

The Architectural Touch: Gestural Approaches to Library Search.

The Near Future

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Abstract

This paper explores the corollary issues surrounding the planning and execution of the *LibViz*, a tool under development at the University of Southern California, whose main goal is to turn library search into a powerful and pleasurable experience, stimulating engagement with and discovery of library holdings as well as the library itself. Using a series of artists' books as a prototype, the *LibViz* comprises a tangible interface, novel visualization techniques to represent library holdings, and a visual search engine. The project raises issues around contemporary literacy, fair use and copyright, citation and archiving practices, as well as larger trends in data visualization, physical computing and information representation.

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The first time I taught a class devoted explicitly to media literacy was also the first time I took students to the Special Collections section of the library. While I had regularly brought classes in to work with reference librarians to foster students' research skills, this time it was the physical objects we were after, namely the collection of illuminated manuscripts. It was early 2005, with the first rumblings of Web 2.0, YouTube and social media, and students were required to produce media-rich digital projects for the class. In order to combat the notion that the digital is a break with all that has come before, I felt it crucial to explore these early knowledge objects—of particular interest was a high quality facsimile of the Book of Kells—that preceded the printing press. This visit constituted research, but not the type I was used to including in course curricula, that which is far more abstracted, dealing mainly with catalogue and search terms. This was practice-based research. Indeed, there were many similarly physical tasks associated with this class project, *The Digital Illuminated Manuscript*, which was part book, part film, and part website. The planning, location scouting, costuming, performing, filming, editing, and coding were physical tasks even as the end product was fully digital. I mention this as a reminder that there are no clear boundaries between the digital and the material, a fact that the currently popular concept of “the cloud” has effectively obscured.

Over a decade later, the overlap of the physical and the digital is far more pronounced and the link between research and practice is ever thinner as emergent technologies have shifted the ways that knowledge is produced. With its tangible interface, the *LibViz* joins the emergent field of physical computing, several examples of which my colleagues have already detailed. Here I focus on the corollary issues, since most digital projects and initiatives face ideological, technical and logistical challenges, which will only be amplified in the near future. Obviously these are complex and multifaceted matters, so I will simply touch upon a few key issues surrounding the changing nature of literacy, fair use and archiving natively digital projects.

Literacy?

The processes by which information is categorized, databases are created and users are posited are all value laden. The ways these structures are established should be more transparent than conventional systems currently allow, which is one reason that digital representations of artists' books became the first objects to prototype for the project. Artists' books present unique challenges to archiving and metadata, but they also present wonderful opportunities for visual representation. And when the gestural interface of the *LibViz* is attached to a large-scale database that include all library holdings on the backend, the project will support the type of 21st century literacy that is vital to a thriving public sphere.

Even though *literacy* is always in transition and nearly always in crisis, the term traditionally means the ability to read and write with words. However, in the current media ecology when one can author with extra-textual registers (image, video, sound, interactivity), received notions of literacy must be expanded to encompass the communicative potential of

these registers. In my role as associate director of the Institute for Multimedia Literacy, I have helped articulate, define and then refine a series of foundational and recommended literacies that include digital literacy, visual literacy, information literacy, as well as several others (see Appendix A). However, in my own scholarly work (which transcends institutional affiliations), I have established a useful working definition that derives from Aristotle's definition of rhetoric as the ability to see, in any case, the available means of persuasion, and from The New London Group's seminal manifesto, "A Pedagogy of Multiliteracies: Designing Social Futures," (1996): with this orientation, I refer to contemporary literacy as *competent control of the available semiotic resources*.

Fair Use and Copyright

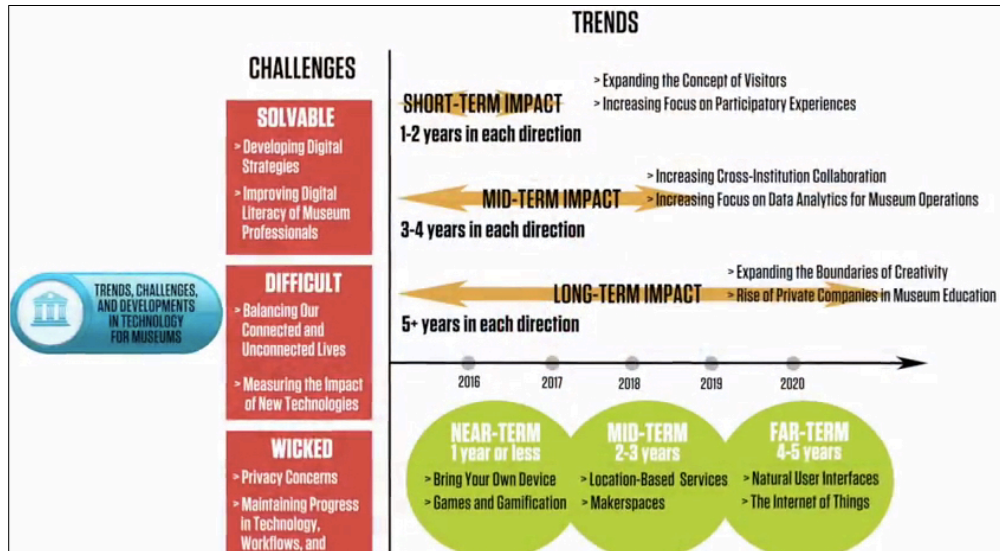
Fair use and copyright issues are crucial to consider with the *LibViz* project, as well as any project that is infused with overtones of visual and media literacy, and yet they are easily one of the most misunderstood facets of teaching and learning with the extra-textual resources of sound, images and video (Hobbs et al, 2007). Since current copyright law did not anticipate the digital, it must be reconceived, as many argue, including prominent law professor Larry Lessig (Lessig, 2009). Unlike their physical counterparts, for instance, digital books are not exhausted when shared. Thus, in my own research, scholarship and pedagogy, I make it a point to approach this issue from the perspective of fair use, rather than copyright. And this stance is preferable in the context of scholarly work, given the extent to which fair use can be demonstrated via citation protocols. The four tenets of fair use are: the purpose of the use; the transformative nature of the use; the amount of the original used; and, the impact on the market (for the original). By citing the source media, and only using as much of it as is necessary to make a point, fair use is applied.

The beauty of the doctrine of fair use lies in its flexibility, but this also means it is potentially litigated. As a result, many institutions adopt a stance of risk management, fearing the time and expense of litigation, rather than seeing the matter as an issue of free speech. But it is important to exercise fair use, or we risk its loss. The best method of navigating institutional constraints and discouraging copyright infringement claims—many of which are leveled indiscriminately (see Kuhn, 2010c)—is to rehearse fair use arguments proactively. Until such time as copyright is reformed or institutions become less risk averse, exercising fair use is a form of activism.

Data and Ambient Intelligence

The New Media Consortium has been publishing *The Horizon Report* series since the report for higher education debuted in 2002. These booklets identify key trends, challenges and developments resulting from the impact of emergent technologies and while initially focused on higher education, they have expanded to include other institutions—K-12, museums, libraries—as well as to other parts of the world. The reports' content comes from the wider academic community but is curated by a panel that includes experts in the particular content area, as well as those working in technology and education. This cross-disciplinary, cross-institutional collaboration is vital since current disciplines were, by and large, reified during the ascendancy of print literacy and doubtless need reimagining for a digital era. A heterogeneous group is more

likely to rethink jargon and illuminate protocols that have become transparent and, as such, remain unexamined. The *LibViz* team is cross-disciplinary and we hope to expand to other institutions as the project develops.



Summary of the NMC's Horizon Report, 2015 Museum Edition

The above summary of the *Horizon Report, 2015 Museum Edition* is interesting in both form (an infographic) and content (naming technological trends and timelines). These infographics have recently blossomed as a form of communication since contemporary life inundates us with massive datasets, arising from the digitization of analogue media, as well as from born-digital artifacts. The ways in which we read, interpret and construct the visualizations that represent these datasets becomes another crucial component of literacy and one that the *LibViz* encourages. Even choices about what constitutes a datum can be a contested issue, one with varying points of view depending on disciplinary differences (Drucker, 2011; Kuhn, 2010a).

The content of this infographic is equally interesting for the *LibViz* project. The list of current and future trends include “bring your own device” efforts (e.g. mobile apps) as well as “location based services,” and “natural interfaces.” All of these continue to be concerns of *LibViz*, from its design to its execution. And the design of any such system should be informed by usability but also by ethics given that people’s data can be tracked as they engage with such systems.

Ambient intelligence is a concept that informs the design of large digital systems with embedded computing functions (Aarts, Markopoulos, 2007). The concept of ambient intelligence is less concerned with the back end architecture of these systems and more with the social aspects. As the boxes and screens of computers are integrated into the world, the concepts of trust and security must be reimagined such that these systems support their natural and intelligent use. Interactivity designer Adam Greenfield suggests a set of criteria for the ethical design and deployment of location-based services, which he dubs “everyware” (2006) since once deployed, these systems are very hard to call back. In addition to a system that is well designed or “user friendly, the criteria include a self disclosure mechanism, a way to easily opt out, a contingency for failure that does not harm the user. These are well worth remembering, especially as we

move toward deploying the *LibViz* on mobile apps that will require user authentication, which means the potential for user tracking also exists.

Archiving Born Digital Projects

In many ways, the artifacts held by special collections, especially the artists' books prototyped with the *LibViz*, are more similar to art than to books and this has implications for the metadata schema we adopt. As Susan Luftschein, our *LibViz* metadata expert, asks, "will we have to establish a new metadata crosswalk?" for this project, which we may well need to. Indeed, Special Collections librarians are used to documenting and indexing non-codex artifacts. But creating a schema for tangible objects is slightly more straightforward than establishing metadata for born-digital projects, which present a different set of issues that dovetail with *LibViz* as time passes and more library holdings have no material component.

Born digital projects are difficult to archive for many reasons such as media variety and platform obsolescence, but another obstacle lies in their tendency to be ephemeral and dynamic in nature. And in the context of academic work, these obstacles also make it difficult to access and assess the merits of born digital work. In order to counter all these challenge, many projects are documented with photographically and with video. Still images are fairly easy to integrate into text-based documents but they lack the ability to show the dynamic aspects such as gameplay. These aspects make video a great option.

Video provides a somewhat stable means for documenting projects that are ephemeral, idiosyncratic, or whose native platforms are obsolete and it can include words and sound in addition to the moving images, so particular elements of a project can be highlighted via narration. Indeed, in order to document the media-rich digital thesis projects students create in the undergraduate Honors in Multimedia Scholarship program, which enrolls students in every major across the campus, we have turned to video (Kuhn, Johnson, Lopez, 2010). We published twelve of these videos in a webtext for *Kairos: A Journal of Rhetoric, Technology, and Pedagogy*. The webtext features students discussing their natively digital and media rich theses, as well as the parameters we use for assessment. As the director of the Honors program, I had my own reasons for pursuing the publication—but it soon became clear that one of its most valuable aspects lay in its assessment parameters (Appendix B).

(Contingent) Conclusion

The *LibViz* hopes to reinvigorate interest and engagement with libraries, reestablishing their status as the public commons. The role that libraries have traditionally played in assembling, analyzing, curating and preserving knowledge objects and cultural heritage artifacts has waned in recent years with the rise of online sources of information. Few are aware of that libraries hold valuable and intriguing cultural artifacts. Further, they often have no idea how to access them in person. By making the search process more visual and tangible, *LibViz* can bring library holdings closer to a contemporary audience and stimulate exploration and discovery of important cultural and intellectual resources.

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Appendix A

These foundational and recommended literacies were developed at the Institute for Multimedia Literacy.

Foundational Literacies

Digital Literacy

- + Proficiency with basic tools of digital authoring
- + Understanding of storage, backup, compression, file types, naming conventions, etc.

Network literacy

- + Ability to use network-based software for sophisticated participation in online communities
- + Design literacy
- + Ability to use appropriate design principles in service of critical goals
- + Ability to control and articulate the relationship between form and content

Visual Argumentation

- + Ability to use multimedia to develop and express a persuasive thesis
- + Effective use of evidence and complex thinking in constructing an argument

Research Literacy

- + Ability to perform effective, critical online research
- + Knowledge of academically appropriate protocols for selection, citation and attribution of electronic source materials
- + Knowledge of fair use and copyright issues

Recommended Literacies

Presentation

- + Ability to deploy strategies for effective presentation using multimedia
- + Understand and use appropriate tools for the publication or dissemination of multimedia materials

Visual literacy

- + Ability to convey information visually
- + Understand and control systems of visual signification

Sonic literacy

- + Ability to communicate effectively with sound
- + Understand and work with various components of sound

Interpretation

- + Ability to use multimedia to enhance a critical interpretation
- + Ability to identify and articulate the cultural, historical and ideological contexts of a media object

Annotation

- + Understand strategies for critical annotation of text, images and media

Collaboration

- + Ability to work effectively in a group authoring environment
- + Ability to design and lead a team project

Narrative literacy

- + Knowledge of basic components and genres of narrative
- + Ability to deploy elements of narrative in a critical context

Pedagogical literacy

- + Understand strategies for creating an effective tool for teaching

Interactivity

- + Ability to communicate effectively in a non-linear, interactive format
- + Ability to design an effective interactive interface or navigational structure

Code literacy

- + Ability to understand the basics of how code operates
- + Ability to write or use basic code

Appendix B

These thesis parameters guide the creation of the digital thesis projects done in the Honors in Multimedia Scholarship program in the division of Media Arts + Practice at the University of Southern California's School of Cinematic Arts. For more on the program, please see: https://cinema.usc.edu/images/iml/SpeakingWithStudents_Webtext1.pdf

CONCEPTUAL CORE

- + The project's controlling idea must be apparent.
- + The project must be productively aligned with one or more multimedia genres.
- + The project must effectively engage with the primary issue/s of the subject area into which it is intervening.

RESEARCH COMPONENT

- + The project must display evidence of substantive research and thoughtful engagement with its subject matter.
- + The project must use a variety of credible sources and cite them appropriately.
- + The project ought to deploy more than one approach to an issue.

FORM & CONTENT

- + The project's structural or formal elements must serve the conceptual core.
- + The project's design decisions must be deliberate, controlled, and defensible.
- + The project's efficacy must be unencumbered by technical problems.

CREATIVE REALIZATION

- + The project must approach the subject in a creative or innovative manner.
- + The project must use media and design principles effectively.
- + The project must achieve significant goals that could not be realized on paper.