User Engagement with Digital Archives: A Case Study of Emblematica Online

Harriett E. Green, Mara Wade, Timothy Cole, and Myung-Ja Han

Introduction
Academic libraries have a long history of creating digital content, but there have been few investigations into the efficacy of digital collections for the user communities they were designed to assist. This paper presents the preliminary results of a user study for Emblematica Online, a digital humanities project currently supported by a National Endowment for the Humanities' grant to expand and enrich a digital archive of Renaissance emblem books from rare book collections around the world. Based on a preliminary analysis of how humanities scholars use Emblematica Online in research and teaching, this paper considers how humanities scholars increasingly are integrating digital resources into multiple aspects of their scholarly and pedagogical practices.

Background
User Studies of Digital Collections
User engagement is increasingly acknowledged to be critical to the value of digital collections: An Ithaka S+R and Association for Research Libraries report observes that libraries have not invested in user studies for digital collections and notes “As the web only continues to grow and provide many alternative information sources for those who seek them, developing robust strategies not just for ‘passive’ discovery but for ‘active’ outreach may be called for.”

Studies over the past three decades have examined various facets of humanists’ research practices and needs for digital collections, ranging from general research practices of building personal research archives to humanists’ use of e-texts to scholars’ influence on the curation of digital collections and their needs for working with digital resources. Norberg et al. argues that user interactions with digital collections is critically important factor in digital preservation and collection sustainability, arguing “For digital libraries with rich collections of cultural heritage information to retain their importance for generations to come, they must be user-centered.” The importance of scholars’ expertise in the development of digital collections is critical to this work and as Henry notes, “Without the guiding voice of scholars, the tremendous effort now being devoted to digitizing our cultural heritage could in fact impede, not facilitate, future research.” The role of scholars is increasingly important as digitization initiatives advance from static collections of scanned materials into complex research portals providing new and vitally valuable ways to interact with digitized texts, images, and media. Palmer argues that scholarly contributions are particularly important for highly focused thematic digital collections such as Emblematica Online, because as specialized digital collections are in content...
and structural design, the scholars “contribute important expertise in selection, collocation, interpretation, and integration of the sources they study.” Thus user survey and assessment is recognized as a critical factor in the development of digital collections.

**Background: Digital Early Modern Studies and Emblematica Online**

The need for scholarly involvement with the digitization of rare book and special collections is particularly notable: Gertz argues that users’ needs for digitized rare materials and the added value of digitizing content are critical considerations in determining how rare book collections should be digitized, noting:

> Scholars, high school students, and the general public utilize online content in different ways. How should content be presented to audiences both now and in the future? What discovery and navigation tools will be needed? … What supportive and interpretative information will accompany the content? … What will be gained that will make them worth more in digital form?

These are critical questions that guide strategic user engagement for digital collections and reinforce the importance of scholars’ input into the development of digital collections, input that has been a cornerstone to the development of the Emblematica Online project.

The Emblematica Online project (http://emblematica.library.illinois.edu) was first funded with a 2009 Bilateral Digital Humanities Grant from the U.S. National Endowment for the Humanities (NEH) and German Deutsche Forschungsgemeinschaft (DFG): The principal investigator was Mara Wade, emblem scholar and professor of Germanic Languages and Literatures at the University of Illinois, in partnership with the German principal investigator Thomas Stäcker of the Herzog August Bibliothek (HAB) Wolfenbüttel. Emblematica Online is now in a second phase of funding under a 2013 Humanities Collections and Reference Resources grant awarded to the University of Illinois from the NEH, with Wade continuing her in-depth collaboration with University of Illinois librarians Timothy Cole, Myung-Ja Han, and Harriett Green.

The primary goals for the second phase of Emblematica Online are to expand the archive of digitized emblem books in the OpenEmblem Portal, the web portal of Emblematica Online that provides a single point of access to the digital emblem collections; enrich the cataloging and indexing of content via book-level and emblem-level metadata; and conduct assessment of the OpenEmblem Portal. The content in the OpenEmblem Portal is drawn from the rare book collections at the University of Illinois at Urbana-Champaign, Herzog August Bibliothek Wolfenbüttel, Glasgow University, and University of Utrecht, with Duke University and the Getty Institute as content contributors, and at this stage, the OpenEmblem Portal contains approximately 1388 digitized emblem books from these institutional collections, and 23,420 individual digitized emblems. The in-depth collaboration between emblem scholars and librarians has been crucial to the success of Emblematica Online, and Cole et al. and Daly argue for the importance of librarian-scholar collaborations for digitizing emblems: Cole et al. argue, “Any assumption that the construction of digital libraries and digital library services can be left solely in the hands of librarians and technologists is naïve, at least in the domain of digitized Early Modern emblem literature.” This study for the second phase of Emblematica Online examines the needs and practices of Emblematica Online users, and by extension, the practices of humanities scholars as they engage in digital facsimiles of rare archival materials.

**Data and Methodology**

The study involves two stages of research protocol: The author conducted eight interviews during summer 2014 with scholars at the University of Illinois, the Herzog August Bibliothek Wolfenbüttel, and at the International Society for Emblem Studies triennial conference at the University of Kiel (see Appendix A). The interviews were transcribed and hand coded.
by the author and a project research assistant, and both researchers coded the transcriptions and jointly reviewed the coding for inter-coder reliability.

The second stage of the study consists of a series of observational user testing sessions with scholars and students. The user testing sessions were conducted by Green in the University of Illinois Library's usability lab, and the testing protocol implemented was developed from the interview data on how scholars used Emblematica Online (see Appendix B). The participants conducted a series of tasks using the OpenEmblem Portal within the Emblematica Online website on a computer with installed Morae software. The software solely recorded the on-screen movements of the participants’ navigation through the website and audio recordings also were captured of the participants' comments and responses to the investigator. The user testing sessions are still undergoing the process of coded analysis, but in a review of the recordings and preliminary transcriptions of the interviewees, the researchers identified early themes.

The analyzed interviews and preliminary results of the three user testing sessions conducted thus far reveal key insights into how humanities scholars integrate digital collections into their research workflows and how digital collections should be iteratively designed to meet scholarly needs.

Analysis Interviews

In this preliminary analysis of interviews with ten humanities scholars from multiple disciplines (see table 1), the responses revealed diverse current and potential uses of Emblematica Online in research and teaching. In particular, several themes emerged in our analysis of the interviews on the ways in which the digitized emblems are utilized in humanities scholars’ research and teaching.

Teaching

Many respondents noted that teaching was a critical area where they could use Emblematica Online to enhance teaching and learning in the classroom. One respondent explained how he would integrate Emblematica Online into his teaching of early modern English literature:

"An example that comes to my mind first is teaching Spenser. You know, we always say Spenser has an emblematic style in his poetry…. I think if students could be directed from those kind of moments in the poetry to emblem culture, other emblems of charity, other emblems of holiness, I think that could be a great tool."

This and other potential pedagogical uses of Emblematica Online’s content suggested by respondents, such as art history graduate seminars and music courses, reveals that digital collections can have rich and innovative roles in humanities instruction.

Discovery of Content

Another key area of scholarly practice where Emblematica Online could play a critical role was uncovering new or heretofore unrecognized primary sources for interdisciplinary works. One interviewee observed, “[Emblematica Online] could help students get across and researchers get across a multi-lingual barriers because it is a multi-lingual tradition and visual tradition. It can also help pioneer searches that begin as visual and verbal searches.” The visual aspect of the emblems was particularly notable for researchers, in being able to integrate complexly visual images that complemented and augmented their topical

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<td>History</td>
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<td>Text and Image Studies</td>
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Table 1
areas, no matter how specialized. As a musicologist noted, “There are quite a few images with the text and visual and textual riddles that can shed light on understanding of early modern music culture in the broader sense…. I looked at archival sources, account books, buildings, architectural treatises, musical treatises, but this is another sphere, another realm so to speak that could be used to gather more information.” The accessibility and search capabilities of Emblematica Online can reveal the multi-layered nature of emblem books as visual compositions as well as prose works to researchers, and offered potential new avenues of scholarship for their work across disciplines.

**Scholarly Scope**

The breadth of the digitized emblems collection in terms of time period, national literatures, and authorship was cited by multiple interviewed respondents for the value of the collection to their scholarship. One respondent who did not specialize in emblem studies noted, “I would return to the point of [Emblematica Online] not being bound by a single national tradition or a single library collection. I think that, in and of itself, may allow people to draw on a broader range of sources than they otherwise would. That can show itself in the scholarship that gets produced on the topic.” And the cross-disciplinary work that could be supported by this digital collection was rich in potential, as one respondent observed, “it’s not as though the interest in these is fossilized in some kind of old school iconographic passé scholarship. There’s amazing, wonderful current scholarship out there that is working very deftly with emblem material.” The draw of non-emblem studies scholars to the collection was another sub-point of the scholarly scope of this digital collection, and as one respondent observed, “I think more people might be drawn to it…. I think that the climate is sort of right for it in that people are interested in material history, and print history, and this seems a natural extension of those sorts of new bibliographic kind of studies.”

**User Testing Sessions**

From the data gathered from these interviews, the author developed a usability research instrument that aims to evaluate how people navigate, search, and gather digitized emblems and related content via Emblematica Online.

The protocol for the usability testing focused on limited areas of functionality for the Emblematica Online portal (Appendix B): the search interface and functionality of different mechanisms for discovering the digitized emblems; and the accessibility and interactivity of users with the digitized content. Three usability testing sessions have been conducted thus far: The participants, all scholars in early modern literature, sat at a computer for approximately 40 minutes, and were asked to talk aloud as they carried out their series of tasks to navigate the portal and attempt to find emblem content. Post-task interviews were then conducted with each participant on their use of digital collections and experiences with Emblematica Online. Though the testing session recordings are still being analyzed, a preliminary examination of the participants’ verbal dialogues and interview responses on the functionalities of Emblematica Online reveals insights into the needs for scholars using digital collections.

**Search Functionality**

One of the most frequent challenges that test subjects encountered was identifying how to start searching for emblems from the home page of the Emblematica Online website: From the opening page (figure 1), none of the participants could determine which link to click on to begin their search, and one participant observed, “that front page is really a little overwhelming with the text, which is sort of ironic since it’s an image based resource.”

When directed to the link for the Open Emblem Portal, all participants immediately began with simple keyword searches on the OpenEmblem Portal’s opening search screen to find emblems that matched authors, topics, and iconography (figure 2). All participants noted that the search interface could be
improved to include core functionalities available in other frequently used databases, such as Early English Books Online. The respondents expressed the desire to have search limiters to search the date and author fields, and also indicated the need for a legend to explain the OpenEmblem Portal’s customized search limiters such as motto transcription, Iconclass notation, and Iconclass terms.

Iconclass, in particular, was a functionality within the OpenEmblem Portal that the protocol tested for usefulness in discoverability. Iconclass is a multi-lingual classification system specifically for art and iconography that is widely used by cultural institutions and museums for subject cataloging of artworks and visual media. The Emblematica Online project collaborates with researchers at Arkyves.org to assign and apply Iconclass headings to the emblem-level metadata for the approximately 23,420 individually digitized emblems available in Emblematica Online. The emblems’ assigned Iconclass headings are displayed with both the descriptive terms and corresponding numbers in the Iconclass classification system (figure 3).
When asked to complete a task of searching an emblem by provided “topical headings,” only one participant utilized the Iconclass headings, however, and the other participants resorted to the additional bibliographic information to find the specified emblems. One participant stated that an explanation of the Iconclass classification and notations was needed, but overall, Iconclass could have immense added value for browsing content, noting, “If I kept clicking these narrower categories, and ended up with some kind of unexpected but somehow relevant images, it would be a big perk of using this database.” This desired functionality to search content in multiple ways—not only in directed searching but also in serendipitous browsing—is key to humanities research practices as documented in studies by Brockman et al., Palmer and Neumann, and Barrett among others, and underlines the complexity of users’ interactions with the digitized content.  

Interaction with Digitized Content  
All user testing participants praised the high-quality of the digitized images, and cited the value of being able to access the quality digital images in various views and formats. As one participant noted, “when we zoomed in, that was just beautiful, and that you can see hand markings and other pencil markings that would be on there…. So for me as a researcher, that matters and I loved the quality of that for sure.” Participants still desired more bibliographic information about the digitized content, such as additional information about the editions of the books and the ability to sort their search results by author and date. Yet the researchers expressed hope in the potential of the OpenEmblem Portal for expanding research and pedagogical practices.  

Respondents observed that the resources provided by Emblematica Online could be valuable for teaching students how to integrate visual and textual analyses. As one respondent noted, “I can see this being useful as a starting point for research papers, how to use research resources that aren’t articles, how to close read and engage with an object that isn’t necessarily a book…. I teach that skill a lot in film classes, but not actually in lit classes, so how to use books as images that we read that aren’t objects—I think that
would be fun for activities.” Possibilities such as this reveal the ways in which Emblematica Online potentially enables transformative shifts in teaching and research for humanities. By extension, this suggests that libraries’ digital collections can play critical roles in these areas that go beyond established uses of basic search and retrieval of digital content.

**Discussion**

**How Digital Collections Reshape Humanities Research Practices**

The high potential value of Emblematica Online to advancing humanities scholarship was cited by many respondents, particularly in the way that Emblematica Online brings together multiple collections of emblem books in an unprecedented way. One user noted, “I can state very clearly that without digital projects like Emblematica Online, I would never be able to do my research, my own research. That’s 100 percent sure because we didn’t have it all in one single place, even in Glasgow that has a large collection there.” Digital collections such as Emblematica Online are increasingly leveraging influence on scholarly research practices, as scholars are able to overcome previously daunting challenges in accessing archives. As one respondent noted, “You used to have to travel around to these

**FIGURE 3**

Iconclass Notation and Headings in Emblem Record

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<tr>
<th>Motto-Transcribed (la)</th>
<th>SOPHISTAE.</th>
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<tr>
<td>Pictura Description.</td>
<td>Different kinds of animals fighting with each other.</td>
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**Emblem:**

- View scanned image of Emblem
- View scanned image of Pictura
- 25F23(LEOPARD) beasts of prey, predatory animals: leopard
- 25F24(CAMEL) hoofed animals: camel
- 25F24(HORSE)
- 25F24(STAG) hoofed animals: stag
- 25F25(ELEPHANT) trunked animals: elephant
- 25F26(MOUSE)
- 25F26(RABBIT) rodents: rabbit
- 25F41 lizards
- 25F51(FROG) tailless amphibians: frog
- 25F713 spidors
- 25FF fabulous animals (sometimes wrongly called ‘grotesques’): ‘Mostri’ (Ripa)
- 25FF231 griffin (lion/eagle); ‘Griffo’ (Ripa)
- 25FF232 chimera (lion/goat/snake); ‘Chimera’ (Ripa)
- 25FF411 dragon
- 25G31 shrubs
- 25H114 low hill country
- 47L111 bull
- 52BB52 Sophism
- 54EE3 Conflict; ‘Contrasto’ (Ripa)
- 85 fables
places. So much money goes into that. And also, a trend of the time is that, at least research in the humanities and at state public funded universities there’s no money, to be given to students, to be given to faculty anymore. So the fact that you can be sitting in Timbuktu, more or less, and have access to these is just phenomenal.” Digital collections can also potentially support increased interdisciplinary work in the humanities: one respondent observed that emblem studies scholars’ work may become more prominent “because scholars like myself are going to have to contact them. I think it’s going to be great for them [and] it’s going to be great for us, because we have now this new resource completely at our fingertips that we can explore.”

Need for User Engagement in Digital Collection Development

Engagement with users in the development of digital collections can reveal key needs and modes of using the resource. Metadata and granular searching of bibliographic information was paramount for the researchers in navigating the collection, as one interviewee observed, “there are generally multiple editions of these texts…. so to be able to sort through effectively, there needs to be a fairly fine grained level of metadata that accompanies these objects—multiple search terms so that you can look by the emblem title, by keywords, by city, by author, by year.” This is among the functionalities suggested by respondents for the OpenEmblem Portal that would enable them to use the portal for their own research and teaching, such as expanded translations of the mottos and texts. As one participant noted, “I would be interested to see whether the German language text of an emblem of Fortune contains substantially different content from an English-language text,” and the same respondent went on to state, “I would actually like to use working with emblem books to build my working comfort with Latin.”

And retaining a connection between the digital facsimile and the original material is key to scholarship as well, as an interviewed respondent observed, “we’re increasingly attracted to and depend on and have wonderful new opportunities of working with this material in digital formats, and because it does help preserve the actual material books, but it’s nice to be reminded of that materiality in the way it’s presented visually.” This need to engage with both the detail of the physical book while taking advantage of the malleability of digital files is revealing of the particular research practices and needs of humanities scholars today as they interact with digital collections. As such, there is rich potential for digital collections to integrate more fully into the curricular and research ecosystems of humanities disciplines.

Conclusion

This preliminary analysis of the use of the OpenEmblem Portal and resources of Emblematica Online seeks to show that through targeted user engagement and assessment, librarians can engage users in the curation of digital archives. In doing so, libraries can enhance the impact of their investment in digital content creation, and establish new roles for the academic library in the evolving research practices of humanities scholarship. Emblematica Online exemplifies the global scope of digital collections today, and in its robust development of collection content and metadata, shows how developing cross-institutional partnerships can ensure effective strategic development for digital collections.

Acknowledgements

The authors are indebted to Patricia Lampron for her invaluable and critical assistance with the data gathering and research analysis.
Appendix A. Emblematica User Testing Interview Guide

Introduction:
Thank you for participating in the testing session with the Emblematica Online portal. We now have a few follow-up questions to ask about your experiences while using the portal.
Again, your responses during this interview are confidential. Only summary data will be reported, and no individual or institution names will be used.
1. How have you used digital content generally in your research, if at all?
2. What types of functionalities, tools, and services would make digital collections maximally useful for your research?
3. What were your first impressions of the Emblematica Online website?
4. What were the primary challenges of using the Emblematica Online portal?
5. What do you see as the potential strengths of the resources provided by Emblematica Online?
6. How might you use a resource like Emblematica Online in your teaching, if at all?
   6a. How could your students make use of the resources in Emblematica Online?
7. If you had a “Magic Button” that could make any changes you wanted, how would you revise Emblematica Online to do what you need?
8. Do you have other thoughts about Emblematica Online, digital collections in general, and/or digital humanities tools that you’d like to share with us today?

Appendix B. Usability Testing Worksheet

1. Please take a moment to review the homepage of Emblematica Online, http://emblematica.library.illinois.edu, but don’t click on anything yet: Just look over the page and familiarize yourself with the layout and listed links.
2. To start: Where would you click to begin searching for digitized emblem books from this page?
3. What steps would you take to search through the emblem collection for any materials related to “camel”?
4. If possible, please view the results from your search for “camel.” How would you view the results for Books? How would you view the results of Emblems?
5. Start a new search to find only emblems with the word “love” in the motto. How would you do this search?
6. Please view one of the resulting emblems found in your search. How would you view the full image?
7. In that same emblem, find the topics/subject headings and image descriptions for the emblem.
8. Please view the example emblem books we have provided on the second worksheet:
   8a. For the first example: How would you search for it in Emblematica Online, using the provided information about the book?
   8b. For the second example: How would you search for it based on its provided topic/subject headings or the displayed images?
9. Now conduct your own search on any topic, image, or author of your choice: How easy or hard is it to find the materials you’re looking for?
Notes


