Libraries and the digital humanities: partnership, collaboration and shared agendas

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Abstract:

Digital humanities is a rapidly growing global interdisciplinary field, reflected in a proliferation of conferences, events, journals, associations, research centres, grants, and courses. Digital humanities has a high profile because of its collaborative activity in building tools, developing services, carrying out projects, and producing ground-breaking research findings. There is a high level of interest from the library community in the digital humanities. This paper looks at the relationship between libraries and the digital humanities from an Australian perspective. The paper draws on the authors' involvement within the digital humanities community, and especially their experience with developing HuNI: the Humanities Networked Infrastructure, a major digital infrastructure service for the humanities.

Introduction

Digital humanities is a rapidly growing global interdisciplinary field, as reflected by a proliferation of associated conferences, events, journals, books, organisations, research centres, research projects, research grants and courses, especially at postgraduate level. The international Digital Humanities conference, which attracts hundreds of attendees annually, was held in Australia for the first time in mid-2015. Digital humanities has a high profile in the academic world because of its intense and exciting activity in building tools, developing services, carrying out projects, and producing ground-breaking research findings.

This rapid growth has taken place despite, or perhaps because of, fundamental differences of opinion about the very scope and nature of the field of digital humanities. From its origins in what used to be called humanities computing, digital humanities has inherited a strong interest in digital tools, digitisation and the application of information technology to humanities research and teaching. On the other hand, digital humanities is also seen as providing new intellectual perspectives and provoking fundamental new questions about the nature of the digital and about the nature of the humanities in a digital age (Gold 2012).

Some commentators have suggested that the humanities will eventually become entirely digital, just as scientific fields like astronomy have done, and that this may obviate the need for a separate digital humanities discipline in the future. The alternative view is that digital approaches to the humanities will continue to stimulate new ways of critical thinking and practice, especially around matters such as gender, identity and race. Even allowing for the differing perspectives from within the digital humanities community itself, it is clear that digital humanities is going to be an important academic force for the foreseeable future.

Nevertheless, there is an inherent tension within the very success of this new discipline. On the one hand, the emphasis on technology and tools might be said to be a retreat from the recent dominance of "theory" in the humanities, into a more positivist, objectifying, task-oriented and practical approach (Hall 2012), which appeals to university administrators and funding bodies because of its innovative, technological qualities and its ability to produce specific measureable outputs. On the other hand, there is a growing groundswell of interest in using the digital humanities as a means of cultural critique, especially for addressing questions of gender and race, in a way that is characteristic of the humanities in recent decades (Liu 2012).

The library community and the digital humanities

Where do librarians fit into this picture of a rapidly growing new disciplinary area, even if it is one with multiple identities and perspectives? There is a high level of interest from the library community in the growth of digital humanities. The U.S. Association of College and Research Libraries (ACRL) identified digital humanities as one of the "Top

Trends in Academic Libraries" in 2014 (ACRL 2014). The *Journal of Library Administration* published a special issue on "Digital Humanities in Libraries: New Models for Scholarly Engagement" in 2013 (vol. 53 no. 1). The practical aspects of how libraries can or should support the digital humanities have been discussed in a number of recent reports, including one by OCLC (Schaffner and Erway 2014). Donald J. Waters, of the Mellon Foundation, has also offered some very useful guidance on this topic in a paper published by the Association of Research Libraries (ARL) (Waters 2013). ARL published a compilation of library activities in relation to digital humanities as long ago as 2011 (Bryson et al. 2011).

The ACRL has had a Digital Humanities Interest Group since 2012. It now has more than 850 members and maintains the *dh+lib* Web site, which provides reviews, news and articles about libraries and the digital humanities (Borovsky et al. 2015). The Alliance of Digital Humanities Organizations (ADHO), the peak international body for the discipline, recently approved a new "DH and Libraries" Special Interest Group, which already had 100 members at its launch in mid-2015. Librarians are increasingly present at digital humanities conferences, and are increasingly writing and blogging about their involvement in the field.

The humanities have traditionally been seen as having a particularly close relationship with the library. The library as a building containing physical collections was sometimes described as the "laboratory" of the humanities researcher, and this view can still be found in the digital age (Yale University Library 2015). Whatever the reasons, there are certainly researchers and librarians who feel that libraries and the digital humanities are a "natural fit". Stephen Ramsay (quoted in Muñoz 2012) identifies some deeper commonalities of interest at an intellectual and theoretical level:

> Of all scholarly pursuits, Digital Humanities most clearly represents the spirit that animated the ancient foundations at Alexandria, Pergamum, and Memphis, the great monastic libraries of the Middle Ages, and even the first research libraries of the German Enlightenment. It is obsessed with varieties of representation, the organization of knowledge, the technology of communication and dissemination, and the production of useful tools for scholarly inquiry. But DH is also, itself, a scholarly activity, concerned not just with presenting knowledge or helping to locate it, but with creating it.

In this sense, Ramsay points to the generative contribution that digital humanities holds for libraries, especially those libraries located in universities or research institutes. Rather than just augmenting the library's traditional focus on managing and providing efficient access to information resources, the digital humanities can catalyse libraries to consider a more active role in knowledge analysis and formation. Perspectives from the digital humanities also suggest that libraries can profit from expanding their view of who has value to add to library data by recognising that expertise in library collections can and does exist outside the library itself.

There are other pressing and important issues for libraries, which can also be tackled through a digital humanities research framework:

- the need to address increasing complexity in the information landscape (abundance versus scarcity; linked open data);
- the expectation that libraries provide more personalised information experiences to users (including researchers);
- the recognition of multi-modal research and discovery formats that are adaptable to context and with increased recognition of non-traditional research outputs;
- rising digital confidence amongst library and university staff with a focus on technologies that adjust to users rather than a focus on bringing users up to speed with information technologies;
- integration of the library into all aspects of a university's digital offerings (moving away from being a separate digital silo);
- the need to build capabilities for integrating machine-based research; the disaggregation of information expertise to many locations (academic, industry and community).

University libraries and the digital humanities

The emergence of the digital humanities has posed something of an organisational problem for universities. Various approaches have been tried, as documented in a 2014 report for Ithaka S+R (Maron and Pickle 2014), based on four in-depth case studies at U.S. institutions. The report identifies three main options:

- The service model: this involves a specific unit, which has the main function of supporting researchers in tasks like mastering a new methodology or building a new digital resource. The focus is on responding to the needs of researchers, especially individuals, across all relevant disciplines. The unit is unlikely to carry out its own research projects, though it may well provide some technical support and even hosting for others' projects.
- The lab model: this also involves a specific unit, but one that runs its own projects, attracts its own funding and employs its own team of skilled staff. Its focus is on research and development, and it provides little in the way of more general advice or support for the wider academic community. In at least one notable case, King's College London, this kind of unit has developed into a full academic department, running its own courses and supervising its own research students as well as carrying out its own research projects.
- The network model: this approach recognises that there are likely to be multiple units across a campus with expertise, resources and activities relevant to the digital humanities, and focuses instead on providing coordination across them and helping them to pool their efforts. This might be done formally through a central hub with various nodes, or through more informal mechanisms to encourage co-operation and collaboration between units. The University of Oxford takes the latter approach, with a Digital Humanities Network run out of the central E-Research Centre.

Both the service model and the lab model are likely to be embodied in a digital humanities centre of some kind (Lippincott, Hemmasi & Lewis 2014). This centre may

be located in the library, the I.T. unit, or a relevant faculty or department. The library is a common location: of about 100 centres identified in a 2013 survey, nearly half had a relationship – sometimes informally – with the library (Sula 2013). These include such well-known and successful centres as the Scholars' Lab at the University of Virginia (Nowviskie 2013) and the Center for Digital Research in the Humanities at the University of Nebraska.

Despite these notable examples of library-based digital humanities centres, most libraries have taken a much more limited and personal approach, often relying on the informal enthusiasm and interest of one or two staff (Posner 2013). In some cases, this has been formalised by establishing a specific position designated as the Digital Humanities Coordinator, whose role is to be the main contact and source of expertise and advice for matters relating to humanities computing. Miriam Posner at the University of California Los Angeles is a well-known and articulate example of this approach.

Another approach is to appoint a Digital Humanities Research Fellow based in the library, whose role combines personal research with the provision of advice, expertise and outreach. The University of Sussex Library advertised a position of this kind in mid-2015.

There has been considerable debate about the role of libraries and librarians in these organisational settings for digital humanities. The OCLC report "Does Every Research Library Need a Digital Humanities Center?" (Schaffner and Erway 2014) has provoked much criticism across social media for its apparent endorsement of the view that libraries should simply *respond* to researchers' needs, and should not attempt to anticipate them or carry out their own digital humanities activities. Critics have argued that this approach "strips agency from librarians, assumes incorrectly that digital humanities scholars always know for what they are looking, and misses the insight that sometimes librarians are actually the digital humanists" (Keener 2015).

An important element in this discussion has been the respective places of librarians and researchers in the organisational hierarchy of the university. Too often, librarians are described as "partners" in research while being treated as ancillary support staff in practice. Alix Keener (2015), in an important recent article based on interviews with researchers and librarians, has identified considerable enthusiasm for digital humanities on both sides while noting that there are still real tensions which arise from working together.

The difficulties of *real* collaboration with researchers were also identified by Miriam Posner (2013) as one of her list of "challenges to doing digital humanities in the library":

- Insufficient training opportunities
- Lack of support for librarian-conceived initiatives
- Too many tasks, too little time
- Lack of authority to marshal the appropriate resources
- Inflexible infrastructure

- Lack of incentives
- The complexity of collaborating with faculty
- Over-cautiousness (unwillingness to take risks)
- Lack of a real institutional commitment

Posner argues against a purely service-oriented model in the library, and advocates library involvement in digital humanities research. So do Roxanne Shirazi (2014) and Dot Porter (2014). Posner recognises, however, that digital humanities is not "business as usual" for libraries, and concludes they need to take "a hard look" at what they consider to be their core functions. The question of whether research is part of a library's core business is a real one. In the same vein, Trevor Muñoz (2013) rejects the very idea of "traditional library service" as a stable and unchanging entity, arguing instead that libraries have been continually redefining their role for decades and that digital humanities offers an important new opportunity for further re-thinking.

Knowledge organisation and representation

Drawing on the views of Posner, Muñoz and others, it is possible to identify a real role for libraries in digital humanities research that goes beyond the limits of the three organisational models identified in the Ithaka report (Maron & Pickle 2014). This role would involve more than just providing support for individual projects managed by specific researchers, and getting involved in data management as part of the project lifecycle. There are areas of digital humanities research which relate directly to fundamental issues of library science, and which libraries ought to address for the sake of their own future – not just in order to support researchers. These issues are identified in Stephen Ramsay's comments about "varieties of representation, the organization of knowledge, the technology of communication and dissemination, and the production of useful tools for scholarly inquiry" (quoted in Muñoz 2012).

The first two of Ramsay's areas of commonality are particularly relevant and important. In the era of physical collections, the role of libraries was often described as "the organisation of knowledge" (Shera 1965). For the most part, this really meant the organisation of collections of published outputs (books and journals) and unpublished inputs (rare and unique materials), not of knowledge itself. Librarians put enormous amounts of effort into selecting, classifying and cataloguing these outputs and inputs. More recently, as the idea of "the collection" has unravelled in the digital world, librarians have become accustomed to a new role as providers of access to electronic resources. New methods for organising and providing this access, which are heavily reliant on commercial "single search" products and on publishers' metadata, have gone largely unquestioned. And yet these new methods embody profound unspoken assumptions about the nature of language, and about description, categorisation and classification, which ignore most of the humanistic scholarship of the last fifty years, let alone recent advances in neuroscience and related fields.

Librarians have always had a significant interest in what Ramsay calls "varieties of representation". In one sense, this might refer to ways of representing knowledge and

culture, embodied in descriptive metadata schemas, vocabularies, classification systems and so on. This used to be manifested in a generally uncritical acceptance of things such as the MARC record format, the LC Subject Headings, and the Dewey or LC classification schemes. Today, it is more likely to be Dublin Core and publishers' vocabularies, while classification schemes have given way to natural-language searching. There is very little interest in alternative approaches or in cultural, historical, racial and linguistic variations.

In another sense, "varieties of representation" might refer to different formats, a major issue when digital images are increasingly the preferred option for access to photographs, manuscripts and less unique materials such as books and journals. Microfilming and photocopying used to be areas of some interest for libraries. Now, when the nature and meaning of digital representations are being much discussed from a philosophical point of view, and when the archive and museum sectors have extensively debated their significance and their relationship to the physical objects, where is this kind of debate and discussion in the library world? The focus seems to be almost entirely on the practicalities of digital imaging and digital preservation.

If, then, libraries and the digital humanities share an interest in research around knowledge organisation and varieties of representation, what might this mean for the library in a practical sense? One obvious areas of work is to expose library data and metadata as Linked Open Data. This term refers to a stack of technologies designed to make data from different sources as interoperable as possible (Bizer, Heath & Berners-Lee 2009). It focuses on the identification and management of information about entities (people, objects, concepts, places, events, and creative works) and the relationships between them. It is hospitable to multiple vocabularies, ontologies and other naming systems, without enforcing uniformity. It makes use of unique machine-processable codes (Uniform Resource Identifiers or URIs) to identify each entity, and usually employs the Resource Description Framework (RDF) as the syntax for expressing relationships between entities.

A considerable amount of work of this kind is already being done in the library sector, much of it under the LODLAM (Linked Open Data in Libraries, Archives, Museums) banner. An annual international summit meeting for Linked Open Data in Libraries, Archives, and Museums (LOD-LAM) was established in 2012, and the W3C Incubator Group on Library Linked Data presented a series of key reports in October 2011. Many institutions are beginning to expose the data from their collections databases as Linked Open Data. The British Library has been making the British National Bibliography available as Linked Open Data since 2012. OCLC has released data about 197 million bibliographic "works" as Linked Open Data. Europeana, based at the Royal Library of the Netherlands, uses Linked Open Data technologies to aggregate data from a range of European cultural institutions into a common data model.

Underpinning this Linked Open Data framework is a clear requirement for named entities to be given unambiguous and unique identifiers, to enable matching and linking across heterogeneous datasets. There is already a great deal of work going on in this

area, both in the library sector (such as VIAF) and in the digital humanities (typified by the Pelagios service in the field of classics and ancient history). A number of the vocabularies used by libraries, including the Library of Congress Subject Headings and the Getty Institute's Union List of Artists' Names, have also been available in Linked Open Data formats.

Libraries should be involved in initiatives aimed at developing these kinds of named entity services. Libraries will also need to work to ensure that their datasets, when exposed as Linked Open Data, can be mapped to these unique identifiers for named entities. This is one of the recommendations put forward by the Mellon Foundation's Donald Waters for library involvement in the digital humanities:

> Across all these areas [textual, spatial and visual analysis], the identification of named entities, such as people, organizations, and places is an important objective. The development of online databases of personal names (including prosopographies[i]) and place names (such as gazetteers) will require continued support. (Waters 2013:9)

New approaches to humanities data

In reality, however, Linked Open Data – as a consistent means of making heterogeneous data available – is only the first stage. The next step is to use these data as a platform for building research-oriented systems for knowledge organisation. This is the second major area of interest to the digital humanities in which libraries should be getting involved.

The very concept of "data" can be problematic for the humanities, and the term is often simply equated with primary sources (Borgman 2007:215-217). A more sophisticated analysis, however, would regard primary and secondary materials (even when digitised) as *sources* of data, rather than as data in the scientific sense. The term "humanities data" should refer to the semantic layer formed by the various annotations, tags, links, associations, ratings, reviews and comments produced during the humanities research process, together with the entities to which these annotations refer: concepts, persons, places and events (Burrows 2011). How this semantic layer is organized is a crucial question for librarians and humanities researchers alike.

Interpretation is at the heart of the humanities and creative arts. Humanities researchers need to combine their data in ways that enable them to express, share and discuss their differing interpretations. They need systems in which different perspectives between (and within) disciplines can be preserved and foregrounded, instead of being hidden behind a single, normalised, "authoritative" framework. They need to organise their data in ways that reflect the heterogeneity of the humanities. They need systems that are pluralist, flexible, ambiguous, contradictory and downright messy! Centralised, controlled approaches to categorisation and taxonomical structures should be kept to a minimum, and researchers should be provided with tools to create their own semantic frameworks for the data.

Libraries are in the business of building and maintaining systems for organising knowledge. There is a real opportunity – and indeed a real obligation – for them to work with humanities researchers to reflect more critically on the nature of classification and categorisation, the role of vocabularies and ontologies, and the design of structures for knowledge organisation. This critical reflection ought to take into account fundamental questions around gender, race and culture, as well as differences arising from changing historical perspectives.

Applying this kind of critical reflection to the re-design of structures for organising knowledge would be a major area in which libraries could participate fully in the digital humanities. It might require a shift in thinking about the role of the library in the university and in the research process. It might also raise questions around organisational culture within both libraries and universities. Nevertheless, it would demonstrate strongly that librarians could contribute to the work of the digital humanities as equal partners, in ways that went beyond involvement in digital research projects (Maron 2015).

An Australian example of this kind of partnership in action can be found in HuNI, the Humanities Networked Infrastructure. HuNI is a service that aggregates data from thirty Australian data sources and makes them available for use by researchers across the humanities and creative arts. The Deakin University Library was a founding participant in the project (Owen et al. 2014) and a senior librarian from the University of Western Australia (Burrows) is a HuNI "product owner" having key oversight of all aspects of the project's design and implementation.

HuNI is not a collection of digital texts or images, and is not built around catalogue records for these kinds of resources. Instead, HuNI focuses on the people, places, events and concepts referenced and discussed by humanities researchers. For HuNI, "humanities data" consists primarily of the semantic entities referenced by the products of the humanities research process, whether these be books, articles, artworks, annotations, tags, reviews, ratings or other types of content.

HuNI does not contain catalogue-style records for books like Richard Flanagan's *The Narrow Road to the Deep North* or for movies like Baz Luhrmann's *Australia*. Instead of combining information into one record about the people involved with these works (authors, directors, actors, producers), the titles of the works, their themes, and their locations, HuNI separates these out into individual entity records. There are individual entities for Flanagan, Luhrmann, Hugh Jackman, Nicole Kidman, *Australia*, *The Narrow Road to the Deep North*, and so on. This approach was taken because it is these entities, and the relationships between them, which are the fundamental focus for the discussions, analyses and conversations of humanities researchers.

Even though HuNI aggregates data from various humanities disciplines, the result is not a "union catalogue" of humanities database records. Instead, the incoming harvested records are parsed to identify their primary entity type and are mapped to one of the six

core entity types in the HuNI Data Model: Person, Organization, Event, Work, Place, and Concept.

A deliberate decision was made not to merge entities from different data sources into a single "authoritative" entity. The intention was to ensure that the different disciplinary contexts for these apparently duplicated entities were preserved. This also indicates that HuNI does not intend to replace the underlying datasets by imposing its own version of the original information or its meaning. Records are ingested on the HuNI side and displayed in the HuNI service with pointers back to the original source records.

This approach positions HuNI somewhere between a "data warehouse" in which the incoming data are first cleaned and organised into a consistent schema and a "data lake" in which the incoming data are ingested in their raw form and the responsibility for making sense of the data lies entirely with the end user.

The initial plan for HuNI envisaged that all the incoming data would be mapped to a detailed and sophisticated ontology, assembled from such sources as CIDOC-CRM (Comité International pour la Documentation – Conceptual Reference Model), FOAF (Friend of a Friend) and FRBR-$_{OO}$ (Functional Requirements for Bibliographic Records – Object Oriented). This approach was abandoned after fundamental conceptual and ethical difficulties were identified with it. The HuNI team felt that it was inappropriate to attempt to impose a single, unified, complete ontological perspective across disciplines which have very different (and yet overlapping) approaches to categorisation and knowledge representation.

HuNI has two main user functions. The "collections" functionality allows users to create their own categories and groupings for entities. The "social linking" function allows them to create their own graph of relationships and to contribute to the growing HuNI network graph. Researchers can trace routes along these interconnected networks, as an alternative discovery process to a keyword search.

Researchers who tested the initial version of the HuNI prototype commented on the benefits of this approach in enabling them to make "serendipitous discoveries through identifying points of commonality between data" and to "cross-search a significant amount of data in a single software environment and see networks of relationships" (anonymous user feedback). This reinforces HuNI's role in contributing to the design of digital resources for the humanities that foster serendipity (Verhoeven and Burrows 2014).

Users cannot create entity records directly in HuNI; new entity records can only be added to the HuNI aggregate by the ingestion of datasets through the HuNI pipeline. However, there is a way in which individual users can contribute entity records to HuNI through that pipeline. The Heurist humanities e-research tool (developed to manage individual researchers' data collections) has been modified to export its datasets to HuNI. The first major dataset loaded through the Heurist tool was *TUGG: The Ultimate*

Gig Guide. This dataset contains 624 records related to live music venues in Melbourne.

The next stage in developing upload functionality for HuNI is being explored in the context of [Omeka](#), the Open Source collections and exhibitions publication platform (Hardesty 2014). As part of a national e-research project, a "publish to HuNI" plug-in will be developed for Omeka. This feature will be incorporated into a hosted version of Omeka, which will be available to all Australian university researchers.

HuNI addresses several fundamental issues of relevance to libraries and the digital humanities:

- How to encourage serendipity through structured browsing, in a world dominated by search;
- How to re-define humanities "data" in an environment where a standard, "one-size-fits-all" approach is often taken to research data management;
- How to enable heterogeneous metadata to talk to each other without losing the unique nature of each disciplinary source;
- How to enable humanities researchers to create their own classifications and categorisations;
- How to enable humanities researchers to create their own links between data;
- How to enable humanities researchers to create their own data and incorporate them into a larger aggregated pool of data;
- How organised information systems can encompass a humanities disposition for diversity, complexity, interpretation and contestability.

In a keynote address to the University of California's 2015 "DH at Berkeley Summer Institute", eminent digital humanities researcher Alan Liu called for a new way of thinking about data in the humanities (Liu 2015). He envisaged the following features:

- Cross-domain, hybridised data;
- Thinking in a multi-faceted way about data: this, not the size of a dataset, is the humanities equivalent of "big data";
- Confronting messiness in the data, rather than filtering it out;
- Tackling "otherness" and "difference" in the representation and organisation of knowledge.

Much of the thinking behind HuNI has been along the same lines. HuNI also addresses Miriam Posner's recent call for "understanding markers like gender and race not as givens but as constructions that are actively created from time to time and place to place. In other words, I want us to stop acting as though the data models for identity are containers to be filled in order to produce meaning, and understand that these structures themselves constitute data" (Posner, 2015).

HuNI does this by taking into account the contingency of the researcher herself. All social linking assertions (which are captured as "data") are attributed to the person proposing them. Their propositions are not exclusive and are open to contestation,

refinement or approval by other researchers. And because HuNI can be used by anyone with a browser, it is open to members of stakeholder communities to engage directly in the way that has been described as well.

In this sense, HuNI is a significant contribution towards digital humanities research, as well as an attempt to envisage and implement a knowledge organisation service relevant to the humanities and libraries alike.

Conclusion

The growth of digital humanities as a distinct discipline offers a major opportunity for libraries. Digital humanities shares many of the fundamental concerns of libraries about knowledge organisation and digital representation. This discipline also offers a dynamic research community with a real interest in partnership and collaboration. Rather than acting simply as service providers or data managers, libraries can work in partnership with the digital humanities to build and test new approaches to digital infrastructure.

As the example of HuNI shows, these new services can embody concepts such as flexibility, ambiguity, uncertainty and variety in the organisation of knowledge. They can enable researchers to voice their own perceptions and interpretations, without imposing rigid, "authoritative" structures, categories and classifications. They can offer suitable methods for addressing the vital questions of gender, race and culture within the context of new knowledge structures.

Digital humanities provides a means for libraries to think critically about these issues and to engage in harnessing these insights to develop new kinds of digital infrastructure. If libraries can support and resource these initiatives with skilled staff and the appropriate technologies, they will be able to develop real working partnerships with researchers in the digital humanities.

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Endnotes

[i] Prosopography: an investigation of the common characteristics of a group of historical people (Stone 1971).