

LAM education for digital curation: A North American perspective

Heather Lea Moulaison
Assistant Professor
University of Missouri (USA)
moulaisonhe@missouri.edu

Edward M. Corrado
Director of Library Technology
Binghamton University (USA)
ecorrado@binghamton.edu

Abstract

Libraries, Archives, and Museums (LAM), although approaching the problem of cultural heritage conservation from different perspectives, must all successfully curate and preserve digital content for future use. In order to investigate the convergence of digital curation education in North America, it is first necessary to identify the prevalence of courses within the various curricula. This study aims to provide an initial insight into the prevalence of courses offered in Library and Information Science (LIS) that may provide training in the core competences of digital curators as identified in the DILL Delphi study of 2011 (Tamaro & Madrid, 2012). American Library Association (ALA)-accredited programs in LIS were analyzed to ascertain whether courses relevant to competences needed for digital curation were included in the curriculum. More than four-fifths (n=41; 83.7%) of LIS programs surveyed had at least one class that would appear to meet at least one competence for digital curatorship as identified by the DILL study. Courses where contents address Operational Competences learned in classes such as Digital Libraries, Metadata, and Informatics could be found at roughly 60% (n=30; 61.2%) of programs studied. Additionally, almost three quarters (n=36; 73.5%) of programs offer courses in Metadata, Management of Digital Records, Digital Curation, and Digital Preservation that address Managerial Competences. The current study suggests that it is time for LIS to look beyond its own traditional borders and to seek out the assistance and expertise of related and complementary fields such as Archival Studies and Museum Studies as a way of preparing effective leaders in the emerging field of digital curation.

Keywords: Digital Curation; LIS education

In the past, the fields of Library and Information Science (LIS), Archives, and Museums have focused on maintaining different kinds of physical materials (books/serials, letters, artifacts, etc.) for different reasons (access, preservation, consultation, etc.). Professionals in each of these areas have followed professional practice from within their own field. At present, the problem of digital curation, including notions of digitization, digital preservation, and lifecycle management of digital objects, has become a logical place of convergence for Libraries, Archives, and Museums (LAM). Each discipline, based on its own rich history and practices, is faced with the problems presented by maintaining materials in digital libraries in the age of the internet.

As we move to a model of sharing of resources, techniques, and best practices in an increasingly online information environment, what if anything can the three fields learn from each other? Or, is there already a convergence in the fields' teachings that reflects an overlap of principle ideas? In order to investigate the potential convergence of education on digital curation in North America, it is first necessary to identify the prevalence of courses within the various curricula. A preliminary survey, the current study aims to provide an initial insight

into the kinds of courses offered in LIS that may provide training in the core competences of digital curators as identified in the DILL Delphi study of 2011 (Tammaro & Madrid, 2012).

The focus of this analysis is courses that could be considered to prepare students to work with *digital curation* writ large. Digital curation is defined in Tammaro and Madrid (2012) as the combination of *curation* and *digital preservation*, where curation is “activities that add value and knowledge to the collections” (p. [1]) and where digital preservation assures long-term access. The terms *digital curation* and *digital preservation* may imply the same thing, depending on the speaker.

“In the United States digital preservation tends to be interpreted as the life-cycle management of materials from the point of their creation, while in the United Kingdom the term digital curation is used for life-cycle management while digital preservation is reserved for those activities specifically geared towards future accessibility.” (Caplan, 2008, p. 7)

Because both terms are increasingly being used in North America, with digital curation being the overarching concept and digital preservation being concerned with preserving the digital into the future, courses with either of these terms in the titles and courses that focus on the operation or management of digital materials at any stage in their processing will be of most interest to the present study.

Purpose

This study investigates the relationship between LIS program courses in the English-speaking American Library Association (ALA) accredited library schools in North America by comparing them, based on their online descriptions, with the core competences needed for digital curators. By investigating in a preliminary way the offerings of LIS programs, it is possible to establish a baseline for what LIS as a discipline is able to offer its students.

Review of the Literature

Digital libraries have been of increasing interest in the age of the internet, where sharing, harvesting, and reusing are key. With the rise of digital libraries in the three sectors, the need for trained professionals has also increased. The question of convergence between and among the courses of study in LAM can be reexamined through the current lens. Weech (2012) surveys the number and closeness of general programs in the three cultural heritage institutions’ curricula, concluding that libraries and archives are ultimately more similar, with museums being less like the other two.

LIS has been increasingly interested in both preservation and digital preservation. The Preservation Education Directory (2012) is currently in its ninth edition and enumerates all of the LIS preservation (but not *digital* preservation) courses in North America by region. Bastian, Harvey, Mahard, and Plum (2010) reviewed how the archives, record management, museum and preservation curricula can “offer practical real-world experience with digital objects in a classroom setting.” Their review showed, at the time of the study, that current courses had not been entirely successful, in part, because the field is rapidly evolving at the same time the curriculum is evolving. Their study, however, did offer a possible way forward with some practical suggestions on how LIS educators could incorporate the curation of digital objects into their curricula.

Others have looked at specific digital curation classes and specific programs. Pomerantz, Abbas, and Mostafa (2009) investigated how LIS educators could use digital library

applications to teach digital library concepts. Their work did not specifically look at digital preservation but they found that digital library courses frequently address the topic of digital preservation. They determined instructors could use open source digital library applications such as DSpace and Fedora to identify what preservation functionality is included in the application's design, data models, and policies. Yakel, Conway, Hedstom, and Wallace (2011) described the digital curation curriculum at the University of Michigan's School of Information. They identified three components of a strong curriculum for digital curation that included course work, internships, and an appropriate technology infrastructure available to the students. Specifically, as these and other studies have shown, digital curation is a relatively new area of overarching interest to cultural heritage institutions and therefore the curriculum is still evolving. According to Tammaro and Madrid (2012), in the DILL Delphi study respondents from libraries and archives agreed upon ten operational competences and ten managerial competences the digital curator should possess. The competences, as identified, are summarized below.

Operational Competences

Ten operational competences were identified in the study; in general, these competences deal with the maintenance, including the long term maintenance, of the contents of the digital library. Roughly speaking, the operational competences include traditional skills applied in the digital environment such as selection and policies for storage and preservation and an understanding of the designated community and its need for the insurance of authenticity and provenance. Also, the operational competences include technical knowledge such as latest trends in data structures, file formats, hardware and software, and requirements for access, storage, and recovery.

Managerial Competences

Ten managerial competences are identified that focused on overarching work necessary to the creation and maintenance of the digital library. Understanding such issues as metadata, quality assurance, and legal requirements are components of these competences.

Methodology

The course listings and course descriptions of the 58 ALA-accredited LIS Masters programs were examined on the website for the programs. Courses being offered that had names including terms such as "digital preservation", "digital curation", or contained terms that demonstrated an interest in digital resources such as "digital libraries" and "metadata", were identified for future investigation. For schools that did not display full course listings online, courses from Fall 2012 and Spring 2013 semesters were examined instead using the same methodology. Descriptions of each course identified as potentially of interest were then analyzed more closely in accordance with the Operational Competences and the Managerial Competences identified in the DILL Delphi study of 2011. Courses were then placed in one category or the other if they focused one or more of the listed competences in a digital environment. This insured that a final tally of courses would represent all of the courses that might be considered relevant to the competences as identified in the core competences, without repeats.

Results

Of the programs accredited by the American Library Association, all are located in North America. Seven are in Canada, and 49 are in the contiguous United States with an additional program being located in Puerto Rico and another in Hawaii.

Nine schools did not have usable data (the two non-English language schools were excluded because the initial search was ultimately language-based; it was not possible to find online course catalogs or two semester's worth of listings for the remaining seven schools). For this reason, the numbers given are for 49 North American LIS programs.

More than four-fifths (n=41; 83.7%) of LIS programs surveyed had at least one class that would appear to meet at least one competence for digital curatorship as identified by the DILL study. Contrary to preliminary findings, the fully analyzed results suggested that there are more programs with curricular emphases on the Managerial competences than on Operational competences. The contents of Metadata classes, in particular, were examined in an attempt to understand whether the class has a stronger focus on operational or managerial aspects. Similarly, Digital Libraries classes were re-analyzed as well, with the same intention. Despite the stated intention to classify these courses as one or the other for this research, these and other classes very likely instruct in both areas of competences. Courses where content address Operational Competences could be found at roughly 60% (n=30; 61.2%) of programs studied. Many programs (n=22) offered at least one class that was identified in this research as meeting an Operational Competence primarily. Fewer offered more than one. See Figure 1.

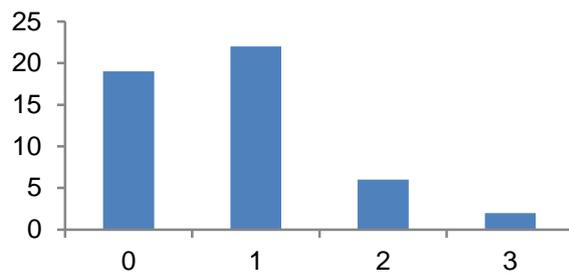


Figure 1: Number of programs with courses primarily addressing an Operational Competence

Programs offering courses that addressed Managerial Competences were more numerous, and the number of courses themselves were also more numerous. Only 13 programs (26.5%) did not offer a class emphasizing a Managerial Competence. Programs offered a variety of classes that seem to meet these requirements, including such classes as Digital Records Management, Digital Repositories, Digital Memorials and Cultural Archives, and others. See Figure 2 for more information about the numbers of courses offered in LIS programs.

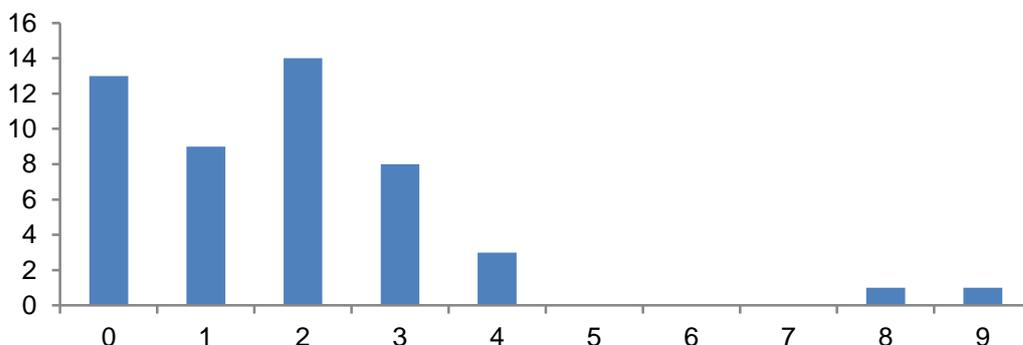


Figure 2: Number of programs with courses primarily addressing a Managerial Competence

Discussion and Recommendations

Descriptions of LIS schools' curricula that were surveyed tended to focus on upper-level technical skills and management skills. As is generally fitting of Masters-level education, course descriptions focused on broader ideas rather than on the more minute details. Broader ideas included such things as digital library management and metadata conceptualization. Details that were not mentioned in course descriptions but that were identified as core competences included understanding data structures and the requirements for information infrastructure (operational), and understanding the corruption of digital entities and authentication procedures (managerial).

Education of competences for digital curators includes a breadth and depth of training and skills that is not strictly aligned with the training and skills needed by librarians for their work in libraries and therefore, may not be as present in the standard LIS curriculum as concepts relating more directly to the functioning of libraries and information services. Because the curricula examined were offered by ALA-accredited LIS programs, it is possible to assume that these curricula meet the requirements needed to provide students with core competences in librarianship writ large.

Based on the findings in this preliminary study, it is possible to recommend that LIS programs wishing to emphasize the competences needed for work as a digital curator be carried out as completely cross-disciplinary degree programs, with courses being drawn from computer science, policy, and law to complement the expertise gained through the LIS field. Those core LIS courses will likely overlap in scope and skills with similar courses from Archival Studies based on Weech (2012)'s finding, implying that with the convergence of the disciplines may come additional strengths. Adding content from Museum Studies's curriculum would also strengthen and complement the LIS and Archives approaches to digital curation management and their teachings in operations, too.

Limitations

This kind of preliminary study is only intended to be a point of departure for discussion and for future work. Although great care was taken to assess as accurately as possible every potential course based on the short web descriptions, it is not possible to know how individual instructors may shape the contents of a class. Some institutions did not list short description, and courses had to be assessed based solely on their names. Secondly, it is not clear whether courses found in the online course catalogs are offered regularly, or whether these courses are merely listed but are never taught. Lastly, it is not certain whether programs may teach *topics* courses that meet some of the requirements but that do not appear in the online course catalog. Furthermore, this research did not focus on LIS programs issuing certificates or involved in tracking students in areas related to digital curation. It also did not take into consideration students' own abilities to take classes outside of the LIS department in order to increase their depth and breadth of knowledge and skills in operational areas that may not be covered as in-depth in LIS.

Conclusion

The current study gives preliminary insight into the curriculum of LIS programs in North America and the courses they offer that address the competences for digital curation laid out by the DILL Delphi study of 2011. Although it is still unclear the extent to which LIS, Archival Studies, and Museum Studies curricula overlap in the preparation of digital curators, the current study suggests that it is time for LIS to look beyond its own traditional borders

and to seek out the help and expertise of related and complementary fields as a way of preparing effective leaders in the emerging field of digital curation. The first and most logical complementary fields, especially when considering the preservation of cultural heritage materials, are Archival Studies and Museum Studies. An emphasis, however, on fields that provide students with practical skills necessary for Operational Competences for digital curation, such as computer science, should not be overlooked.

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