

Archival Memory on the Web: Web 2.0 Technologies for Collective Memory

웹에서의 기록과 기억: 집단 기억을 위한 웹 2.0 기술

Donghee Sinn(신동희)*

ABSTRACT

Archives have directly and indirectly served for memory. What is collected in archives, how it is presented to users, and how users understand and use the documents affects how a given society remembers its past. Some archival scholars see that how users interpret documents from their perspectives and by social interests may play a central role in constructing social memory because memories are often triggered by individual and social concerns of the present time. Therefore, knowing what causes users to seek for a certain materials, how they use those materials and why can offer a clue to learn how archives serve for social memory. In the Web space, the interaction between users and archives/archival materials can be easily observed. Beyond making access simple for users and promoting archival documents using Web technology, archives can serve the broader purpose of memory by skillfully exploiting the characteristics of Web 2.0 and digital cultures in a way to observe how users engage in and contribute to archival contents available on the Web. This study examines the discourses on memory in the archival context, and in particular, how archives can serve as platforms for memory within the new environment of Web 2.0 technologies. It surveys discussions on memory in relation to archives, history, and evidence, focusing on the user and use context as it is represented in the archival literature. This paper discusses how that technology provides features that allow us to see collective memory being constructed in the archives, and presents examples of how the Web 2.0 technology can structure the way users share their memories in building a larger narrative around the archive.

초 록

기록물은 직간접적으로 기억과 관련되어 있다. 한 사회가 과거를 어떻게 기억하는지는 무엇이 기록관에 수집되고, 그것이 이용자들에게 어떻게 이해되고 이용되는지에 달려있다. 기억은 종종 현시점의 개인적, 사회적 관심에 의해 촉발된다. 따라서 기록물의 해석은 현재의 관심에 따라 달라질 수 있다. 이런 관점에서, 무엇이 이용자들이 하여금 기록물을 찾게 만들고 이용자들이 기록물을 어떻게 이용하는 지의 이용맥락을 안다면, 기록물/기록관이 사회의 기억에 어떤 영향을 미치는지를 알 수 있을 것이다. 웹에서는 이용자들간, 이용자와 기록물/기록관 간의 관계를 쉽게 관찰할 수 있다. 기록관들은 웹 2.0 기술 및 디지털 문화를 이용하여 이용자들이 기록물과 어떤 상호작용하는지, 기록에 어떤 기여를 하는지를 관찰함으로써, 사회의 기억을 위한 기록관으로 새로운 자리매김을 할 수 있을 것이다. 본 연구는 기록학이라는 관점에서 기억에 관한 담론을 조명하고, 특히 웹 2.0이라는 새로운 환경에서 어떻게 기록관이 기억을 위한 발판이 될 수 있는지에 대해 논하였다. 이용자와 이용맥락에 중점을 두어 기록학문헌에 비추어진 집단 기억을 논하고, 집단기억이 기록물, 역사, 증거라는 담론과 어떻게 연결되어 설명되어왔는지를 개관하였다. 이러한 이론적 배경을 바탕으로, 웹 2.0 기술이 집단기억을 위해 어떤 기술적인 발판을 제공하는지를 고찰하였다. 또한, 기록물을 둘러싼 포괄적인 내러티브를 만들어가는데 이용자들이 웹 2.0 어플리케이션을 통해 어떻게 자신의 기억을 나누고 집단 기억을 만들어가는지에 관한 사례를 살펴보고자 한다.

키워드: Collective Memory, Web 2.0, Digital Culture, Use Context, Archives 2.0
집단 기억, 웹 2.0, 디지털 문화, 이용맥락, 아카이브 2.0

* Assistant professor, University at Albany(State University of New York)(dsinn@albany.edu)
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1. Introduction

Archives are often understood as the documentary heritage of society. By their materials, their completeness, and their access, archives collectively shape the memory of the past. What is collected and stored in the archives and how archival holdings are presented to users and accessed by them influence the way the past is remembered and narrated. The motives of those who manage archives and their ways of representing archival materials will be reflected to some extent in the collective memory of a given society's past. As much influential as archival decisions are, the context of the user's experience of the archive signifies a critical moment in memory formation. The use context endows particular materials with meaning, and juxtaposes their present issues with the memory of a past event documented by that record - however biased and incomplete that documentation may be. Users have their own set purposes for using archival materials, which often stem from present problems they have. Users select what records to use, and interpret the records they find in line with that purpose. Through this process, the user begins interactivity with the archives, using archival objects to construct and re-construct a past event, parallel to the re-constructions of memory. This memory construction via documentary evidence from archives will be influenced by various contextual factors: what value the materials possess for the user, how they understand the materials, and what memory of the past they bring to their own understanding of the materials.

The same memory building process is replicated with regard to digital archives, only the interactive engagement changes to an extent in the environment of the Web 2.0. What we as society decide to digitize will naturally reflect what is considered as culturally valuable enough to digitize. How digital collections are selected and presented to users will affect the prevailing historical discourse in societies and, as we see with the way users interact with traditional off-line archives, will bring certain kinds of emphases in the collective memory. Users' context again plays an important role in the virtual world to shape our versions of history and memory. The new technologies and Web 2.0 environment may offer opportunities for preserving the interactivities between digital collections and users. Many archives, libraries and museums have already been employing various social media technologies in their systems to support specialized resource discovery and knowledge sharing within their communities of users. Modalities to promote user participation and interaction, going beyond the narrow protocols for research in traditional off-line archives, is the most prominent difference made by Web 2.0 technology. It allows archivists to observe the context of archival use and to document how users discuss the past and build memory. In addition, digital libraries and online exhibitions are putting in place a context for digital culture that captures the narratives that circulate around cultural artifacts and determine their value and use. While the impact of newer technology and digital culture has largely been discussed in the pragmatic context of various disciplines, there have been few research

studies to address digital activities of archives with the Web 2.0 technologies in terms of memory.

This paper aims to understand *the dynamics that the Web 2.0 technologies provide for collective memory surrounding archival materials*. In doing so, this study examines the archival literature on the discourse on how archives can provide a platform to serve for memory within the new environment of Web 2.0 technologies for the theoretical foundation. It surveys discussions on memory in relation to archives, history, and evidence in the archival literature. Based on the archival theories on memory, it further reviews literature on the roles of users and use contexts in the memory building process and web 2.0 applications offer great potentials to observe use contexts of archival materials. Theoretical foundations are applied into some instances that typify how the Web 2.0 technology both limits and empowers users' memory sharing. These actual cases and examples are analyzed to show how specific technologies influence the way narratives are collectively built around archival documentary evidence. This study argues that the technological development of Web 2.0 makes it possible for archive to comprehend user contexts and to witness the process of building narratives around archival materials which ultimately composes the collective memory of them.

2. Memory in Archival Context

According to Nora (1989), an archives is an in-

stitution to which a society delegates the responsibility of remembering. This approach to the nature of the archive is developed out of a notion that archives themselves are cultural artifacts for social memory. In the social context of understanding memory, individual memories are constructed through sharing and interacting with different perspectives among the people of a group (Halbwachs 1992). Social groups determine how events will be remembered, and memories are actively constructed in correlation to currents within the community, the broader power differentials structuring the community, and the social dynamics that emerge between different genders, ethnicities, classes and personalities within the community (Thelen 1989). Memories often are evoked by a medium such as spaces, time, and artifacts. Sites that memorialize collective events, such as museums and memorials, and time specific events, such as commemorative rituals and anniversaries, as well as the documentary heritage maintained in archives can encourage individual memories to form within the collective body.

Archives are a form of institutionalizing information to be kept and handed down as part of social memory. Archives preserve and provide access to information for the members of society, and they determine what comprise the historical record of a society and its culture. In this sense, archivists hold the "keys to the collective memory" (Wallot 1991, 282) and play major roles in creating memory (Cook and Schwartz 2002). Harris (2001, 2002) argue that archives do not reflect reality or provide an objective image of an event, but they are an expression of

prevailing ideology and political justifications when focusing on official records which mainly document those who govern a society. Harris (2001) conceives of the archivists' work and the architecture of archiving as consigning the traces of the past to a particular substrate. Consignation of past traces to a physical form (documents in a broad sense) in archives involves the exercise of power because archival management shapes the documentary heritage in which the social memory of the past is adjusted.

Harris (2002) argues that documentary records provide only a sliver of a window into an event. Studying memory may fill in some of undocumented and underdocumented spaces about events (Bastian 2009, 119). Often, memory studies devote more space on how the past is represented rather than how that representation is received and transmitted. Bastian asserts, however, the transmittal and reception process is where archivists play significant roles as documenters and how they build and manage archival holdings upon which a society depends for its larger sense of the past. It is because a contextual tie that brings records together at a conceptual level suggests users new dimensions to collections (Bastian 2009).

How memory is constructed shows a fluid space of understanding an event, which is differently constructed from how history is written. Hutton (1993) explains memory as coming from similarities between past and present, while history is established from the differences between them. Memory touches emotions because it conveys a sense of the past coming alive once more. History, on the other hand, reconstructs the past from a critical distance and

analytical interpretation. Official historiography can ignore popular culture or mores, but the social customs in popular culture can remain alive in individuals' memory. Le Goff (1992) sees memory is the raw materials and living source of history, and memory works unconsciously and reflects the deep social, ideological and political structures in which historians have placed the real forces of history. From the perspective discerning memory and history, archives may have different missions in a society when they stand in for memory as opposed to when they stand in for history (Brothman 2001). Archives seek to align materials in such a way that they promote integrated knowledge, social identity and group consciousness when serving for memory. If archive serve for history, on the other hand, more emphasis is on the linear correlations between documentary evidence and development of historical narratives about the past. Records gain primacy for objective evidence for historical studies.

The notion that archives are socially constructed for social identity and consciousness challenges the positivistic view of archival materials as authentic and impartial evidence that verifies the activities of their creators. From the beginning, records are created for certain purposes (Cook 2000), and additional meanings will be given to records by posterity based on its synchronic understanding and perception (Trace 2002). Records are, therefore, "cognitive memory artifacts, rather than merely as legal, evidence-bearing artifacts" (Brothmen 2001, 52). Memory is a process for shaping existing materials of the past to present issues and archives can form an integral part of this

process. However, the concept of record as cognitive artifact for memory or cultural heritage does not contradict the function of record as evidence. Both the evidential value of record and its broader value as a cultural item clearly present different aspects of the record in its characteristics and explain its creation and use. Different philosophical presuppositions and approaches will modify the way we perceive the roles of records and will impinge on the management of the archival record. Where the emphasis lies will determine how archivists prioritize their tasks and permit archival research. The ideas for record as memory and record as evidence are not necessarily to be subordinated, one to the other, nor is one approach less legitimate than the other (Greene 2002). On a practical level, a record can function as either or both of them, at different times and in different contexts.

The relationship of records to memory and evidence shows what functions and capacities the records have. Bastian (2009) and Menne-Haritz (2001) both observe that archives and records provide opportunities to create memory when they are historically accountable, and collective memory in return adds meaning and value to records. Memory and evidence are the functions or properties provided by records (Yeo 2007). Records are not themselves memories, but offer an affordance (triggers or touchstones) for memory and evidence. When considering the relationship between records and events, creating records is a part of the event, rather than a picture of the event. In this perspective, Yeo sees that by looking at this part of the event, we can imagine and under-

stand the rest of the event. Meehan states that the archival concept of evidence in records serves as a “conceptual lens” through which to view differing ideas about the value and use of records, in order to explore the nexus between what we think records are (their nature), what we take them to mean (their value), and how we use them toward our own ends (their use), and to also suggest how we might rethink the role of the archivist and the archival discipline” (2009, 160). This idea suggests the evidence in a record comes from the lens of users, the context in which users need the record as evidence. Any record usage, whether for evidential values, for research purposes, for telling a story, or for understanding an event, involves the very process of analyzing the relationship between record and event. Each analysis is likely to create a new perspective that re-aligns record and event. The capacity of records to provide evidence, therefore, comes from the process to treat (and use) records as evidence, not records themselves (intrinsic property of records). She proposes the process of understanding the record-event relationship as an archival nexus to see differing ideas for the concept of record: record (or archives) as evidence or as memory, for accountability, for cultural purposes, and for other purposes as well.

3. Context of Using Archives and the Web Platform

As discussed above, each use of a record has its own context of users with their own purposes. The

context surrounding why a user needs to see records, how the user finds value from records, and how he/she understands and interprets records imposes special meanings on records. In this sense, the context may be more influential in constructing memory than the actual records and their contents are. The use context is not necessarily limited for individuals. The social context and social attention can also be significant factors in the use of archival records. The use context, either of a user's individual purposes or collectively created by social attention, will determine how the user symbolizes the meanings of records. Ketelaar describes that a record "merely echoes what the researcher whispers, it only tells what the researcher wants the document to tell him or her" (2001, 138-9).

Documenting activities happening in political context, social and organizational norms, historical consciousness and other external aspects regarding the use of archival resources provides a background against which the archivist can understand his or her function in terms of how their collections contribute to the history and memory of a past event. Thus, knowing in what context people remember or forget and how that context affects archival uses will help archivists realize the influence of archival decisions, supplement archivists' tasks from plural perspectives, and create better instruments for operationalizing records and archives.

The fact that the varying nature of records depends on the eye of the beholders can be especially critical for the digital preservation of records. In digitization, which creates multiple forms of a record, one of

the crucial processes is to establish what significant properties, or essential elements, of records should be represented because what constitutes significant properties defines the identity of digital records (Yeo 2010). The significant properties are not assigned by a universally binding rule. To some, it would be important to secure the archival process of digitization so that the records are not altered by unauthorized modification as a way to keep the authenticity of the originality of a record. To others, it may be an important factor to capture a stable representation of the content in a record without losing layouts and appearances of the original content. To others, archiving the whole entity of a record, including an original version of the content as well as later versions and the editing history is crucial. Depending on different views and needs of stakeholders to consider the significant properties of records, focuses in digital preservation will differ. Yeo argues that ultimately what constitutes significant properties is dependent, firstly, on user community expectations. Often archivists and librarians are expected to have a firm notion about significant properties that are generally established in the information systems. This situation comes from "assumptions about professional competence; it is the editor, or the archivist, who decides what user communities will find 'significant'" (Yeo 2010, 102).

The problem with the traditional archival system is that it is hard for archivists to observe the user community and their expectations on using archival holdings. The traditional archival programs for arranging, describing, preserving and making records

available to users have been arguably successful in providing means to allow users to search and discover records. However, archives, without ever having a good method to track how archival use is really performed, have never made a deeper investigation into how archival materials are used, especially for the memory of a past event after records were used by users. Only a few studies have examined the influence of the use context on the users' research publications (Sinn 2010). Still less has been done to understand how users' context is related to archival memory of a past event.

The online environment enables archives to provide diverse virtual services for users. For some time, active approaches to providing information to their patrons (especially for historians) by utilizing digital and Web technology has been of interest to the archive community (Duff, Craig, & Cherry 2004). In fact, many archives, using newer technologies, have created powerful new ways for researchers to access archival holdings through digital projects and online exhibitions. On the Web, archival institutions are closer to the general public than ever before as they can be accessed through Web search engines (Hill 2004) and do not require physical proximity. Archives, in fact, witness virtual visitors from a variety of backgrounds for a wide range of purposes.

Especially, the newer technologies of Web 2.0 allow these users to interact with what they see to whom they meet on the Web. This aspect of interactivities creates a new digital culture of reciprocal exchanges where plural voices can express themselves and contribute within virtual communities. This culture,

on top of technological developments, transforms the user experiences of archives. Utilization of social networking services and some e-commercial features for providing reviews and ratings, online personal collections in digital libraries and archives, archives blogs, and social taggings are some of the newer attempts that archives have tried. These tools offer a great opportunity to document use contexts from users' vivid interactions and participations and to observe how digital archival objects help build memory. The whole new environment pushes archives and other memory institutions to engage in digital projects with their collections and explore the exciting possibility of building mechanisms to observe archival context in memory building.

The process of selecting what to digitize and how to provide access could broadly depend on the political/social interests and cultural dynamics. Digital platforms may strengthen, reinforce or help negate certain cultural memory and heritage. Considering the impact of the digital technology (such as speed and accessibility), the influence of digital archival collections can have more power than that of traditional collections. To the degree that it is more powerful, it should be more transparent in its making of archival decisions (Theimer 2011) and to accept plural voices to understand archival materials in the digital realm. Given the democratic nature of the Web where users easily express themselves, many archival services have already been changing from records-centric to users-centric protocols for their system on the Web (Theimer 2011). This facilitates more conversations and narratives among users.

Ensuring that access is integrated into plural dimensions of understanding the digital collections helps to open a broader window if archives are only a sliver of the window to the past. The formal and informal communication among users about archival holdings may show archivists how users change the static evidence in archival documents about the past into the lively interpretation from the present concerns. This digital technology and culture with users' interactivities can aid archivists to observe the inside conversations about less known, or marginalized traces of the past. As a whole, archives with digital collections and with Web space dedicated to users can create interactive narratives surrounding the collections (Reading 2003). In this sense, the Web has exciting potentials as a platform for memory.

4. Web 2.0 and Digital Memory

The phenomena of the Web 2.0 have been deeply diffused in the lives of contemporary people, and no exception is made for archivists and archives. Samouelian reports that among the 213 archives she reviewed, over 40% (85) of archives host a digital collection, and of these 85 archives, a surprising 38 (45%) employ a Web 2.0 application (2009, 57-8). The most common motivations for applying social media technologies were communicating with their users and promoting previously inaccessible or little known collections (Samouelian 2009; Whittaker and Thomas 2009). Also, there are a growing number of blogs devoted to the theme of archives and archival

studies. Those blogs are usually created and maintained by archivists, students and scholars who study the archival field, or by archival institutions in order to share thoughts on archival issues or to advertise institutional events and services and to connect to their users. Still, many archivists are suspicious about the usefulness of Web 2.0 technologies for the serious purposes of archives (Whittaker and Thomas 2009), and doubtful about the changes that it might bring, including negative effects on services for the scholarly research community. However, the potential of the technology from a different perspective of broadening their service populations and service boundaries has now become more recognized among archival institutions.

The most prominent characteristic of the Web 2.0 is communication and collaboration among users. People create collective knowledge through sharing ideas. Massive numbers of users externalize their personal/community knowledge in various forms of Web services. McIver (2007) observes that the externalization of personal knowledge generates a dependency on community contexts for deriving new knowledge. Standard representation in the form of Web markup languages, such as XHTML or XML, and Internet protocols particularly enable new individual knowledge to be shared among different platforms easily. With strong dependency on community members, networked and shared knowledge becomes "normative within the domain of life-critical knowledge creation process, such as those necessary for education, health care, and emergency response" (McIver 2007, 14). Collective intelligence has long

been one of the pillars of Web 2.0. O'Reilly states, "turning the [W]eb into a kind of global brain, the blogosphere is the equivalent of constant mental chatter in the forebrain, the voice we hear in all of our heads" (O'Reilly 2007, 26). Archives have not yet fully tapped into the collective knowledge produced by sustaining end users. No doubt, however, in the context of the landscape of user expectations concerning media access, Web tools will become normative in the domain of the storage of history and memory, and at that point archives may be able to leverage their position on the Internet to become the central locus for the collective memory of the past in its new stage. The whole conversation surrounding digital collections could become a collective narrative of archival records that people rely on for memory and history.

4.1 Blogs

Blogs are often seen as exemplary of the opportunities opened up by Web 2.0 technology, since they provide a space where users could create their own contents and make them available on a literally global scale. The individuals can initiate content-based conversations with other individuals on the Web. Interactive exchanges between content creators and the general public are easily observed, leading to transformations of the speed with which collective knowledge/memory can be built. Kim, Lee, and Han (2009) examined comments on blog posts to understand the communicative qualities that govern how people interact with one another. They analyzed

memory sharing activities of the commenters according to properties that constitute the dynamic axis of collective memory: content from personal experience in the past or recollection of memories; openness for the memory to be shared; triggers for reminiscing memories; sympathy that motivates people to interact; and interaction through which a collective memory is formed between people. They found that large amount of content in blog posts and comments belongs to not only sharing their particular memories but also supplement the original entries with their own contents. Their findings show how personal memory can be amplified to a collective memory in the blog space.

Archival institutions are also active bloggers. The U.S. National Archives and Records Administration (hereafter NARA) maintains blogs to communicate with Web users about their documents since early 2011. *Today's Document*, one of the blogs it maintains, is intended "to highlight interesting documents in our holdings – both the well-known and the obscure – and to observe historical events (usually the significant events but sometimes just the curious ones)" (The NARA). The blog connects with users and creates an online community of users and archivists, mediated by a shared concern with the use and dissemination of documents. The format of blog, an entry each time (like journal writing), supports storytelling and initiating a narrative. The NARA's *Today's Document* posts a digital image of a document in each entry with a short narrative about the document. With a story related to a document, readers can contribute to the post from various perspectives.

Storytelling forms an context of sentiments that operates to create sympathy, stimulating to reminiscence from the small trigger of the story. Sympathy builds on itself as more stories are shared by other readers. This format is a fascinating approach to digital collections, a very different method of providing information from that of typical digital archival collections with their standardized descriptive metadata. How the stories grow around a given document is interesting to watch on many levels. As blogs create virtual communities, this atmosphere invites people to participate and to raise communal discourses on various issues and concerns surrounding archival holdings.

This blog soon moved to Tumblr (<http://todaysdocument.tumblr.com>), a popular blog site in April 2011. In that transition, the blog moved out from under the huge institution's Web site to where Web users already are. Tumblr reports to have more than forty-two million blogs and a total of sixteen billion posts as of January 2012 (Tumblr "About us"). This service allows bloggers to reblog (re-post a same entry from another blog) posts from Today's Document. This dissemination means that, theoretically, the stories begun in one blog can ramify in others, with their own contexts and stories. The way Tumblr is set up shifts the locus of information from the central information site to the users' own sites, allowing the blogger and their commentors to unfold new stories that can be easily tracked from the original post, and that persist on the Internet as long as they are accessible to further searches. The NARA brings up a document on the blog in

a manner sensitive to social commemorations. For instance, the American Cancer Society marked its 36th Great American Smokeout on November 17, 2011, and that day the NARA uploaded a poster of "No smoking means everybody!" (<Figure 1>). Many users in Tumblr reblog and/or comment on the post with this poster.

"I remember my dad smoking when I was very young and then not smoking. I was far too young at the time to understand how difficult quitting can be. But like so many youth, I tried cigarettes and LOVED them. Cutting back was easy, but quitting altogether took me years." (msboosh)

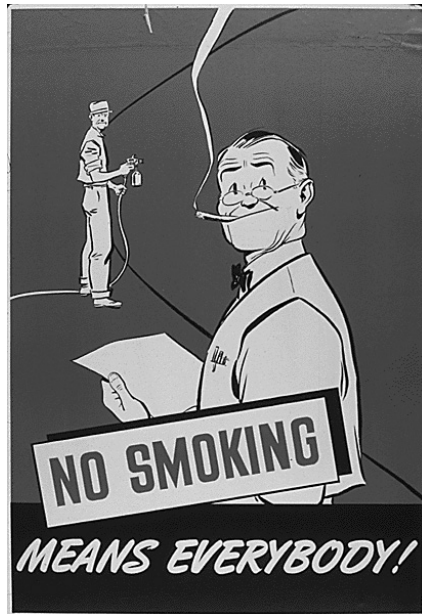
"Stay positive, quitters! And if you're on campus today, there's this: *Tabling and Info about quitting smoking and Augsburg smoke-free campus taskforce information 12:00pm to 2:00pm, Christensen Center*" (Augsburg College)

"How about instead we have a No Fascism Day where everybody does what the fuck they want without getting hassled? Cos, you know, that would be nice too." (hey--rube)

"I've had one cigarette in four days!!!" (djskevop)

"this should be every day!!" (wellynx)

There are conversations on smoking and quitting, the Smokeout day, and other stories by users for this post which bring out the different focuses that an apparently simple message conceals. The con-



〈Figure 1〉 A poster on Today's Document on November 17, 2012:
No smoking means everybody!¹⁾

versation then ranges from personal stories to institutional event advertisement to critique to a narrative how it can be linked to the further propaganda against coopting social ideology. The comments users make with their personal experience of the content commemorated by the event (“no smoking”) document the larger effect that the document itself is part of which creates a living context in which the document’s historic purpose is reawakened and responded to. The fact that this particular poster was posted on the day for “smoke-out” operates as a trigger for a particular form of storytelling, or a step in memory building. By observing users’ activities in this system, archivists can see what fills the fluid space between

what is presented in a record (no smoking message) and what the contents in the record signify across a range of users (how they respond to it or what they use this document for). The intellectual transaction between records and users under the specific circumstances that users have may suggest other contexts for displaying or grouping archival materials, or at least imply what use-context leads to such transactions. The awareness of the space between the record and users’ understanding of the record further reawakens archivists about different roles (or affordance) of records in providing documentary evidence (or a conceptual lens) of an event.

1) <http://todaysdocument.tumblr.com/post/12927460007/no-smoking-means-everybody-november-17-today>.

4.2 User Annotations

A user comment (annotation) system is another means by which user participation can be solicited. As blog comments add value to the blog posts, annotations, widely available in e-commerce, allow people other than original content authors to add descriptions and to enrich the content (Shabajee & Miller 2002). Traditional archival systems have presented top down view of collections usually from organizational hierarchy through archival finding aids. Typical archival descriptions reflect a singular view of the archivist of the collection. Light and Hyry state that archivists are “active agents in creating very specific views of historical reality” (2002, 219) because archivists’ decisions during the processing of a collection are influenced by their own knowledge, standpoint, background, and culture. Given the situation that archival systems of description do not support plural dimensions in understanding the collection, Light and Hyry propose that annotations can allow multiple voices to express various perspectives in understanding the collection. Especially in Web-based systems, annotations allow “group members [to] create and share commentary about documents” and also allow “documents to grow, respond, and increase in value for a community of users” (226).

Any system that incorporates annotations will want to invite more users to participate. Theoretically, this will help other users understand archival objects and can well bring to the fore factual information that would fill the gap between the archivist’s view of the object and the researcher’s. The lack (or flourish-

ing amount) of user comments may also suggest certain insights to the original contents. As Samouelian (2009) reports, some archives incorporate the annotation system for their digital collections in the hope of gaining descriptive information from users’ comments for materials with little or no description. Sometimes researchers having specialized knowledge can provide information about materials or basic knowledge on the larger event that the materials were created to document. Through the additional value that users contribute (including personal memories, their own research and newly discovered information), diverse viewpoints about the collection and various approaches to understand the event can be documented. This method can operate as a parameter for archivists seeking to organize materials in ways that help the users to contextualize them and see them in a larger history.

Yad Vashem Archives, the Holocaust Martyrs' and Heroes' Remembrance Authority (<http://www.yadvashem.org>), is one example of the development of applications for providing space for users to share their knowledge and memory. This archives utilizes various social media applications, such as podcasts, Facebook pages, and blogs. In addition to the usual motivations for using such applications to promote the collections and increase the awareness of the Holocaust, this institution uses the Web as an important platform to gather more information for their database of victims. By this means, it collects victims’ names and biographical details for those who still remain unidentified. Also, Yad Vashem Museum collects and makes available objects from survivors on

the Web, including artifacts, testimonies (text as well as video), photographs, diaries and letters, documents, and other materials from Holocaust survivors. The newer technology also offers a convenient tool for visitors of the museum Website to communicate with the information. There is a photo collection, titled "*Auschwitz, Poland, Identification snapshots of prisoners and family photographs that were found in the camp after its liberation.*" The collection bears witness to a good amount of communications coming from users. Most of comments were complaints that the collection title could mislead users as the title comes from contemporary geographic information, mashed up with a Google Map for Auschwitz, Poland. How readers would perceive this description was the major issue that triggered commentors' own stories of prejudice against the Poles or their own painful family experience in Poland. The comments includes:

"If this is museum, and museum published and share this photos, they should change description ASAP. Please read this document: <http://whc.unesco.org/en/news/363>" (mariusztatara)

"1) Facts: Auschwitz (German: Konzentrationslager Auschwitz) was a network of concentration and extermination camps built and operated in Polish areas annexed by Nazi Germany during the Second World War. [...] At the beginning of World War II, nearly a quarter[1] of the pre-war Polish areas were annexed by Nazi Germany and placed under German civil administration. The annexation was part of the "fourth" partition of Poland by Nazi Germany and the Soviet Union, outlined

months before in the Molotov-Ribbentrop Pact. 2) As you rightly demand sensitiv[ity] and respect of your plight, be equally sensitive to feelings of others. So do not be surprised that the reference to "polish concentration camps" or "Auschwitz, Poland" causes strong reactions. What I am suprised by is that such a well researched, organized and run Museum makes such a "mistake". Because you don't know? Well, that's not possible really, right? The whole story is about knowing and remembering. So what is it? 3) I have visited Yad Vashem. It is powerful, overwhelming, important. Even for someone, like me, who knew, learned, understood. Many others did too - the garden of stones of the Righteous confirms that. And this list http://www1.yadvashem.org/yv/en/righteous/pdf/virtial_wall/poland.pdftoo. 4) Correct your mistake. Respectfully, jws" (unknown).

"I look at these people and my heart breaks with every picture. After all these years most of them are still "numbers" !!! Thanks for publishing this album. I hope THEY will receive their names back. I'm teaching my children about this cruel war, about Nazis, about Auschwitz and hope THIS will never happen again. Please change the description... Once I was talking to Englishman (he was about 24 at tah time) and he thought that Hitler was polish !!! This kind of misleading de[s]criptions might cause this" (balonio).

"I do wonder where you find these "Polish students". I am a Polish citizen whose (Polish)

grandfather was a prisoner in Auschwitz and Mauthausen where he died. My generation (I was born in 1962) grew up reading about the Holocaust, watching documentaries, living the painful legacy in families whose members perished in the war. I do not know about Canada, but here in Poland you would have to be deaf and blind to be ignorant about the Holocaust. The sweeping generalization you are making is as unjust as it is harmful and misleading. If you educate the young, please consider a more balanced, objective approach” (Sonrisa Sonrisa). [*This comment was a response to the following comment by capthompson.*]

“Even today some of my Polish students have such a hatred for Jews. They do not believe Dr. Viktor Frankl's book recording survival methods while at Auschwitz. Some even refer to Auschwitz prisoners as "criminals". I always end this unit by showing the documentary "Night and Fog", which has caused some to change their minds inasmuch as it contains German documented proof of the horrors against the Jews at Auschwitz” (capthompson). (Yad Vashem Photo Archive n.d.)

The emotions that are triggered by vestiges of the enormous crimes of the past and sympathy for the suffering of the victims bring up memories. This example shows people perceiving in real time a particular collection and reacting to its apparently neutral label, and in so doing expanding the frame of reference of the events that it reflects.

Using digital platforms and networked environments have proven effective and useful in storing memory of events. The *September 11 Digital Archive* (<http://911digitalarchive.org>) offers a virtual space where the representation of the event and its memory are preserved together using electronic media. This archive collects stories of the event, published or unpublished. The storytellers include those who had personal first hand experience of the events, those whose stories report their secondary witness to the event, site visitors, and visitors to related exhibitions on the September 11 event in museums and other institutions. This archive preserves stories and other media that carry stories, such as photographs, emails, cell phone messages, official papers, engineering reports, etc (Pymm 2010). This archive literally preserves the event as it is formed in the “memory” of people. This is an interesting example of how digital technology enables and promotes the collection of individual memories that represent the lived experience of a historical event.

Another famous collection in this aspect is the University of Michigan's Polar Bear Expedition Digital Collections (<http://polarbears.si.mich.edu>), which is a landmark example of rethinking traditional archival finding aids to provide better access to primary sources on the Web (Palmer 2009). Finding aids are interactively constructed with hyperlinks to various resources from a glossary of archival terminology to other related items and collections. By employing interactive Web applications such as bookmarking, user-generated comments, user profiles and a recommendation system, the digital collec-

tions enhance not only the discovery capacity and accessibility of materials but also collectively sharing stories among users (Krause and Yakel 2007). Users do employ these tools to contribute to the collections and their descriptions with their own information. In a comment on the personal diary of Edwin L. Arkins in the diary collection, a user writes: “It doesn't mention it here, but Arkins is buried in the White Chapel Cemet[a]ry in Troy, MI. I have a picture of his head stone. Is that something I can contribute to this site?”²⁾ Another comment shows a user's amazement about the life of a person in this collection: “The Frank Douma Diary is just awesome. It is amazing that with everything going on, he was able to maintain a diary. His account really gives you a taste of what life was like for the 339th!”³⁾ Bastian points out that with functionalities of the newer technology, this project allows “users to add their memories, and thereby add to the collective memory of this World War I event” (2009, 131).

4.3 Wiki Technology

Wiki technology also provides an immediate platform for group collaboration. A wiki is “a Web platform for an online collaborative workspace, creating a group of text documents in a loose database format” (Whittaker and Thompson 2009, 45). Users are able to jointly create and edit a Web document (a wiki

document) and to collectively build contents. This technology shows the changes in the document in real-time, logging the names of the editor/authors and what they changed. Adopting wiki technology in archival institutions has been mainly for internal purposes. Whittaker and Thomas (2009) report that among the institutions they surveyed, 40% of them use wikis, mainly for internal institutional work, such as professional committee work, internal documentation or collection development. Public project was listed a minor purpose.

The National Archives of the UK (hereafter, TNA) maintained a wiki site, *Your Archives*.⁴⁾ The driving force behind the wiki came from the realization that it would give with knowledge about TNA's records the capacity to improve catalogues (Grannum 2011). The wiki, *Your Archives*, has been quantitatively successful: on December 2011, TNA announced that “over 31,000 people have registered and contributed or updated articles, there are over 21,000 articles and there have been almost 260,000 page edits, there have been over 6 million visits to the site with more than 50 million page views” (Your Archives, n.d.). Their experience with the wiki has been judged positively in terms of users' adding further value to archival descriptions. TNA decided to develop a new catalogue system that incorporates users' annotations and tags seamlessly in a single platform, instead of maintaining a separate wiki site (Your Archives, n.d.).

2) http://polarbears.si.umich.edu/index.pl?node=Edwin%20L.%20Arkins%20diary&lastnode_id=356.

3) http://polarbears.si.umich.edu/index.pl?node=Frank%20W.%20Douma%20diary&lastnode_id=356.

4) http://yourarchives.nationalarchives.gov.uk/index.php?title=Home_page. TNA decided to stop this service as they intend to incorporate data from this wiki seamlessly into their new catalog system. The content of this wiki is accessible as of January 2012, but they do not allow new user registration.

The advantage of user participations on wiki can go beyond the description enhancement. Whittaker and Thomas (2009) suggest additional usefulness of wikis, stating:

Although they are indeed useful, we need not limit ourselves to internal, private wikis documenting departmental practice. On the read-write web, successful digital projects now may involve users in the content creation process. Digital versions of our public domain materials, with metadata provided in a publicly editable wiki, can keep our collections visible in the public memory, encouraging the public to participate in their creation, upkeep, and documentation (Whittaker and Thomas 2009, 54).

Through wiki technology, it is possible to document how people change content according to various factors, such as their understanding, social interests, new information, commemorative activities, etc. The editing history mirrors the evolution of a narrative, and this is encoded in the trace left by the wiki technology - in a sense, preserving the story of how a memory is changed over time.

In many public libraries, wiki documents have been created for similar purposes of enhancing the contents by working cooperatively to compile resources, such as subject guides or local history

resources.⁵⁾ The importance of locality in public libraries often leads to further projects with community users, as for instance in the *Our Brant* project, being implemented by the County of Brant Public Library (http://ourbrant.wikia.com/wiki/Our_Brant), Ontario, Canada. This project uses a wiki to permit people to express memories of locales and local events. Users can submit their memories of growing up or to share their stories about the places and people they know on a wiki. As of January 2012, there are 707 wiki pages and 729 photos that users and librarians all together have contributed. The users are mainly local historians, genealogists, and others interested in the history of the County of Brant, in addition to librarians who are doing the oral history project for which they interview local people and share the transcripts of the interviews on the wiki. Their goals are “to provide an appropriate location for people from the County to document the area’s history as they personally understood it” (De Meo 2010). Our Brant Wiki project is one of the earlier attempts to document memories on popular anecdotes of local people, life stories, family histories, and profiles of notable local residents, buildings, and organizations, instead of hard historical facts and records, through Web 2.0 applications (De Meo 2010, 201). By tapping into the tacit knowledge of the locality in the experience of those who live there,

5) For example, St. Joseph County Public Library (<http://sjcpl.lib.in.us/>) in South Bend, IN, provides subject guides using wiki documents. Librarians cooperatively create documents for resources. In a case for local and genealogical research in this library, librarians and library staff in Local and Family History Services prepare various levels of documents from how to use their services, to resources for genealogical research, to how to find birth families or living persons. The Local History wiki pages is accessed January 31, 2012 from http://sjcpl.lib.in.us/subjectguides/index.php/Local_History.

libraries and archives are able to become true sites of memory, generating documents that witness to the structure and dynamic of community identity.

4.4 Microblogs

If the collective documentation of individuals' messages can be meaningful to archives, microblogging deserves more attention in this perspective. Microblogging is a networking tool in which users broadcast short messages of interest to others in their particular community of interests. Messages are published instantly and people can receive messages in real-time. Due to the nature of immediate distribution of messages, this social networking service amplifies the aspect of how the Web captures what topics people talk about at any moment. Twitter (<http://twitter.com>), a popular microblogging service, has become known as a place where users can "share and discover what's happening right now, anywhere in the world" and view "popular topics by the minute, day, and week" (Twitter "Front page"). Literally, the real-time messaging service glimpses what contemporary people are feeling, doing and seeing, so the popular topics represent current community trends. Twitter delivers messages to the public minute-to-minute, and it can diffuse information to wide range of people with incredible speed. For the recent events of the Egyptian and Libyan uprisings in 2011 against two long-lasting dictatorships, Twitter and Facebook were two of the major heralds that informed the world about what was really happening from the grassroots' point of view. In fact, Twitter reports

that among the top ten popular trending topics in tweets for the World Event/News category for the first half of 2011, Egypt and Lybia related topics were ranked highly and multiple times: the second most popular topic was "Mubarak – former Egyptian President"; the fourth was "Cairo – capital of Egypt"; the seventh was "Libya – site of an ongoing civil war"; and the tenth was "Gadafi – Libyan political leader" (Twitter Blog 2011).

The contents in tweets reflect what people literally are talking about. People are getting and sharing information (individual messages as well as formal information such as news around the world) through these informal tools, and the more people discuss a story, the wider and quicker the story gets distributed and the more weight it acquires as 'news' - its news value is literally quantified. Google or other search engines may take a few days to index the instant messages, and this does not suffice for the demands of users who want to know the most popular topics by the minute. Now newer technology is being developed for real-time search engines such as Tweetmeme (<http://tweetmeme.com>) that enable microblogging messages to be searched in real-time. Thompson (2009) states that these new generation search engines try to "redefine what makes a piece of information important" since the terms being searched most also signify the most popular topics at the very moment. The instantaneous nature of creating messages and the functionality to display the most talked about topics and the most searched topics can show what catches contemporary people's interests without filtering.

This value of microblogs that document unfiltered discussions of a contemporary society has begun to be recognized as a resource for scholastic research. The Library of Congress (hereafter LC) announced that they will archive public messages of Twitter (Raymond 2010). In this press announcement, the Librarian of Congress, James Billington, states "the collection also documents a remarkable range of social trends. Anyone who wants to understand how an ever-broadening public is using social media to engage in an ongoing debate regarding social and cultural issues will have need of this material," reflecting the Library's concern for its mandate to document social culture. Some researchers in the information studies field have also tried to find the necessity capacities in repositories to maintain a microblog aggregate (Chao 2011), while others recognize the benefits of microblogging for cultural heritage institutions (Theimer 2010).

Cultural institutions use Twitter in order to disseminate messages to and communicate with interested people minute-to-minute. Direct connections with users are a helpful tool to deliver announcements of archival institutions: for example, sudden decisions of archives closing due to inclement weather or quick notices for construction information, etc. On the other side of Twitter, users often include links to blog entries and news articles or other short Web information in their tweets, bringing together an opinion and information on them. The news or other information on the Web could bring more users (followers of tweets) back to the Web pages where original contents stay. Archival institutions can use

this utilization to allow (and encourage) their users to tweet about some pertinent piece of information the archives provide. They may observe those tweets would bring other Twitter users back to archival Web site they are hosting (Theimer 2010). But this outline of Twitter does not embrace its actual potential: considering the characteristics of Twitter (immediate delivery of messages and direct comments on messages), it holds out the possibility of recording visceral reactions to archival artifacts and services. Twitter may be limited to thin discourses, in that the instantaneous nature of this type of communication may habituate users to respond immediately instead of thinking deeply and reflectively. This may mean casual responses and unfiltered communication from users, which create more responses. Quantity can be equivalently meaningful as quality when we consider collectivity in preserving memory. Archivists will have a realistic sense of how archival holdings appear to end users from users' immediate responses in identifying social and communal discussions about a historical event or a particular archival document.

4.5 Social Tags

Social tags are terms that the Web users assign to a certain information package for their own purpose to retrieve later. The major motivation for tagging is for an individual user's own benefit, as Hammond et al. call it: "selfish tagging" (Hammond et al. 2005). Collectively, however, tags represent a larger consensus about the subject matter of an information package and function relatively effectively as a dis-

covery tool. The accurateness or consistency of tags as indexing terms may be doubtful, as tags are composed of the natural languages users use and include large amount of meta-noise (Guy and Tonkin 2006). Yet their familiarity and ease of use encourage users to participate and contribute, and this aspect has made this tool a successful device with large amount of data useful not only for taggers themselves but also other Web users.

Since tags are assigned by users from their own purposes, tags may present users' viewpoints about the resource that tags are assigned for. The activity of providing several simple keywords to a resource is the way that users express what they see as its important features as well as how they will use it later. In fact, some tags that are good only for a particular user's specific situation as "toread" or "wishlist" are popular tags in Delicious, a social bookmarking site. Given this user-centric, indeed user-generated, classifying system, the archivist is given a look into the purposes of and reason for the usage of archival holdings in an archival setting by the searchers within that setting. The tags display a diverse viewpoint about the materials, in distinction from the official viewpoint. From a comparative study conducted by Matusiak (2006) for two levels of indexing digital collections, traditional cataloging methods and social tagging, she found the tags in Flickr "emerges organically and reflects individual user perceptions, observations, and impressions" and allows users to express "the world in which they see it" (Matusiak 2006, 294). Thus, beyond a supplementary discovery tool to retrieve information which can make

access to materials more intuitive to users, tags can be a window to peek how users understand the materials they tag for. How users' input will organically grow over time also shows the dynamics of collective understanding of the materials.

Cultural institutions have explored online photo-sharing sites as a way to reach out to the public and to promote their collections. The LC, the NARA, several Smithsonian Museums, and other cultural institutions have created Commons at Flickr (<http://www.flickr.com/commons/>). The Flickr Commons are a space for exhibitions of images to promote "hidden treasures in the world's public photography archives" and to observe how Flickr users' "input and knowledge can help make these collections even richer" (Flickr, n.d.). Flickr uses tags for organizing images, and they see the value of users' tags in enriching knowledge about images. As of January 2012, there are 56 cultural institutions from a number of nations, having its Commons at Flickr. This approach to use a social media to promote cultural collections turn out to be successful. The LC reports that a large number of users viewed their images on Flickr or marked them as favorite, and they also had more visitors to LC's Web after sharing digital contents on Flickr (Springer et al. 2008). However, the measurement of success does not include any qualitative parameter regarding LC's influence on people's understanding of cultural documents and the awareness of historical events.

The LC analyzed the tags for their digital images and categorizes them by attributes. They found a significant amount of tags belong to the categories

of the tagger's perceptions and knowledge, such as "commentary (revealing the tagger's value judgments)," "emotional and aesthetic responses (personal reactions of the tagger)," and "personal knowledge/research (tags that could only have been added based on knowledge or research by the tagger, and that could not have been gleaned solely from the description provided or examination of the photo)." While the overwhelming majority of tags simply copy LC's descriptions and are immediate descriptive terms of images (79% in one collection and 49% in another), the tags that express taggers' specific knowledge and context occupy a significant portion (more than 10% and 14% respectively) (Springer et al. 2008, 19-22). Thus, closer investigation of these tags that display taggers' understanding and context could show the deeper layers of response to the images by the viewers. As Cook (2000) mentioned, every form of narration contains positions that organize the narrator's subjectivity and the social and organizational norms engaged in the events narrated. It may be limited, but even a single social tag can imply the tagger's subjective position vis a vis the image. This information can be interpreted for usages of the resources that go beyond the denotative norms of its usual classification within the archival organization.

5. Conclusion

The features of social media applications make a particularly valuable online platform for archives, for they allow users to choose to connect to one

another, share their knowledge, sympathy, and emotions together, and contribute their contents and opinions to original resources. The democratic features in Web 2.0 and the digital culture of communication and participation can assist archives in observing the unfolding of the process by which the traces of the past become social memory and allows archives to shape themselves as spaces for the free activation of social memory. Any form of user narration, whether elaborated in lengthy comments or encoded in brief tags, can display certain perspectives about motives for searching archival materials, values and priorities put on documents and images of the past, how they are interpreted by different constituencies, and generally how they look at the past activity represented by the trace stored in the archive.

As the postmodern perspective values interpretation as much as artifacts, narratives and accounts about records can be something archives consider for preservation as well. The decisions that go into the design of digital projects in archives reflect a mixture of interests, from that of the archival institutions to that of the scholarly community to that of the society at large, or at least cultures within it. However, as archival collections go online, the constituency of users expands to ordinary people who will view, interpret and interact with digital archives. Thus, by observing what people do with what archives have to offer, archivists will be able to reassess their collections and services and to rethink about archival decisions on selecting, representing, and offering their information to users. In this process, whether or not users recognize their contribution,

they are “being-in-history” (Healy 1997, 4) and constructing a variety of memories of the past in the digital realm.

Memory that forms the basis of community identification and controversy, connotation and emotion, requires a different type of search and reception experience from history that is often a leaner research process based on facts and evidence. The culture and system provisions of the Web 2.0 technologies, by enabling archivists to read users’ remarks and discussions about the holdings they are researching, give unprecedented opportunities to archivists as it makes its way as a resource for social memory beyond the older paradigm of providing “information” or “evidence.” The ultimate goal in this respect is to change archives and their services from a static to a dynamic resource, and from a resource that is created in a top down way by professionals to one that is

more collaborative and organized from bottom up approaches that can be used by the entire archival constituency.

Contemporary archivists should think about the transmittal history of documentary heritage because this may be the key to witness memory. If archivists wish to reposition themselves amidst the vivid interactions that make for the collective experience of historical events, it is important for archivists to correctly observe how the past is connected to the present, what makes such connections, how the past is documented, how the documentation is perceived, and what such documents suggest for an event. Such understanding helps them rethink the role of archives as institutions that a society delegates the responsibility of remembering the past, and how this role can be further supported through innovative technologies in the digital world.

References

- Bastian, Jeannet A. 2009. “Flowers for Homestead: A Case Study in Archives and Collective Memory.” *American Archivist*, 72: 113-132.
- Brothman, Brien. 2001. “The Past that Archives Keep: Memory, History, and the Preservation of Archival Records.” *Archivaria*, 51: 48-80.
- Chao, Tiffany C. 2011. Data Repositories: A Home for Microblog Archives? Proceedings for the 2011 iConference (Poster presentation). [cited 2012.5.18].
- Cook, Terry. 2000. “Archival Science and Postmodernism: New Formulations for Old Concepts.” *Archival Science*, 1(1): 3-24.
- Cook, Terry and Joan M. Schwartz. 2002. “Archives, Records, and Power: from (Postmodern) Theory to (Archival) Performance.” *Archival Science*, 2(3-4): 171-185.
- De Meo, Misty. 2010. “The Caprons of Paris: A

- Digitization Project in a Small Library System.” In Ng, K.B. and Kucsma, J. (Ed.), *Digitization in the Real World: Lessons Learned from Small and Medium-sized Digitization Projects* (pp. 195-222). New York: Metropolitan New York Library Council.
- Delicious. “Explore everyone’s tags.” [cited 2011.9.11]. <www.delicious.com/tag>.
- Duff, Wendy, Barbara Craig, and Joan Cherry. 2004. “Historians’ Use of Archival Sources: Promises and Pitfalls of the Digital Age.” *Public History*, 26(2): 7-22.
- Flicker. “The Commons.” [cited 2012.5.18]. <www.flickr.com>.
- Grannum, Guy. 2011. “Harnessing User Knowledge: The National Archives’ *Your Archives* Wiki.” In K. Theimer (Ed.) *A Different Kind of Web* (pp.116-127). IL: Society of American Archivist.
- Greene, Mark A. 2002. “The Power of Meaning: the Archival Mission in the Postmodern Age.” *American Archivist*, 65: 42-55.
- Guy, Marieke and Emma Tonkin. 2006. “Folksonomies: Tidying-up Tags?” *D-Lib Magazine*, 12(1). [cited 2012.5.18]. <www.dlib.org/dlib/january06/guy/01guy.html>.
- Halbwachs, Maurice. 1992. *On Collective Memory*. IL: University of Chicago Press.
- Hammond, Tony, Timo Hannay, Ben Lund, and Joanna Scott. 2005. “Social Bookmarking Tools (I): A General Review.” *D-Lib Magazine*, 11(4). [cited 2012.5.18]. <www.dlib.org/dlib/april05/hammond/04hammond.html>.
- Harris, Verne. 2001. “*Seeing (in) Blindness: South Africa, Archives and Passion for Justice*.” Paper presented at the annual conference of Archives and Records Association of New Zealand, Wellington, NZ. [cited 2012.5.18]. <<http://caldeson.com/old-site/RIMOS/harris01.html>>.
- Harris, Verne. 2002. “The Archival Sliver: Power, Memory, and Archives in South Africa.” *Archival Science*, 2(1-2): 63-86.
- Healy, Chris. 1997. *From the Ruins of Colonialism: History as Social Memory, Studies in Australian History*. Melbourne: Cambridge University Press.
- Hutton, Patrick H. 1993. *History as an Art of Memory*. NH: University of Vermont.
- Ketelaar, Eric. 2001. “Tacit Narratives: The Meanings of Archives.” *Archival Science*, 1: 131-141.
- Kim, Young Sik, Kibeom Lee, and Steve SangKi Han. 2009. “Study on Collective Memory in the Blogosphere.” *IEEE International Conference on Social Computing (SocialCom09), Symposium on Social Computing Applications*, 759-764.
- Krause, Margia G. and Elizabeth Yakel. 2007. “Interaction in Virtual Archives: The Polar Bear Expedition Digital Collections Next Generation Finding Aid.” *American Archivist*, 70: 282-314.
- Le Goff, Jacques. 1992. *History and Memory*. NY: Columbia University Press.
- Light, Michelle and Tom Hyry. 2002. “Colophons and Annotations: New Directions for the Finding

- Aid." *American Archivist*, 65: 216-230.
- Matusiak, Krystyna. 2006. "Towards User-centered Indexing in Digital Image Collections." *OCLC Systems & Services: International digital library perspectives*, 22(4): 283-298.
- McIver, William Jr. 2007. "Knowledge Creation and Collective Memory in the Era of Web 2.0 and Network Non-neutrality." Published through the Community Informatics Research Network (CIRN). [cited 2012.5.18].
<<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.89.8673&rep=rep1&type=pdf>>.
- Meehan, Jennifer. 2009. "The Archival Nexus: Rethinking the Interplay of Archival Ideas about the Nature, Value, and Use of Records." *Archival Science*, 9: 157-164.
- Menne-Haritz, Angelika. 2001. "Access - The Reformulation of an Archival Paradigm." *Archival Science*, 1: 57-82.
- Nora, Pierre. 1989. "Between Memory and History: Les Lieux de Memoire." *Representations*, 26: 7-24.
- O'Reilly, Tim. 2007. "What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software." *Communications & Strategies*, 65(1): 17-37.
- Palmer, Joy. 2009. "Archives 2.0: If We Build It, Will They Come?" *Ariadne*, 60. [cited 2012.6.20].
<<http://www.ariadne.ac.uk/issue60/palmer/>>.
- Pymm, Bob. 2010. "Archives and Web 2.0: The Examples of the September 11 Digital Archive." *Archives and Manuscripts*, 38(1): 13-26.
- Raymond, Matt. 2010. "Twitter Donates Entire Tweet Archive to Library of Congress." Library of Congress. [cited 2012.5.18].
<<http://www.loc.gov/today/pr/2010/10-081.html>>.
- Reading, Anna. 2003. "Digital Interactivity in Public Memory Institutions: The Use of New Technologies in Holocaust Museums." *Media, Culture & Society*, 25: 67-85.
- Samouelian, Mary. 2009. "Embracing Web 2.0: Archives and the Newest Generation of Web Applications." *American Archivist*, 72: 42-71.
- Shabajee, Paul and Libby Miller. 2002. "Adding Value to Large Multimedia Collections through Annotation Technologies and Tools: Serving Communities of Interest." *Museums and the Web 2002 Conference*. [cited 2012.5.18].
<<http://www.archimuse.com/mw2002/papers/shabajee/shabajee.html>>.
- Sinn, Donghee. 2010. "Room for Archives?: Use of Archival Materials in No Gun Ri Research." *Archival Science*, 10: 117-140.
- Springer, Michelle, Beth Dulabahn, Phil Michel, Barbara Natanson, David Reser, David Woodward, and Helena Zinkham. 2008. *For the Common Good: The Library of Congress Flickr Pilot Project*. Library of Congress, D.C. [cited 2012.5.18].
<http://www.loc.gov/rr/print/flickr_report_final.pdf>.
- The U.S. National Archives and Records Administration. "About Today's Document." [cited 2012.5.18]
<<http://blogs.archives.gov/todaysdocument/a>

- bout>.
- Theimer, Kate. 2010. *Web 2.0 Tools and Strategies for Archives and Local History Collections*. Neal-Schuman Publishers, NY.
- Theimer, Kate. 2011. "What is the Meaning of Archives 2.0?" *American Archivist*, 74: 58-68.
- Thelen, David. 1989. "Memory and American history." *Journal of American History*, 75: 1117-1129.
- Thompson, Clive. 2009. "How the Real-Time Web is Leaving Google Behind." *Wired Magazine*, 17(10). [cited 2012.5.18].
<http://www.wired.com/techbiz/people/magazine/17-10/st_thompson>.
- Trace, Ciaran. 2002. "What is Recorded is Never Simply 'What Happened': Recordkeeping in Modern Organizational Culture." *Archival Science*, 2(1-2): 137-159.
- Tumblr. "About Us." [cited 2012.1.29].
<<http://www.tumblr.com/about>>.
- Twitter Blog. 2011. "200 Million Tweets Per Day." June 2011. [cited 2012.5.18].
<<http://blog.twitter.com/2011/06/200-million-tweets-per-day.html>>.
- Twitter. "The Front Page." [cited 2012.2.13].
<www.twitter.com>.
- Wallot, Jean-Pierre. 1991. "Building a Living Memory for the History of Our Present: New Perspectives on Archival Appraisal." *Journal of Canadian Historical Association*, 2(1): 263-282.
- Whittaker, Beth M. and Lynne M. Thomas. 2009. *Special Collection 2.0*. Santa Barbara: Library Unlimited.
- Yad Vashem Photo Archive. *Auschwitz, Poland, Identification Snapshots of Prisoners and Family Photographs that were Found in the Camp After its Liberation*. User Comments on "Share Your Thoughts." [cited 2012.5.18].
<<http://collections.yadvashem.org/photosarchive/en-us/41668-container.html>>.
- Yeo, Geoffrey. 2007. "Concepts of Record (1): Evidence, Information, and Persistent Representations." *American Archivist*, 70(2): 315-343.
- Yeo, Geoffrey. 2010. "'Nothing is the Same as Something Else': Significant Properties and Notions of Identity and Originality." *Archival Science*, 10: 85-116.
- Your Archives. "Home Page: Important Announcement." [cited 2013.1.31].
<http://yourarchives.nationalarchives.gov.uk/index.php?title=Home_page>.