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**International Data curation
Education Action (IDEA)
Working Group**

**A Report from the Second Workshop of
the IDEA**

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The second workshop of the International Data curation Education (IDEA) Working Group was held December 5, 2008, in Edinburgh, Scotland, following the 4th International Digital Curation Conference. This workshop was jointly organized by the UK's Digital Curation Centre (DCC), the US's Institute of Museum and Library Services (IMLS), and the School of Information and Library Science at the University of North Carolina at Chapel Hill (SILS). Nearly forty educators and researchers accepted invitations to attend, with representation from universities, research centers, and funding agencies from Canada, the US, the UK, and Germany.

Background

Curation of digital assets is a central challenge and opportunity for libraries, archives, museums, data centers, and other data-intensive organizations. The need for skilled professionals to perform, manage, and respond to a range of procedures, processes and challenges across the life-cycle of digital objects is evident in the cultural heritage, science, commerce, health, education and government information sectors. There are a handful of accredited graduate-level academic programs and professional training and education programs available to prepare students and professionals for work as digital or data curation specialists. To further the development and provision of digital and data curation education

and training programs, as well as impact the sustainability of this education in general, there is need for educators and researchers in these areas to collaborate.

In response, the IDEA Working Group was formed. The DCC organized the inaugural workshop, "Developing an International Curation and Preservation Training and Education Roadmap," held May 27-28, 2008, in Washington DC. It was attended by approximately a dozen digital and data curation educators and funders from the US and the UK. The objectives for this meeting were:

- Identification of available US data curation training and education programs;
- Investigation of collaborative, international approaches to further digital and data curation training and education, and leverage the work of an international community of experts and leaders in this area;
- Identification of professional digital curation roles and core skills; and
- Identification of required education and training curricular elements necessary to prepare students and professionals for roles as digital and data curators.

Another activity preceding the second meeting of the IDEA Working group was the "Education for Digital Stewardship: Librarians, Archivists or Curators?" workshop held at the 2008 Joint Conference on Digital Libraries (JCDL) in Pittsburgh, PA <<http://www.ils.unc.edu/jcdl2008/>>. Several founding members of the IDEA Working Group participated in this workshop, including the workshop organizers, Joyce Ray (IMLS) and Helen Tibbo (SILS).

Workshop Presentations

The second workshop for the IDEA Working group held in Edinburgh on December 4, 2008, extended participation to a larger, international audience of educators and researchers working in the areas of digital and data curation training and curriculum development. Workshop organizers were Joy Davidson (DCC); Joyce Ray, and Helen Tibbo. The focus of this one-day workshop was to build on the work of the earlier workshop, fostering an exchange between independent projects and programs in the US, the UK, Canada and Germany. The objectives were to continue, among this broader audience, exploration of current curation programs, and discuss opportunities for international collaboration and cooperation. In addition, the workshop also aimed to build consensus on terminology, rules and requirements for core digital and data curation academic and professional education programs.

Joy Davidson of the DCC opened the workshop by welcoming participants, providing background to the IDEA Working Group's formation, and discussing the workshop objectives.

Helen Tibbo presented on two current IMLS-funded curriculum development projects at SILS. "DigCCurr I: Preserving Access to Our Digital Future: Building an International Digital Curation Curriculum" is developing an openly accessible graduate-level curriculum to prepare master's students to work in the field of digital curation <<http://ils.unc.edu/digccurr/aboutI.html>>. An additional output of

this grant is two symposia to bring the issues of digital curation and this curriculum to the broader library, archives, and museum communities as well as the public. The second of these symposia, DigCCurr 2009: Digital Curation Practice, Promise and Prospects, will be held April 1-3, 2009, in Chapel Hill, NC <<http://www.ils.unc.edu/digccurr2009/>>. "DigCCurr II: Extending an International Digital Curation Curriculum to Doctoral Students and Practitioners" furthers the work of DigCCurr I through development of an international, doctoral-level curriculum to prepare future faculty to perform research and teach in this area <<http://ils.unc.edu/digccurr/aboutII.html>>. Another vital component of DigCCurr II is the development and administration of annual, multi-stage training institutes for cultural heritage information professionals already working in this arena. The first multi-stage institute, "DigCCurr Professional Institute: Curation Practices for the Digital Object Lifecycle," is scheduled for June 21-26, 2009, in Chapel Hill, NC, with the follow-up session scheduled for January 6-7, 2010, <<http://www.ils.unc.edu/digccurr/institute.html>>.

Next, Carole Palmer presented on two IMLS-funded data curation curriculum projects at the Center for Informatics Research in Science and Scholarship (CIRSS) at the Graduate School of Library and Information Science at the University of Illinois at Urbana-Champaign (GSLIS) <<http://cirss.lis.uiuc.edu/index.html>>. The Data Curation Education Program (DCEP), a specialization offered within the GSLIS's accredited Master of Science program, prepares students to work in the area of data curation. The curriculum emphasizes coursework in data collection and management, knowledge representation, digital preservation and archiving, data standards, and policy. <http://www.lis.uiuc.edu/programs/ms/data_curation.html>. The second initiative, DCEP+, extends the DCEP specialization to humanities data. GSLIS also offers week-long intensive professional training institutes. The next institute, "Summer Institute for Humanities Data Curation," will be held May 18-22, 2009, in Urbana-Champaign, IL <<http://cirss.lis.uiuc.edu/CollMeta/dcep/SummerInstituteHumanities.htm>>.

Following, Elizabeth Vander Meer of the UK's National e-Science Centre (NeSC) <<http://www.nesc.ac.uk/index.html>> reported on the outcomes of the International Collaboration to Extend and Advance Grid Education (ICEAGE) project <<http://www.iceage-eu.org/v2/index.cfm>>. Her presentation drew on a curricular framework for e-Infrastructure that resulted from an ICEAGE-organized "Curricula Development Workshop for Grid and e-Science Education," held in February 2008 in Brussels.

Next, P. Bryan Heidorn of GSLIS and Program Manager in the Division of Biological Infrastructure at the National Science Foundation (NSF), presented on a draft data curation skill set, contributing to much discussion among participants on the challenge of defining key terminology and roles, and the cross-over with other areas, such as archival science and records management. Additionally, he spoke on the developments of the US Interagency Working Group in Digital Data (IWGDD), comprised of representatives from dozens of federal agencies.

Following lunch, Alma Swan of Key Perspectives Ltd. presented findings from the recently published technical report, "The Skills, Role and Career Structure of Data

Scientists and Curators: An Assessment of Current Practice and Future Needs" <<http://eprints.ecs.soton.ac.uk/16675/>>. She commented on the day-to-day issues of researchers and data scientists and recommendations for data curation training, including formal, professional training as well as integration in general undergraduate and graduate curricula. She provided examples of current professional development programs and training opportunities in the UK and Europe, including offerings by the UK Data Archives (UKDA) <<http://www.data-archive.ac.uk/Introduction.asp>>; the Data Integration in the Life Sciences (DILS) workshop series, with the sixth annual workshop to be held July 20-22, 2009, in Manchester, UK <<http://www.cs.manchester.ac.uk/DILS09/>>; and workshops, tutorials and other offerings from the DCC <<http://www.dcc.ac.uk/events/>>.

Next, Kevin Ashley of the Digital Archives Department at the University of London Computer Centre (ULCC) discussed the development and administration of the Digital Preservation Training Programme (DPTP) <<http://www.ulcc.ac.uk/dptp/about-dptp.html>>. Begun as a Joint Information Systems Committee (JISC) funded project, the DPTP is now maintained and administered by the ULCC. Its target audience is managers charged with managing the digital preservation needs of their institutions. It was developed through collaborative partnerships, notably building from the Digital Preservation Management Workshop created by Cornell University and now hosted by the Inter-university Consortium for Political and Social Research (ICPSR) <<http://www.icpsr.umich.edu/dpm/>>.

Joy Davidson spoke in detail on the development and objectives of the DCC's Digital Curation 101 Workshop. The inaugural workshop was held in October of 2008. The workshop aims to assist researchers in developing sound data management and curation plans by providing an introduction to the digital curation lifecycle and the range of roles and activities that should be considered when planning and implementing new research projects. The target audiences for DC 101 are researchers with funding body data management and curation mandates to fulfill and information management specialists. A key goal is the integration of these communities of practice to share their experiences and to identify where, when and how they could best cooperate to meet data curation challenges. The workshop utilizes a combination of lecture and hands-on practical components, enabling interaction and practice with current digital curation tools. The second DCC Digital Curation 101 workshop took place March 10-12, 2009, in London <<http://www.dcc.ac.uk/events/digital-curation-101-2009/>>.

The next two speakers spoke from the perspectives of their respective funding agencies. Neil Grindley, of the UK's JISC, discussed his organization's involvement with issues of digital curation, preservation training and professional development, as well as JISC's commitment to issues of digital preservation and curation as reflected in their research objectives and funding opportunities. The latter is evidenced in a recent call for proposals for a £10,600,000 fund for projects in the JISC research areas of Information Environment (IE) and Support for Research.

<http://jisc.ac.uk/fundingopportunities/funding_calls/2008/12/grant1208.aspx>.

Joyce Ray, of the US's IMLS, talked in general about the organization's mission and, specifically, about funding opportunities available through the Laura Bush

21st Century Librarian Program

<<http://www.ims.gov/applicants/grants/21centuryLibrarian.shtm>>. She addressed three areas of need related to digital and data curation: 1) the need for more inclusion of museums due to less available funding but similar needs for curation; 2) continued focus on education and training for professionals; and 3) expanding planning grant opportunities in order to provide additional funding for international and national workshops such as this one.

The concluding presentation was delivered by Stefan Strathmann of Goettingen State and University Library. He spoke on the series of summer schools developed to provide professional training, organized by the German Network of expertise in Digital long-term preservation (nestor)

<<http://www.langzeitarchivierung.de/index.php>>. He addressed issues of sustainability for grant-funded projects, such as this, and the intent of working group members to contribute money to sustain nestor's cooperative curriculum and training components. Since training materials are in German, this led to discussion of feasibility for sharing and translating the education and training resources produced by all presenters to support exchange among workshop participants and extend reach for education and training to non-native speakers.

Workshop Summary

Throughout these presentations, workshop participants engaged in lively discussions on critical areas in need of further discussion and/or consensus. Themes and associated questions emerging from these discussions include:

- Ambiguity in terminology: What distinguishes data curation from digital curation?
- Professional development: Is digital or data curation a profession? The consensus from participants is that we are training professionals to work in digital or data curation, rather than training digital or data curation professionals.
- Levels of training and education: How do we prioritize and organize around several tiers for education and training, including master's-level programs, PhD-level programs, and post-graduate, continuing-education programs. Further, how do we negotiate between traditional ILS curriculum components and emerging requirements for digital and data curation related education?
- Core competencies: How do we reach consensus in defining and distinguishing core curation skills, both independent of and inline with types of digital resources (e.g., data sets, subject specializations, such as humanities and social science).
- Cross-promotion: How can we cross-promote programs without diminishing our own? What new education and training components are needed? Should we develop some form of a formal review process to facilitate making informed referrals or for assessing current opportunities?

Kevin Ashley and Joy Davidson provided concluding remarks, including directions for deliverables resulting from the workshop and future directions for continued collaboration. Immediate outputs include the compilation of an

international registry of digital and data curation education and professional training programs.

The registry will serve several purposes. It will show the current landscape of available programs and provide details to aid practitioners and students in selecting which program(s) best match their learning objectives and needs (i.e., language and location barriers; pre-requisites for participation). It will also be a resource for identifying active digital and data curation trainers.

An additional outcome is for participants to contribute material in support of a public, online space currently under development at SILS. The Digital Curation Exchange (DCE) is a web portal for digital curation educators and professional trainers, designed to facilitate the sharing of digital and data curation curriculum and course development resources, specifically, and in general, provide channels for continued collaboration among this developing international community of digital and data curation practitioners and educators. The development of the DCE has already begun under DigCCurr II project funding from IMLS.

DigitalPreservationEurope (DPE) also offers a number of registries that can be used to help gather and disseminate curriculum and training information and materials across Europe <<http://www.digitalpreservationeurope.eu/registries/>>. The IDEA Working Group is investigating ways to cross-populate both registries with curriculum and course details. The group also intends to make use of the resources available through the DCC's website to support educators and disseminate research, tool development, training, and publications to practitioners in a collaborative and interactive public space. In particular, the IDEA Working Group sees potential for making use of the DCC's Digital Curation Manual to help establish a canon of curation literature and for making use of the DCC's Methodology for Designing and Evaluating Curation and Preservation Experiments <<http://www.dcc.ac.uk/docs/publications/TestBedMethodV1.1.pdf>>, in conjunction with the Planets Testbed <<http://gforge.planets-project.eu/gf/project/ptb/?action=index>> to enable students to work collaboratively on curation experiments in a controlled environment.

A grant request was recently submitted to secure additional funding for DCE development and administration. Types of information and materials to be shared and made available include:

- Theoretical frameworks (e.g., skills sets and core curricular competencies)
- Use cases
- Experiential learning components and internship opportunities
- Educational and professional training exercises

Next Steps

Plans are currently underway to organize a third workshop, to be held in conjunction with DigCCurr 2009 <<http://ils.unc.edu/digccurr2009/>>. Building upon the outcomes of this workshop detailed above, and the objectives set at the inaugural Workshop held in May 2008, the IDEA Working Group will continue to

collaborate and work together to:

- Foster collaborative international partnerships among digital and data curation educators, researchers, and funding agencies;
- Raise the profile of digital and data curation in general (benefits driven) to help ensure that we can justify the establishment and sustainability of sound infrastructures in higher education (HE) and further education (FE) institutions;
- Investigate the development of a canon of curation literature to serve as core texts for training and education;
- Continue investigation and make recommendations for digital and data curation terminology and core curricular competencies;
- Continue investigation and recommend digital and data curation skills sets;
- Continue to investigate and recommend curation roles (e.g., data scientist, data curator, data archivist, and data auditor).
- Investigate and propose strategies for developing agreements for exchanges between digital curation education and training partner institutions;
- Investigate virtual research possibilities to enable students in curation programs to engage in shared research projects across institutions;
- Continue to work to align curation training course development with curation curriculum development to ensure compatibility of skill sets between current curation practitioners and emerging professional digital curators;
- Create case studies from early implementers of data curation masters-level programs (e.g., DCEP, DCEP+, DigCCurr I);
- Research and recommend strategies for moving training and education from the project level to the program level (i.e., part of the research agenda that has some degree of sustainability) ;
- Discuss and investigate better financial models for supporting long-term curation; and
- Focus on reaching those undertaking 'small science' /'long tail' research.

To borrow a question from one workshop participant, "No individual school out there can do it all, so how do we collaborate?" The IDEA Working Group is well underway in responding to this need for collaboration, providing a strong collective from which to address some outstanding issues related to digital and data curation education and professional training.