of raw manuscript.”<sup>71</sup>

Another very promising area of technical development is the *Metadata Games* project. Here several gaming interfaces are used to entice participants to tag archival materials. Mary Flanagan describes what they have learned in the project:

“One key lesson learned is in regard to expert tags vs “lowest common denominator” tags. The latter is much easier to design for... It is much more challenging to design games that increase not our base knowledge, but our more expert knowledge—how do we figure out who is an expert? Who do we trust? These are really interesting research questions we’ve encountered while working on the project. Obviously we’re learning from computational linguists, but we’re also learning from Humanists about these issues. A second lesson learned was getting “too cutting edge” for institutional good. While cultural institutions have similar needs in terms of being able to quickly collect metadata for their collections, they vary very widely in terms of their organizational and technical infrastructure. Finding a balance where our system is flexible and fast, but is still able to run on current systems with current levels of support, has been a key goal. The current build of Metadata Games is built using software that’s available at most web hosting services.”<sup>72</sup>

The New York Public Library’s *Map Warper* project is considering gaming functionalities to attract more participants to help “georectify” layered digital maps of New York City. They have also encountered challenges with uneven encoding across the collection and finding intuitive software for non-experts.<sup>73</sup>

The available literature suggests a range of possible solutions from leveraging existing social media platforms to building customized platforms, and the host institutions are learning from their success and challenges. Integration of digital library and social space workflows continues to be a challenge. The choice of technical solutions may depend on the relative levels of programming support and curatorial support an institution can devote to this work. Identification of the necessary resources will require a clear justification for social engagement and participatory archives activities derived from the mission of the host institution. Museums and large public libraries often have a clear mandate for community engagement and public education, but fewer public and especially

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<sup>71</sup> Jennifer Howard, “Frankenstein's Manuscript Draws Its First Breath Online”, *Chronicle of Higher Education*, October 30, 2013. <http://shar.es/lde2n>

<sup>72</sup> Trevor Owens, “The Metadata Games Crowdsourcing Toolset for Libraries & Archives: An Interview with Mary Flanagan”, *The Signal Digital Preservation* [blog] April 3, 2013. <http://blogs.loc.gov/digitalpreservation/2013/04/the-metadata-games-crowdsourcing-toolset-for-libraries-archives-an-interview-with-mary-flanagan/>

<sup>73</sup> Ben Vershbow, “NYPL Labs: Hacking the Library”, *Journal of Library Administration*. Jan2013, Vol. 53 Issue 1, pp 79-96. <http://dx.doi.org/10.1080/01930826.2013.756701>

private colleges and universities expend resources beyond the walls of the ivory tower. Arizona State University may be one place where participatory archives can be justified by our institutional mission.

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## The New American University, Social Engagement and Participatory Archives

Archives and Special Collections (ASC) is a unit of the Arizona State University Libraries and ASC is located at the historic Tempe campus. As the largest professionally managed archival repository at Arizona State, the department has the greatest potential for implementing participatory archives functions on behalf of our university. ASC has been actively engaged in social engagement since 2011 through three Facebook pages established on the initiative of curatorial staff. The effort was intended to increase public use of the archival collections online and in the Luhrs Reading Room. Significant staff reductions in the department and increases in collection responsibilities since 2008 caused ASC to seek efficiencies in work processes and realign the available resources. In this period ASC was also asked to seek alternative platforms for its early online exhibits and digitization projects and invited to contribute digital materials to the [ASU Digital Repository](#). ASC has been engaged in loading materials and associated descriptions to the *ASU Digital Repository* since 2011.

The experience of contributing to the *ASU Digital Repository* enabled me to learn about its functionalities and experiment with different descriptive practices for individual items, series and collections. Most of the materials loaded to the repository have been described as individual objects within provenance based collections, while other ASC staff continued to create accession records and finding aids in accordance with the national standards. These activities represent three different scopes of archival descriptive practice: accession records describing each shipment of materials for inventory control and coarse online discovery, finding aids describing materials to the series or folder level, and repository descriptions describing individual objects. Metadata for all of these descriptions is now discoverable through online search engines like Google, although standard archival practice has traditionally prioritized accession records and finding aids over individual object cataloging. The primary justification for that emphasis was the value of understanding, documenting and making accessible the forest before deciding which trees to digitize and describe online. Much of the crowdsourcing research presented here does not address the larger context of archival collections, provenance and rights management. The literature and comments from our users suggest that the crowd wants immediate and direct access to specific items digitized by archives and libraries. The implication is that traditional archival practices of accessioning and finding aid production delay, and even impede public access to the point that archival institutions may be viewed as gatekeepers acting for bureaucratic and selfish reasons. There is a strong anti-professional or anti-intellectual flavor to the literature of crowdsourcing and social engagement activity, and an audible call for rapid change, transparency and open access.

Universities are slowly responding to calls for open access, and research libraries have been aggressive in asserting the benefits of alternative forms of scholarly communication, especially in open access publishing of scholarly research.<sup>74</sup> But progress in this area has been uneven, with some faculty members embracing self-publishing, non-profit publishers and digital humanities projects. Some faculty have expressed concerns about the disconnection between popular ethics of open access and universities that have been slow to recognize the value of open access publishing, digital humanities and social engagement in tenure and promotion evaluations.<sup>75</sup> Similar concerns

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<sup>74</sup> See the Association of Research Libraries Open Access portal for links to many related resources: <http://www.arl.org/focus-areas/open-scholarship/open-access#.U58qqcRDsko>

<sup>75</sup> A Google search for the phrases “open access” and “tenure and promotion” returns thousands of articles, mostly relating to actions at specific universities.



regarding tenure and promotion criteria were expressed in comments by attendees at a 2013 Arizona State University digital humanities seminar.<sup>76</sup>

However, Arizona State University may be uniquely positioned to embrace social engagement and participatory archives because of our commitment to build “The New American University” envisioned by President Michael Crow. Our vision statement reads: “Arizona State University has developed a new model for the American research university, creating an institution that is committed to excellence, access and impact. ASU pursues research that contributes to the public good; and ASU assumes major responsibility for the economic, social and cultural vitality of the communities that surround it.”<sup>77</sup>

The vision for the New American University presents eight “design aspirations”, several of which may be relevant to both social engagement and participatory archives:<sup>78</sup>

- Leverage Our Place
- Transform Society
- Value Entrepreneurship
- Conduct Use-Inspired Research
- Enable Student Success
- Fuse Intellectual Disciplines
- Be Socially Embedded
- Engage Globally

In the Leverage Our Place aspiration, “local knowledge, local issues and local solutions inform student learning and shape faculty research.”<sup>79</sup> Digitizing local history collections such as those found in ASC’s Arizona Collection, University Archives and Chicano Research Collection, and placing them online for public discussion and reuse may well inform student learning as they find the resources, discuss their significance and place them in student papers and research products. This primarily represents a Web 2.0 activity where the institution selects and presents materials for public use, and ASC has been engaged in this social engagement activity for several years. Moving to a Web 3.0 or participatory archives model where the public actively selects materials for digitization and participates in their description and interpretation may be the next step justified by this design aspiration.

In terms of shaping faculty research, the 2013 establishment of the Nexus Digital Humanities Laboratory at Arizona State suggests an institutional endorsement of research that leverages crowd sourced knowledge, and some faculty participants in the laboratory launch seminar did express interest in participatory archives projects. Certain materials from our Special Collections and our Child Drama Collection might be employed to create online communities of geographically dispersed faculty and advanced researchers with specialized interests. This work might be supported by collaborative inter-institutional grant funded projects as seen in the *Shelley-Godwin Archive*.

In the Conduct Use-Inspired Research aspiration, “Knowledge can inform decision-making and have positive societal impact while also considering the social implications of research.”<sup>80</sup> In participatory archives, larger quantities of materials described and interpreted by participants can present new knowledge or information that may inform faculty and graduate student research. Merely opening the archival resources of the university to participation may help to reduce public perceptions of gatekeeping, elitism and profiteering. Archivists believe

<sup>76</sup> “Envisioning Humanities Research through Digital Technologies” Round Table, Institute for Humanities Research, Arizona State University, November 21, 2013.

<http://ihr.asu.edu/news-events/news/launch-ihr-nexus-lab-digital-humanities-transdisciplinary-informatics>

<sup>77</sup> <http://newamericanuniversity.asu.edu/#1>

<sup>78</sup> <http://newamericanuniversity.asu.edu/#1>

<sup>79</sup> <http://newamericanuniversity.asu.edu/design-aspirations/aspirations.php#1>

<sup>80</sup> <http://newamericanuniversity.asu.edu/design-aspirations/aspirations.php#4>

historical knowledge brings with it significant societal benefits of identity construction and community that are increased by public engagement with archival materials.

In the Enable Student Success aspiration, “ASU students have broad knowledge and perspective, build their own communities and are provided with a clear path to graduation.”<sup>81</sup> Participatory archives are all about building micro communities of common interest. ASU students are very active users of social media and many of them have interests in history and diverse cultures. Participatory archives are by definition about building communities that students may participate in, or they may be informed by the knowledge shared by participants who are not part of the university community. Their educational success is increased by exposure to historical information and community knowledge.

The “Be Socially Embedded” aspiration of our university may be the most direct justification for participatory archives. “ASU strengthens communities by contributing to community dialogue and responding to communities’ needs.”<sup>82</sup> The *Vintage Phoenix* Facebook community displays historic postcards and photographs and it currently has over 31,000 “likes” or members.<sup>83</sup> Each new photograph posting usually generates several hundred “likes” and comments. This is likely the most active community discussion about Phoenix history anywhere, and useful comments are made daily. ASC social engagement has generated some community response by posting holdings or links to online finding aids for collections related to the photos posted at *Vintage Phoenix* by the site moderator. Because of the site rules ASC cannot initiate a posting, we can only respond to postings by the site moderator. Participatory archives could be a platform for more detailed community dialogue and a response to the community’s expressed desire for increased access to the university’s archives and special collections. While ASC, the University Libraries and ASU are already active in social engagement through social media, participatory archives represents an opportunity to expand community learning, share and compare scholarly and community knowledge and expand access to archives for all kinds of creative and public applications far beyond the walls of the university.

In general, participatory archives is an activity well suited to the goals of the New American University, but it also represents a commitment of scarce resources to a new activity that may be perceived as assisting the community before the needs of ASU students and faculty. The perception may be most related to the degree that our students, faculty and administrators embrace the design aspirations of The New American University. What does it mean for a university to be truly socially embedded? At Arizona State University perhaps we are learning that the university is most effective when it teaches and conducts research within the community rather than apart from it. Participatory archives are one way we can join with the community to achieve the shared goals of increasing knowledge, access and social mobility.

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<sup>81</sup> <http://newamericanuniversity.asu.edu/design-aspirations/aspirations.php#5>

<sup>82</sup> <http://newamericanuniversity.asu.edu/design-aspirations/aspirations.php#7>

<sup>83</sup> [https://www.facebook.com/VintagePhoenix?ref=br\\_tf](https://www.facebook.com/VintagePhoenix?ref=br_tf)

## Conclusions and Recommendations

The most successful participatory archives projects are generally in large public institutions such as national archives, libraries and museums and large urban public libraries. These institutions have a robust and longstanding commitment to public service and outreach that is a core function of their institutional mission. They also tend to have larger staff and dedicated technology support that can be devoted to this specialized work. The most visible participatory archives project hosted by an academic library, the *Civil War Diaries* at the University of Iowa, attempted a lower technology solution that reflected their available staff and technology support. While their project was successful in terms of the numbers of participants and pages transcribed, this progress came at a significant cost in terms of bandwidth and staff time. Some participant effort was wasted due to the absence of certain automated quality control measures. It appears that a minimum level of staff and technology support, as well as a willingness to identify an interested audience and create targeted marketing is necessary to establish a successful project.

However, the success of Iowa's *Civil War Diaries* project, a number of other "Citizen Archivist" projects hosted by the US National Archives, and the amazing scale of activity at *Vintage Phoenix* suggest that public interest in history and archives is growing. These participatory archives activities have demonstrated that archives and the public have common interests in expanding the amount of material online and learning from each other.

At Arizona State University, several of the "design aspirations" of the New American University provide conceptual justifications for participatory archives projects, but resources to establish and sustain effective projects will need to be identified and applied. While Archives and Special Collections has interesting collections, digitization facilities and curatorial support that could be used to facilitate social engagement and transcription or tagging projects, it is not known whether the University Libraries can devote the resources needed to build the specialized tools that incentivize participation, create mediated or automated quality control measures like heat mapping and transcription comparisons, and present feedback loops personalized for participants. The Nexus Digital Humanities Laboratory may be able to provide the technology to achieve some of these goals, but they may require that the archival materials be hosted in their domain if they are to be responsible for the technology platform. Such a solution would create separation between professionally curated and community curated spaces, losing the advantages of leveraging the professional work in the community space and requiring professional archivists to manage multiple spaces. It is also uncertain if the Nexus lab has a commitment to share authority with members of the public, or if they would prefer the Web 2.0 model of professionally curated content with comment spaces for external participants.

An alternative approach may be to focus participatory archives on the academic community by targeting specific classes or student groups with an interest in a specific body of archives that need tagging or transcription. The student group could be self-mediating and the activity could be visible to public visitors who might add their knowledge. This could result in robust engagement between students, faculty and community members but it would require substantial interest and support from faculty as they create class assignments and syllabi.

These observations suggest the following recommendations for future action:

- ASC curatorial staff should continue social engagement activities like posting archival materials on Facebook and encouraging visitors to comment and or help identify materials in the collections. Curators may then manually paste useful information back into existing descriptive systems as in the University of Iowa example.
- ASC curators should identify some important photographs for potential tagging projects or significant manuscripts for transcription. The project should be large enough and of sufficient importance to attract public participation. One example of a photo tagging project could be the McCulloch Brothers early photographs of Phoenix. Transcription projects for some early Arizona biographical directories might be another useful project.

- With the support of the University Librarian, ASC should meet with Informatics and Cyberinfrastructure Services (ICS) and Bibliographic and Metadata Services to investigate their willingness to assist with a participatory archives project. Should these units be able to devote staff time to the effort a discussion should be convened with those units and other areas such as Library Marketing to identify a useful pilot project.
- The University Libraries might also enter into discussions with the Public History Program, the Nexus Digital Humanities Laboratory and other relevant university units to gauge their willingness to collaborate on technical and curatorial support for a participatory archives project. This approach has the advantage of leveraging students in academic programs who might serve as effective project participants, moderators or facilitators.
- The University Libraries and other interested partners should investigate opportunities for external funding (esp. National Endowment for the Humanities and Council on Library and Information Resources) to support development of larger projects.