

# Digital Stewardship Education at the Graduate School of Library & Information Science, Simmons College

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**Abstract**—This paper describes two initiatives based in the Graduate School of Library and Information Science, Simmons College that contribute to meeting educational and training needs in digital stewardship: the online Digital Stewardship Certificate and the Digital Curriculum Laboratory.

**Keywords**—Digital, curation, stewardship, Digital Stewardship Certificate, Digital Curriculum Laboratory, Simmons.

## I. INTRODUCTION

The state of perpetual motion, constant change and assessment that most libraries and archives exist in today has had a dramatic affect on the field of preservation and education for the field. Numerous reports have appeared attempting to describe the new skills and knowledge needed to conduct digital preservation. We need to equip librarians, archivists, and a growing number of preservationists from other fields to function more effectively as stewards of the digital cultural legacy. Educational and training opportunities are needed at three levels: formal credentials, such as graduate awards; short courses, perhaps also available as formal credentials or continuing education credits; and informal learning opportunities, perhaps in the form of on-the-job training or workshops.

The new skills and knowledge needed for effective digital preservation are the focus of recent reports (for example, that of Bahr, Lindlar and Vlaeminck [1]). Two of the top trends identified in academic libraries in 2012 are data curation and digital preservation [2]. These reports also stress the lack of adequate numbers of trained staff to engage with digital preservation responsibilities; for example, the DigCurV report identifies ‘a substantial need for appropriate training’ [3]. Recommendations from the final report of the influential DigCCurrI project stress the importance of hands-on professional experience [4]. At the Library of Congress, the Digital Preservation Outreach and Education (DPOE) Program

acknowledges the national need to ‘provide training to individuals and organizations seeking to preserve their digital content ... to make digital preservation training more widely available to working professionals’ [5].

This paper describes two initiatives based in the Graduate School of Library and Information Science (GSLIS) at Simmons College, Boston that contribute to meeting educational and training needs in digital stewardship: the Digital Stewardship Certificate (DSC), an online program and the Digital Curriculum Laboratory (DCL).

## II. THE DIGITAL STEWARDSHIP CERTIFICATE

The DSC is one of several graduate certificates recently offered by universities in the United States. (Among other programs are the University of Maine’s Graduate Certificate in Digital Education, the University of Arizona’s Digital Information Certificate, and the University of North Carolina at Chapel Hill’s Post Master’s Certificate in Data Curation.) It is a *fully online* program of five graduate-level courses (15 credits). Its aim is to impart the concepts and skills needed to create and manage a sustainable digital repository, library, or archive. The main pre-requisite is a master’s degree in library and information science (LIS), archives management, or another field relevant to digital stewardship. Students enrolled in the DSC select one of two schedules: either one course per semester for five semesters (almost two years, with three semesters – Summer, Spring and Fall – per year); or a 1-2-2 schedule over one year. The required courses and electives that make up the DSC curriculum are also available to eligible students enrolled in master’s degrees at GSLIS. They were in fact originally developed for the master’s programs.

As their first course students take the required LIS 448 *Digital Stewardship*. It introduces them to the field through a life-cycle model, covering topics such as planning the digital

archive, information structure, technology, access, and broader management issues. Table 1 notes the topics covered in this course. The second required course is LIS 444, *Archiving and Preserving Digital Media*. This course is more technical, requiring students to learn about and engage with the command-line interface and install, populate and write procedures and policies for a digital archive (currently DSpace; we are also considering adding Archivemata). Students then select two elective courses, chosen from a range that at present includes courses on metadata, database management, web development and information architecture, and XML. Additional courses are being developed, including LIS 532F *Digital Asset Management in Libraries, Archives and Museums* and LIS 532G *Scientific Research Data Management*. Students complete the program by undertaking either an internship or an independent study.

TABLE 1: TOPICS COVERED IN LIS448 *DIGITAL STEWARDSHIP*

**Module 1: Context and Generalities**

1. Defining digital stewardship
2. The problems: Obsolescence, reproduction, longevity; Access vs. preservation
3. Models: The OAIS Reference Model; The DCC Curation Lifecycle Model; Other life-cycle models.

**Module 2: Planning the Digital Archive**

1. The Curation Lifecycle as the basis of a digital archive
2. Essentials: Planning, standards
3. Making digital materials preservation-friendly.

**Module 3: Information Structure**

1. Description & Representation Information
2. *Appraise & Select*
3. *Ingest*.

**Module 4: Technology**

1. Preserving the data: *Preservation Action*
2. Preserving the data: *Store*
3. Trusted Digital Repositories
4. Preservation methods.

**Module 5: Access**

1. A focus on users: *Access, Use & Reuse, Transform, Migrate*
2. Open access and sharing data
3. Restrictions to access
4. Access controls and authentication.

**Module 6: Organization and Management**

1. The costs of digital stewardship
2. Sustaining digital stewardship
3. Where are we heading?

The first intake of students in the DSC was in Summer 2012. Students in the first cohort hold master's degrees in LIS, archaeology, photography, and computer science; among the members of this group are the Chief Information Officer of a large company, a professional photographer, and archivists and librarians, ranging from beginning professionals to the archivist of a major British university. The first students will graduate in May 2013, as this paper is being presented. We are still assessing applications for the second cohort, which also has applicants from outside the U.S. and more applicants outside New England compared with the first intake.

III. THE DIGITAL CURRICULUM LABORATORY

The DCL is an integral part of courses in the DSC. This is a high-touch experiential online laboratory developed to support online education in digital stewardship. High-touch is a fundamental aspect of the approach taken to the delivery of all courses at Simmons GSLIS. High-touch characteristics of GSLIS's online courses include a cohort-based model, group assignments, extensive online discussion, and significant online presence of experienced instructors.

The DCL was developed with the support of funding from the National Historical Publications and Records Commission (NHPRC, project name Archives and Preservation Digital Curriculum Lab) and the Institute of Museum and Library Services (IMLS, grant number RE-05-09-0082-09) and Simmons College. The DCL and related activities have been noted in numerous publications and conference papers, many of which are available through the DCL web site (<http://gslis.simmons.edu/dcl/public/publications>). The DCL empowers experimentation in a risk-free, educational environment with a wide range of digital stewardship activities by providing integrated access to digital content, open-source tools and applications, scenarios, and exercises. More information about its development is available on the DCL website (<http://gslis.simmons.edu/dcl/public/about>). The target audiences for the DCL are:

- 1) Faculty in LIS programs and courses teaching archives, preservation, digital curation and stewardship, and records management, and students in these courses.
- 2) Staff in institutions charged with or interested in learning more about digital stewardship and preservation.
- 3) Professionals from a wide range of digital environments who need online workshops or short courses to learn how to apply digital stewardship principles to their specific situation.

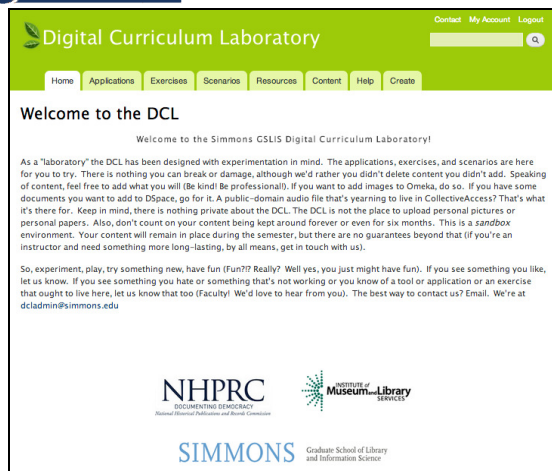


Figure 1: Digital Curriculum Laboratory

Other LIS schools, both in the United States (University of Wisconsin-Milwaukee) and in other countries (Sweden and England), also participate as partners, and the number of requests from LIS schools and libraries to use the DCL is increasing significantly. Recent inquiries have come from the Library of Congress in partnership with IMLS for use in its upcoming National Digital Stewardship Residency Program, the Smithsonian internship program, the NHPRC, and from LIS educational institutions in the United States, Scandinavia and New Zealand.

The DCL's potential has been clearly and convincingly demonstrated in courses at Simmons and the other LIS schools where it is used and through the numerous expressions of interest and requests for trial access received. Simmons GLIS has guaranteed sustainability for the DCL by creating a new full-time staff position, the Curriculum Support Developer, whose primary charge is to maintain the DCL, specifically to support Simmons GSLIS faculty and students in the master's and doctoral programs.

The DCL consists of three main sections: applications, exercises, and scenarios. The applications are installed instances of open-source software and include DSpace, EPrints, Fedora Commons, Greenstone and Omeka. The exercises – there are currently 24 of them, with more being developed – provide students with realistic experience in manipulating digital objects through the use of open-source tools. The scenarios allow students to walk through tasks such as identifying file formats, automating workflows, and migrating files using the software available in the DCL. Other sections provide access to content that can be used in the exercises and scenarios, and to online resources.

Redevelopment and expansion of the DCL is in the planning stage. The scenarios, exercises, tutorials and specialized content already in the DCL will be further developed. The key outcome will be a stable, rich online environment that is available to a wide audience (not just to traditional LIS programs) nationally and internationally, supporting programs offering formal credentials and continuing education programs.

The DCL was initially envisaged as a platform that would provide tools to faculty, educators and trainers in digital stewardship and archives management for building educational modules. It has proven its worth, albeit in a limited context. What we are aiming at next is an interactive online environment that provides high-touch educational experiences in digital stewardship. These tools will be shared in educational forums, and educators, broadly defined to encompass LIS faculty, institutional trainers and continuing education workshop leaders, will be encouraged to use them.

#### IV. CONTINUING EDUCATION COURSES

The expansion of the DCL also has the aim of supporting continuing education modules for digital stewardship that have DCL exercises as their basis and focus. These modules are being developed and delivered online in conjunction with the Simmons GSLIS Continuing Education program (<http://www.simmons.edu/gslis/careers/continuing-education/>), which has extensive experience in offering learning opportunities, online and face-to-face, for librarians and archivists. The Simmons GSLIS Continuing Education program offers more than 70 workshops a year in several different formats, including fully asynchronous online workshops run over one month. The instructors are experienced Simmons GSLIS faculty and adjuncts, *Library Journal* Movers & Shakers, authors, and practitioners – and all have practical expertise in the subjects they teach. A list of workshops is available on the web (<http://alanis.simmons.edu/cweb/>). Continuing education workshops are open to all, including but by no means limited to practicing information professionals.

The online continuing education modules focusing on digital stewardship will be available to a wide audience that extends beyond traditional library and information science programs. Sixteen have been planned and three are complete or almost complete at the time of writing.

TABLE 2: TOPICS COVERED IN ONLINE CONTINUING EDUCATION COURSES

1. Digital Stewardship: Getting Started
2. Digital Preservation Planning
3. Appraisal and Selection of Digital Objects
4. Exploring and Evaluating Open Source Digital Asset Management Systems
5. Managing Born-Digital Content Received on Physical Media
6. Ingest – Getting Data into the Archive
7. Storage of Digital Collections
8. Access of Digital Collections
9. Preservation Approaches
10. Description and Representation Information (a.k.a. Metadata)
11. Introduction to Legal Issues in the Digital Archive
12. Introduction to Research Data Management for the Social Sciences and Humanities
13. Cloud Storage – What do I need to know?
14. Introduction to Email Archiving
15. Introduction to Web Archiving
16. Introduction to Social Media Archiving

We anticipate that several workshops will be piloted later in 2013 and the full suite offered starting in 2014.

#### V. RECEPTION OF THE DSC

It is still too early to know how graduates of the DSC are being received by the professions. There is some limited evidence available about how students, some of whom are already experienced professionals, perceive the program and the courses within it.

Student evaluations of courses provide one body of evidence. Evaluations of the first required course for the DSC cohort, *Digital Stewardship* taken in Summer 2012, pointed out areas for improvement (as expected). Students considered the course to be ‘an excellent introduction to the field of digital stewardship’. The hands-on exercises, using the DCL, were positively commented on: ‘I loved the hands-on exercises we did with actual files. I would have loved to have seen more of this ... Hopefully we get that in a future class!’ The online delivery mode was also considered positively: it ‘presents a rich learning environment’ and ‘the format of the course presentation

(Moodle) is great! This is the best format for online course delivery that I have experienced. The module format worked well with this subject matter.’

Some unsolicited comments have been received. The course is being recommended to others, always a positive sign: ‘I have recommended this certificate program to colleagues in the UN [United Nations] system of libraries and one thing I mentioned was [the Program Director's] dedication to the program.’ Another student incorrectly assumed that the DSC was being developed before another program and provided this comment: ‘I was interested to see the announcement of a program at Chapel Hill similar to the one at Simmons. ... Perhaps some will think of it as competition... my experience in industry is that when a product or service is new and perhaps unique and someone else brings out a similar product or service, it legitimizes the first. Another way to put it is that imitation is the sincerest form of flattery. Congratulations on putting together a great program and then having your lead followed by the likes of UNC.’ A third student commented on how relevant the course was to her duties as an intern in a university’s digital program. She noted: ‘I want to thank you for giving me such a great grounding in the field of Digital Stewardship and Digital Archives last semester. ... when I unexpectedly got this internship, I felt that I really knew what I was getting into, and could understand the issues my supervisor ... was dealing with.’

These are, obviously, selective comments from the earliest phase of the program. Full evaluation of the program will be sought from graduates of the DSC once they have completed the program, and we are in the process of developing the instrument for this purpose.

#### VI. CONCLUSION

Recognizing that both theoretical concepts and experiential learning are essential pieces in the education of future digital curation professionals, the Simmons DSC combined with the DCL offers its students a thorough, well-rounded preparation for their participation in a rapidly emerging field. The program encourages innovation and experimentation, and supports students through field experience and course work. Formal qualifications are only one part of the education and training required, so Simmons is also developing continuing education courses in this field.

#### REFERENCES

- [1] T. Bahr, M. Lindlar, and S. Vlaeminck (2011) ‘Puzzling over digital preservation – Identifying traditional and new skills needed for digital preservation,’ 77th IFLA General Conference and Assembly, 13-18 August, San Juan, Puerto Rico: <http://users.drew.edu/gdobson/dctf/sa/217-bahr-en.pdf>.
- [2] ACRL Research Planning and Review Committee (2012) ‘2012 top ten trends in academic libraries: A review of the trends and issues affecting



academic libraries in higher education', *College & Research Libraries News* 73(6): <http://crln.acrl.org/content/73/6/311.full>.

- [3] C. Engelhardt, S. Strathmann, and K. McCadden (2012) *DigCurV: Report and analysis of the survey of training needs*: <http://www.digcur-education.org/eng/Resources/Report-and-analysis-on-the-training-needs-survey> p. 3.



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- [4] C. Hank (2010) *DigCCurrI final report, 2006-09: Results and recommendations from the Digital Curation Curriculum Development Project and the Carolina Digital Curation Fellowship Program*: [http://ils.unc.edu/digccurr/digccurr\\_I\\_final\\_report\\_031810.pdf](http://ils.unc.edu/digccurr/digccurr_I_final_report_031810.pdf), p. 9.
- [5] Library of Congress (2012) 'Digital Preservation Outreach and Education (DPOE)': <http://www.digitalpreservation.gov/education/index.html>.