

The Digital Content Management Curriculum

A Case Study at Wayne State University's School of Library & Information Science

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Abstract—This paper examines the development of a specialization for digital content management at the School of Library and Information Science at Wayne State University. Addressed in this case study are the pedagogical approach taken in the specialization's curriculum development and the steps that were taken in developing the curriculum. The paper highlights five core characteristics that were used to describe the kinds of knowledge and skills expected from students completing the specialization. Additionally, the paper discusses the resources needed to support the specialization and the indicators to be used in the evaluation of its success.

Keywords—digital content, digital curation, curriculum development, curriculum support.

I. INTRODUCTION

This paper discusses the development of a specialization which focuses on the creation, management and preservation of digital content within Wayne State University's School of Library and Information Science (SLIS). The specialization, Digital Content Management (DCM), was developed as a result of an analysis of the School's curriculum that was completed in the fall of 2011. In September of 2011 the Curriculum Subcommittee of the Academic Concerns Committee within the School was charged with making recommendations to the faculty concerning revisions to its current curriculum, its certificates and specializations. The analysis of the School's curriculum was undertaken through several means. Examined first in the analysis was how the School's course offerings, specializations and certificates compared to the other American Library Association accredited programs of library and information science [1]. Against this analysis, the subcommittee examined the potential job opportunities of its graduates by mapping job position titles of recent MLIS graduates against the positions given in the United States Department of Labor, Bureau of Labor Statistics' 2010-2011 edition of *The Occupational Outlook Handbook* [2]. Additional items analyzed during this process of self-examination included the School's mission and its faculty's areas of expertise.

In the analysis of the offerings of other ALA accredited MLIS programs, it was discovered that a third of these supported a concentration that falls within the digital realm. Chief among these digitally-oriented MLIS concentrations were those focusing on digital libraries and digital curation and, or digital preservation. The finding of greater job prospects for the more technically-oriented positions in *The Occupational Outlook Handbook* also contributed to the development of the DCM track. Additional support for the concentration was the general growing awareness among the School's faculty of the importance of digital curation and preservation across all segments of society, thanks in large part to the increasingly digital world we find ourselves operating within today. The impact of digital content in our daily lives is now nearly universal, and this reality continues to evolve as we strive to educate individuals who will be capable of managing and researching ways to preserve our common cultural heritage.

In an effort to contribute to this conversation surrounding digital content in the cultural heritage sector, the DCM specialization was developed. The specialization was designed to prepare individuals to process, manage, preserve and provide access to information-bearing objects that exist in a digital form. As there is a dearth of adequately trained individuals to meet the needs of institutions with collections of digital content, it was felt that the addition of this specialization would make an important contribution to the education of library and information science professionals. A proposal for the specialization was submitted to the Graduate School at Wayne State University in January of 2012 and approval for the changes to the School's offerings was received in the spring of 2012. The specialization was made available to students at the start of the 2012-2013 academic year. At the start of winter 2013 semester, approximately 50 students are following this specialization. This number represents slightly less than 10% of all currently enrolled MLIS students within the SLIS. From the number of students who have already indicated this as their specialization, it would appear that students appreciate the need for individuals

II. PEDAGOGICAL APPROACH

Behind the development of the DCM curriculum was a strong focus on experiential learning. This approach fits well with the mission of the School and also with several of its faculty's backgrounds. As SLIS has a history of producing graduates with well-developed practical skills, there is long standing tradition within the School of coursework that is strongly supported through interactive practice based learning. Within SLIS' curriculum students are provided with theoretical, historical and foundational content and this is supplemented by hands-on exercises putting their growing knowledge into practice.

The School's tradition of experiential learning runs parallel to the faculty's pedagogical approach, since the topic of managing digital content is seen through a lens of several decades of work experience in this area. Faculty members approach teaching from perspectives informed by real world experience developing collections of digital content to support humanistic study within an academic setting and managing archives and digitization projects within the private sector. Thus, the development of the DCM curriculum was very much informed by the day-to-day realities of those individuals whose job responsibilities include digitizing, describing, managing and preserving digital content.

III. CURRICULUM DEVELOPMENT PROCESS

The specialization's curriculum, which needed to include coverage the entire suite of processes involved in planning for, creating, describing and preserving digital content, was developed using several methods. First, a list of the topics which needed to be covered to develop graduates' skills and knowledge for performing work in this area were identified. This was followed by an assessment of these topics against their coverage within courses currently offered at the School. Those topics which were not treated in sufficient detail within the curriculum were identified, and these were used to develop several new courses within the curriculum. Finally, additional means of supporting the specialization were identified. As the means of curriculum support are not directly related to the content of the coursework, they are treated separately in the next section. What follows is a discussion of the route that was followed to develop the curriculum for the DCM specialization.

A. *What Content?*

The primary driving question behind developing the curriculum was "What are the critical skills and knowledge that

students need to be able to perform this work?" For this question the available library and information science syllabi and the literature with digitally oriented themes were collected and analyzed for topical coverage. From this analysis a lengthy list of critical knowledge and skills was developed (e.g., code using XML, perform basic image editing tasks using Adobe Photoshop, create entity-relationship diagrams, understand and use the terminology of the profession, track items through several processes belonging to multiple projects, etc.). In order to make the task more manageable, the many entries on the list were combined and abstracted into higher level concepts which were felt to represent the core characteristics expected from students who have successfully completed the DCM curriculum. These abstracted core characteristics focus the specialization's efforts on developing student's knowledge and skills on ways for them to effectively produce, manage, analyze, design, and communicate about, digital content. These characteristics also serve as a rubric within which to analyze expected competencies.

<p>Produce: software proficiencies, digitization techniques, checksum processes, coding, description, metadata creation, knowledge of formats, etc.</p> <p>Manage: social parameters, disposition, project management, personnel, copyright, policies, risk assessment, budgeting, standards, etc.</p> <p>Analyze: system analysis, needs assessment, data modeling, contextual factors, evaluation, strategize, research, etc.</p> <p>Communicate: terminology, presentations, training, document processes and decisions, marketing, outreach, reporting, etc.</p> <p>Design: system development, database design, thesauri creation, color theory, use of visual information, usability, etc.</p>

Fig. 1. Core Characteristics of the Specialization.

With such a long list of topics to be addressed and skills to be learned, natural groupings of course content were noted. Some of these were issues concerning process and techniques when performing work on singular items (Produce), while others were issues that were administrative in nature (Manage). A number of other skills concerned the ability to present, train, write and create reports (Communicate). Another group of pedagogical concepts to be covered had to do with critical thinking, evaluation, assessing information and problem-solving (Analyze). A final group was concerned with developing systems and providing creative solutions (Design).

From the noted groupings of topics, the following abstract core characteristics (Fig. 1) were formed to contain the various core competencies expected from the specialization's students. These are presented here with several examples of the competencies falling within each group.

With this list in hand, the process of developing the curriculum rested on examining the School's course offerings and discovering which competencies were not covered.

B. What Courses?

All of Wayne State University's Master of Library and Information Science graduates take a core of six courses introducing them to the basics of the library and information science profession (vocabulary, ethics, careers, information retrieval, access, etc.). In addition to the core courses, students complete an additional six courses within their specialization. To determine what the curriculum might look like, courses were identified that were already a part of the School's curriculum that would develop the knowledge and skills, as was outlined above. Several courses, (LIS7410 Software Productivity Tools for Information Professionals, LIS7415 Project Management and 7460 Databases Concepts and Applications for Librarians), offered content that would provide students with several experiences considered key to their development. For example, in these two courses students complete assignments working with large amounts of data, managing simultaneous projects, designing and delivering effective technology instruction, and implementing a database design based on systems analysis. Two additional courses, (LIS7900 Digital Libraries and LIS7910 Metadata in Theory and Practice), which had previously been taught as occasional special topics courses, were added to the School's curriculum as a part of the specialization's proposal sent to the Graduate School. These courses covered in detail a full range of topics about metadata (e.g., standard schemas, application profiles, mapping and XML coding) and digital libraries (e.g., collection development, user needs and services, usability and evaluation).

Through the analysis of the course content it was discovered that while several courses offered some coverage of the management and preservation of digital content, the topical depth was not sufficient to prepare students for work in this area. Particular topics that were missing from the current curriculum were an overall view of the data lifecycle, specific actions on data for preservation purposes (e.g., ingesting, validating, authenticating, normalizing, migrating, etc.), and issues surrounding access (legal considerations, security, transformation, etc.). Thus, LIS7920 Digital Curation and Preservation was developed to meet this need. Additionally, students who follow this specialization without any practical

work experience with digital content are strongly encouraged to perform a directed credit-bearing practicum within an institution to receive formalized training in the field.

Like many programs of library and information science in North America, the predominant mode of course delivery in the School is online. Each of the courses in the specialization uses the combination of recorded lectures, lecture notes and online synchronous meetings for delivering pedagogical course content. While this pedagogical method is sufficient for the majority of the curriculum's topics, the development of particular skill sets among the DCM students' is not possible through online instruction. As the hardware and software used to digitize analog items and manipulate digital files at a professional level are beyond the reach of all but a small minority of students, an on-campus institute where they receive hands-on experience within a digital media lab is under development. To begin during the fall of 2013, this credit-bearing intensive course will allow students to create and edit digital content that they will continue to work with as they progress through the DCM curriculum. The institute will introduce students to digitization processes using analog image, audio and video originals through a series of lectures and hands-on activities. With this critical phase of instruction completed they will perform additional processes to these digital items as a part of their online coursework. The underlying idea for the specialization's curriculum is to have students understand the entire lifecycle of digital content so that they are better prepared for the various responsibilities and challenges they will find in the workplace.

IV. SUPPORTING THE CURRICULUM

The curriculum for the DCM specialization is supported by a number of individuals (faculty and staff) and resources (hardware, software, documentation and planning) on campus. The specialization's course content is currently delivered by four individuals. Two individuals hold doctoral degrees in library and information science and are employed within the School as full-time faculty. Complementing this are two individuals with practical experience in their respective areas (information technology and digitization) who hold MLIS degrees. These two individuals are also employed full-time by the School and have a combination of responsibilities associated with administrative or technical support and teaching. Other staff hours are provided by graduate student assistants who supply email, phone and in-person assistance for technical issues to students and faculty, and administrative personnel perform a variety of functions to ensure daily operations within the School.

In addition to the individuals involved in supporting the curriculum for the specialization are a number of resources beyond those provided to the university's community at large. First among these is the physical space and equipment used for its Digital Media Lab. The Lab, which has been outfitted with hardware and software for image, audio and video digitization processes, replicates what students would encounter in a professional facility. The specialization's students also have access to a virtual online lab for access to software for post-digitization processes used in their coursework. As practice-based projects are expected of all students within the specialization, various forms of digital repository, digital library and digital preservation software are available (hosted by SLIS and outside vendors), and network attached devices currently provide roughly 16 terabytes of storage space for various course projects.

The curriculum is also supported by several School sponsored community building activities. The School hosts a student group associated with National Digital Stewardship Alliance, which brings together individuals who share an interest in working on issues concerning the management and preservation of digital content. The group keeps students up to date on current issues, provides opportunities for hands-on practice, and introduces individuals working in the field. Last fall this group was pivotal in the planning of a colloquium, titled *Converge and Ingest: Learning about Digital Preservation*, which focused attention on issues concerning digital preservation through a series of papers and case studies [3].

V. EVALUATION OF THE SPECIALIZATION

The DCM specialization has the potential to have an important impact within organizations and institutions whose missions involve the care and management of cultural materials. Because of the vital role the School plays in educating professionals in this area, it has set into place methods of evaluating the success of the specialization and its students. The primary outcome to be assessed is how well the specialization meets its goal of increasing the number of individuals with skills and expertise in the areas of digital libraries, data curation, digital preservation and metadata. An evaluation of the specialization's success will be undertaken using indicators which incorporate several dimensions. In the short term, one indicator of its success is the number and percentage of SLIS students who enroll in the School based on the availability of the specialization. A similar measure assesses the number of students who chose this specialization once they have enrolled in the School. An indicator which speaks to the longer term impact of the specialization is the number and percentage of SLIS' graduates who obtain full-time employment in positions

where their primary job responsibilities require them to work with digital content. An additional indicator of success, as it is hoped that the specialization will increase understanding about digital content issues, is the number and percentage of its students and alumni who contribute to the scholarly record through publications on this topic. As the specialization is a new offering at the School, the activities of students and alumni will be tracked as they work through the curriculum and move into the field. This data will provide information to be used for future development of the DCM curriculum.

VI. CONCLUSION

The development of DCM specialization has been a welcomed addition to the School of Library and Information Science at Wayne State University and it has seen a great deal of support at the individual and institutional level. It is clear from the support received for the specialization that there is a deep appreciation for knowledge in this area and an acknowledgement of how critical this issue is in our current world.

After analyzing potential content and developing the curriculum, researching and procuring equipment and the many months of planning to make the specialization a reality, seeing its first students graduate in the next few semesters will be tremendously rewarding. How these individuals progress in their careers and the feedback they provide concerning their experiences will provide critical information concerning the success of the specialization. In an institution with such a long history of graduating practitioners who work with and respect cultural materials, it is hoped that this tradition will be enhanced by highlighting the important and often problematic issues surrounding digital content.

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