



Virtual Internships: Opportunities for Experiential Learning and International Collaboration in Digital Curation Curricula

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Abstract:

Incorporation of experiential learning in library and information management education in the form of a practical placement has long been accepted as necessary and important. The development of curricula for digital curation provides the opportunity to develop the internship component further so that students can participate in this experience regardless of their physical location; in other words, to develop a virtual internship. The concept of a virtual internship appears to be entirely appropriate given the focus on digital tools, information and systems in digital curation. A new dimension to the traditional internship experience is the potential for sharing expertise internationally, in a diverse range of settings.

Introduction

Education for library and information management related disciplines requires attention to be paid to providing students with opportunities for experiential as well as theoretical learning. The field of digital curation presents particularly complex challenges in that practice is rapidly evolving, and outcomes are not necessarily documented in the scholarly literature yet. The digital curation landscape is a global one, characterised by pockets of innovative activity in unexpected settings. These factors indicate two things. Firstly, that an internship component is essential if we are to be successful in providing students with up-to-date and relevant digital curation knowledge and skills. Secondly, to provide our students with the best possible opportunities we should endeavour to make sure that internships are available in institutions which are not confined to one specific geographical location. A feasible approach therefore is to investigate providing internship opportunities on a virtual basis. This paper explores these issues, beginning with discussion of the need for internships as a bridge

between theory and practice, which includes an overview of San Jose State University's School of Library and Information Science (SJSU SLIS) current internship program. This is followed by a review of the literature relating to the emerging concept of virtual internships. The potential of virtual internship to digital curation is considered in the context of New Zealand – a location that is geographically relatively remote but characterised by innovative digital curation initiatives. The paper concludes with a description of plans for a pilot virtual internship project, and suggestions for further research.

Bridging Theory and Practice through Internships

The School of Library and Information Science (SLIS) at San Jose State University offers the nation's largest online ALA-accredited Master of Library and Information Science (MLIS) program. The School's MLIS program has been accredited since 1954, and today the program is delivered fully online. The School's MLIS students take a core set of required courses and have the opportunity to select elective courses that provide a theoretical and practical education in archival science and provide knowledge and training in allied scholarly and applied fields, including digitization and preservation.

Research indicates that field experiences are an important component of a professional graduate program, and they also build beneficial connections between students and potential future employers. The School has an extensive outreach program to employers, encouraging them to offer internships to MLIS students, and as a result, more than 200 internships are offered each semester across the United States, Canada, and several other nations.

Internships tend to be placed-based, especially in archival programs. To participate, students need to be located near an approved internship site or work with the internship coordinator to locate an acceptable internship site near their home. This arrangement presents students who live in rural areas with several unsatisfactory options: to move temporarily near an approved internship site, to travel long distances to and from the internship site, to expend a great deal of time and energy locating an acceptable internship near their homes, or to forgo participating in an internship experience altogether.

In order to overcome these obstacles, SLIS has decided to develop virtual internship opportunities for students in library and information science fields, including digital curation. Virtual internships will be modeled after the existing field-based professional experiences, which take place in a physical environment, such as a library or archival records repository. Consistent with current internship requirements, students will be required to work 45 hours for each unit of credit, or 135 hours for the 3-credit course. The School will provide a faculty supervisor of the structured learning experience, and the host organization will provide a qualified site supervisor. The differentiating factor between the new virtual internship course and the existing internship course will be that all work will be performed at a distance through web-based technology provided either by the School, by the internship site, or both. Unlike with place-based internships, virtual internship hours will be flexible, making them more convenient for students.

A survey was conducted in October 2010 of archival internship supervisors who had actively participated in the School's place-based internship program over the previous three years in order to gauge their interest in a virtual digital curation internship program. Of 78 supervisors contacted, 44 completed the survey. One-half of the 44 indicated they were currently involved in digital curation projects. Two-thirds of the respondents indicated they

expect to have a digital curation project within their organization within the next three years, and the same number stated they would consider offering a digital curation internship.

Seven of the site supervisors confirmed in writing their willingness to provide virtual internship opportunities, and others are exploring the possibility. Because San Jose State University is located in the heart of Silicon Valley, it is not surprising that those who expressed early interest in this project are California-based organizations: NASA Research Center History Office, Stanford University Libraries, San Diego Air and Space Museum, the Sacramento Rock and Radio Museum, the San Francisco Museum of Modern Art, Yolo County Archives and Records Center, and the Freedom Archives.

Efforts to add virtual internship sites outside of the state and the nation are ongoing. Such virtual internships will allow students to better understand the digital curation challenges facing archives and cultural heritage institutions worldwide and provide opportunities to network with professionals in the field regardless of geographic location.

Literature Review

Growth of the Virtual Workforce

Advances in technology, including high-speed internet connections and low-cost portable devices, have made the virtual workplace a reality. A 2011 study, *Telework Canada: The bottom line on telework*, revealed the following benefits of telework (remote or virtual work): an increase in employee productivity, an increase in employee satisfaction, and a reduction in employer costs (Lister and Hamish).

This virtual workforce is expected to continue to grow. According to a 2010 study, three out of every four companies surveyed employ virtual workers in some form and the numbers of virtual workers employed in those companies is expected to double in 2011 (“Virtual workforce,” 2011, March 17). In a February 2011 report to the US Congress, the US Office of Personnel Management reported the percent of telework eligible employees actually teleworking rose from 8.67% in 2008 to 10.40% in 2009. The same report listed the number of ways in which the Office of Personnel Management increased its support for Federal telework between 2009 and 2010 (US Office of Personnel Management).

Research conducted among current internship site supervisors and studies like those cited previously reflect the need for students to be prepared to succeed in this growing virtual workforce. Many of the tasks involved in digital curation—e.g., metadata mapping, data cleansing, and cataloguing—can be performed at a distance and make virtual internships feasible.

Benefits of Virtual Internships

Institutions of higher education are beginning to recognize the value of virtual internships as valid experiential learning opportunities to acquire professional skills and competencies. Columbia University’s Virtual Internship Program Website provides compelling rationale:

Currently, over 8 million people work virtually across the United States and increasingly, companies and organizations are exploring the virtual workplace (<http://www.careereducation.columbia.edu/findajob/cce-internship/vip>).

Traditional internship experiences benefit students by reinforcing their academic learning (Hughes and Moore, 1999), increasing their self-confidence, and providing an opportunity to establish professional contacts (Adrianus et al., 2011). But traditional internship experiences pose challenges as well. Students living in rural areas are at a disadvantage, as most large archives, libraries, and other cultural heritage centers are located in urban areas. Work and family responsibilities may prevent students from moving to take advantage of an internship opportunity. Traditional internship positions at libraries, archives, and other cultural heritage centers require the intern to work during normal operating hours. Students who work part- or full-time may not be able to adjust their schedules to be available during those hours.

Virtual internships offer the same benefits as traditional internships, but they offer additional benefits as well. In fact, “Virtual internships add particular value to traditional education, as well as to distance education” (Van Dorp et al., 2008).

Learning Theory and Virtual Internships

In attempting to understand the educational value of virtual internships for students, one can turn to the social learning theories and theorists, including Bandura, who believe that learning occurs in a social context. Bandura’s Social Learning Theory “posits that people learn from one another, via observation, imitation, and modelling” (1997). This theory has often been called a bridge between behaviourist and cognitive learning theories because it encompasses attention, memory, and motivation. In the same manner, virtual internships can serve as a bridge between academia and the world of work, a world becoming increasingly virtual.

The “design of a virtual internship draws upon research within the constructivist learning paradigm” and that virtual internships are “a form of a constructivist learning environment” (Cheney, 2008).

Constructivists believe that learning is a process of interpreting, building, and modifying our understanding of reality based on life’s experiences (Jonassen, 1994). A prominent theorist, John Dewey, believed that knowledge emerges only from situations in which learners have to draw them out of meaningful experiences (Dewey, 1966). Virtual internships provide the opportunity for students to apply their subject matter expertise to the workplace to create new knowledge and skills through social negotiation with both the faculty internship supervisor and the site supervisor.

In 1999, Dresang and Robbins urged library and information science educators to introduce “Web-managed practice of field experience” into the curriculum. Advances in technology since 1999 provide the tools needed to develop meaningful virtual internship experiences. Technology alone is not sufficient. “The opportunity to offer virtual internships using computer-mediated communication is particularly promising when the internship placement is valued as an academic class worthy of pedagogical improvement” (Black, 2007).

Both Social Learning Theory and the Constructivist Paradigm lend credence to the value of virtual internships to bridge the gap between the digital curation classroom and the workplace.

Rationale for Digital Curation Curriculum Development, including Virtual Internships

There is a rapidly increasing demand for information professionals who can manage the burgeoning data generated by a nation's researchers, serve as stewards of a nation's cultural legacy, and meet the needs of businesses and government agencies as they manage their growing volume of digital assets. This relatively new and pressing need has created a rising demand for archivists, librarians, and museum professionals who are trained to apply the latest tools and methods to effectively manage and preserve material that is born digital or converted to digital form.

Digital curators manage, maintain, preserve, and add value to digital data, reduce threats to long-term value, mitigate the risk of digital obsolescence, and enhance the usefulness of digital data for research and scholarship. According to the Occupational Outlook Handbook, 2010-11 Edition, employment of digital curators is expected to increase by 23% between 2008 and 2018, which is much faster than the average for all occupations.

In response to this growing demand, the SJSU School of Library and Information Science (SLIS) is launching efforts to expand its curricula to include new courses focused on the knowledge and skills needed by digital curators. The new courses will build upon the School's existing archival specialization, which is part of the Master of Library and Information Science (MLIS) program.

One of the new courses proposed by the planning team is a structured field experience—an internship program supervised by SLIS faculty members and hosted by libraries, museums, archival repositories, and other information organizations. Research indicates that field experiences are an important component of professional graduate programs, allowing students to apply what they have learned, while building beneficial connections with potential future employers.

The focus of the first pilot study in digital curation virtual internships—which will include the partnership between U.S. students and New Zealand internship sites, highlights one of the major benefits—the ability for students to learn from experienced professionals regardless of geographic location.

Digital Curation in New Zealand

New Zealand is a small country which is relatively isolated, situated in the Southern Pacific Ocean about 2,000 kilometres distant from Australia. It has a well-developed information infrastructure, with formal educational programs for information managers evolving since the 1940s (Oliver, 2006). There is just one provider of postgraduate education for information managers in New Zealand, Victoria University of Wellington, which is based in the nation's capital, roughly in the middle of the country. The population of about 4,000,000 people is spread throughout the two main islands. This has meant that delivery of education via distance has been an essential component of information management programs (Oliver, 2006).

In recent years, digital curation in New Zealand has achieved world-wide prominence, largely due to the activities of their National Library. In 2004, the National Digital Heritage Archive (NDHA) programme was established by the National Library of New Zealand (National Library of New Zealand, 2008) and a successful business case secured a significant amount of government funding for development. The NDHA mission is a comprehensive one:

“The NDHA contributes to New Zealand's Digital Strategy by preserving New Zealand's digital memory under the National Library's guardianship and ensuring ongoing access, in accordance with collection and access policies, to its digital heritage collections” (National Library of New Zealand, 2009).

The background and current status of the NDHA project is described by its leading proponent, Steve Knight (Knight, 2010). One missing element from the NDHA mandate was any requirement to address preservation needs of public records. Accordingly, in 2006, New Zealand's national archives authority established a new team to address digital archiving requirements for government records which in conjunction with the National Library is now building a government digital archive. An outcome from this work is the Digital Continuity Action Plan (Archives New Zealand, 2009), the aim of which is to assist public sector bodies with issues relating to ensuring that digital information can be appropriately accessed and used for as long as required.

One of the goals of the Digital Continuity Action Plan is to form a community of practice which crosses professional, occupational and international boundaries, with a view to fostering research and innovation. Explicit mention is made of the need for international perspectives to feed into the New Zealand context (Archives New Zealand, 2009, action 6.1.2). Virtual internship opportunities provide a novel and unexpected means of contributing towards achieving this goal.

Thus far, the main activity that has been carried out to build this community of practice is the formation of the Digital Preservation Practical Implementers Guild (Archives New Zealand, 2011) which includes participants from the cultural heritage and university sectors, broadcasting and government departments. As the name of the group suggests, members mostly represent those organisations that are actively pursuing digital curation activities. This group therefore appeared to be an ideal forum to gauge interest in a virtual internship program where students not resident in the same location, or even the same country, could gain practical experience of digital curation implementations.

Response to the concept of virtual internship was very positive, and the notion was quickly expanded to a reciprocal one. In other words, the internship was envisaged as not just a question of geographically remote students participating in New Zealand initiatives but also an opportunity for local students to engage in overseas activities. This would maximise the potential not only for experiential learning but also the sharing of innovation in practice. Preliminary discussion identified the following work projects as examples of areas where virtual interns could make meaningful contributions:

- Developing and refining policy
- Mapping metadata fields to national and international standards
- Carrying out environmental scans
- Piloting and testing transfer routines
- Data cleansing
- Accessioning data
- Cataloguing
- Collecting data to inform preservation strategy development

Participation in team meetings using web conferencing technology would be an important means of ensuring that students are included in the organisational context as opposed to simply carrying out tasks remotely. As the #1 provider of online education in

library and information science, SLIS is uniquely equipped to utilize emerging technologies to provide both synchronous and asynchronous information and communication environments that can be employed to facilitate interaction between interns, the internship supervisor, and the site supervisor.

The need for quality assurance would be a critical factor to incorporate into program design. Mass digitisation projects involving volunteers working from home (see, for example Familysearch Indexing, 2008) could be used as a starting point for identifying approaches to ensuring data quality.

Virtual Internship Pilot Project Plans

A grant awarded by the California State University will provide funding for a summer 2011 research project titled, *Building a Virtual Internship Program for Graduate Students*. The aim of this project is to design a virtual internship program in digital curation, which can complement new digital curation courses to be developed at SJSU, while also serving as a model for virtual internships that can be replicated for other MLIS students, as well as other SJSU students and MLIS students at other universities.

CSU grant funds will be used to provide a summer fellowship for the project's principal investigator, Dr. Patricia Franks, one of the authors of this paper and a tenure-track faculty member from the SJSU School of Library and Information Science. During her fellowship, Franks will identify virtual internship sponsors, determine the tasks for each intern position, and create a student contract outlining those responsibilities. In addition, she will develop the framework for virtual internships to ensure that students can successfully participate at a distance and site supervisors can assess learning outcomes. She will also build a formal student orientation program for delivery via live web conferencing sessions and recorded videos. Finally, she will develop a plan to evaluate the virtual internship program once it is launched.

CSU funds will also be used to hire a graduate student assistant, who will team up with Franks in identifying internship sponsors, creating student contracts, developing assessment tools, and building the virtual internship orientation program.

Dr. Gillian Oliver will participate in the digital internship planning process by identifying digital curation internship sites and site supervisors in New Zealand.

A pilot project placing a limited number of students in digital curation internship positions during the fall 2011 term will be conducted. The success of the pilot project will be evaluated from both the student and site supervisor's perspectives, and the process will be refined as necessary.

The initial feedback from internship site supervisors in the fall of 2010 prompted a revision of the existing place-based internship database to allow site supervisors to select "virtual" to describe the internship position available if appropriate. Between the time the summer fellowship was approved in November 2010 and the time this paper was written, 17 virtual internship positions were added to the database. This provides an unexpected opportunity to compare the success and satisfaction rates of students and site supervisors in the pilot project with students enrolled in virtual placements who are not part of the pilot project and their site supervisors.

In addition, a random sample population of students enrolled in place-based (physical) internship positions in the fall of 2011 and their site supervisors will be identified and

surveyed. The results of that survey will be compared with the results of the previous two surveys.

An analysis of the results of the survey of the three populations (virtual interns in pilot, virtual interns not part of pilot, and traditional interns) will be made to identify strengths and weaknesses. An iterative process will be used to improve the experiences for all students and site supervisors. One method that will be considered is the development of field notes and (later on, more comprehensive) field reports.

New archivists often complete field experiences or practica as part of their professional preparation. When written by students engaged in a practicum or internship, field notes and field reports can provide an inside perspective on the field site, provide some indication of a student's ability to be reflexive about their own participation, and make visible the new competencies they are developing in the field. Iterative feedback from a guiding site supervisor and/or academic advisor can help students engage in new meaning-making and interpret their participation in transformative ways.

Lessons learned will be used to modify the materials developed during summer fellowship, and the revised materials will be integrated into the existing internship website for use by all students who participate in virtual internships.

Project Goals

The aims of the virtual internship program in digital curation include the following:

- Provide opportunities for SJSU students to participate in structured field learning experiences, regardless of where they live.
- Expand the number of SJSU students who understand how to apply the skills and knowledge required to work as digital curators, making it possible for them to effectively compete for job opportunities.
- Develop an innovative model for virtual internships, which can be replicated for MLIS internships that focus on other topics, for the School's MARA internship program, for other SJSU students, and for MLIS students at other universities.

Additionally, the work accomplished via the summer fellowship funded through the CSU grant will allow Franks to build towards an external grant application focused on further research and evaluation regarding virtual internships, as well as digital curation curricula. For example, Franks submitted a grant proposal to the Institute of Museum and Library Services (IMLS), a federal agency that funds research regarding digital curation.

Suggestions for Further Research

The students participating in the pilot study taking place in the fall of 2011 would not have had the benefit of a core set of courses designed to provide them with a standard knowledge base and set of skills. If additional grant funds are obtained to develop digital curation core courses to be offered within the MLIS program, the virtual internship would be taken as a culminating experience. At that time, it is recommended that the original survey be replicated to determine success and satisfaction rates against the results of the original surveys to see if there is a difference between those who had taken the specifically designed courses and those who had not. It will also be useful to collect qualitative data by conducting interviews of both hosts and students in order to probe issues in more depth.

In addition to the continuing evaluation of the digital curation virtual internship course as described above, further research into the type of knowledge and skills most valuable for digital curation positions is recommended. Gaps between the knowledge and skills need for success in these positions and the knowledge and skills gained by taking the new core of courses would be identified. The information gathered could be used to further refine the curriculum.

Analysis of data collected as a result of evaluation together with research into the knowledge and skills required in digital curation positions could be used to develop a set of model guidelines for virtual internships, with international applicability.

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