Experiential learning and international collaboration opportunities: virtual internships

Patricia C. Franks
School of Library and Information Science, San Jose State University, San Jose, California, USA, and
Gillian C. Oliver
School of Information Management, Victoria University of Wellington, Wellington, New Zealand

Abstract

Purpose – Experiential learning incorporated into library and information science education in the form of a practical placement has long been accepted as important. However, it is not always possible for students to undertake a traditional internship because of constraints associated with the physical location of internship sites. The purpose of this paper is to explore virtual alternatives, in the context of digital curation.

Design/methodology/approach – Surveys exploring the internship experience were conducted of students and supervisors, leading to the development of a pilot study. In addition, discussions were held with possible supervisors in a country with a small population, faced with the challenge of building capability in digital curation.

Findings – The concept of a virtual internship is 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 diverse settings.

Research limitations/implications – Although the paper describes activities taking place through the School of Library & Information Science at San Jose State University, the findings can be used to justify virtual internship programs and develop strategies to be employed by other Schools at the University and other Universities within and outside the USA.

Practical implications – This paper includes implications for the development of successful virtual internship programs on the Master’s degree level, including those for students preparing for careers in digital curation.

Originality/value – The paper provides insight into the practical issues associated with incorporating experiential learning into digital curation curricula and signals the potential for approaching internships from a global perspective.

Keywords United States of America, Universities, Virtual learning environment, Curricula, Experiential learning, Virtual internship, Digital curation

Introduction

Education for library and information science related disciplines requires providing students with opportunities for experiential as well as theoretical learning. 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, records managers, 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 curation involves maintaining, preserving and adding value to digital research data throughout its lifecycle (DCC, 2012b). 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, 2012-2013 edition* (US Department of Labor, 2012b), employment of curators is expected to increase by 25 percent from 2010 to 2020, which is faster than the average for all occupations. The employment of archivists is projected to grow 12 percent between those same years, about as fast as the average for all occupations; however, employment for archivists who specialize in electronic records and records management is expected to grow more rapidly than those for archivists who specialize in older media (US Department of Labor, 2012a). In response to this growing demand for curators and archivists prepared to manage digital objects, the School of Library and Information Science (SLIS) at San Jose State University (SJSU) is expanding its online curricula to include new courses focused on the knowledge and skills needed by digital curators.

This paper explores these issues, from two distinct perspectives: first, from the perspective of SJSU/SLIS, which offers one of the world’s largest online educational programs for librarians, archivists and records managers, and, second, by way of contrast, from the perspective of New Zealand, a small country active in digital curation. These two perspectives reflect the different working environments of the two authors. The paper begins with a review of literature relating to digital curation curricula and virtual internships. This is followed by a description of the SJSU/SLIS degree programs, delivery methods and current internship program, plus a report on surveys and a pilot study undertaken. Finally, the value 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 by summarizing plans for further research.

The context
This brief literature review sets out the background to the development of curricula for digital curation and explores the main issues relating to virtual internships.

*Digital curation curricula*  
Digital curation is a new area of specialisation, its origins as an academic discipline have been linked to the establishment of the first peer reviewed journal, the *International Journal of Digital Curation* in 2006 (Higgins, 2011, p. 82). The development of curricula for this new discipline was stimulated by Institute of Museum and Library Services (IMLS) funding, with a call for proposals in 2005 (Fulton *et al.*, 2011, p. 95). The most noteworthy outcome from this call was the University of North Carolina at Chapel Hill’s...
School of Information and Library Science development of a publicly accessible digital curation curriculum (DigCCurr, 2012).

European research projects have also been established to further develop digital curation curricula. DigCurV was funded by the European Commission to develop a framework for vocational training in digital curation (DigCurV, 2012). Also extending the notion of relevant education beyond specialized academic curricula is APARSEN (2012), a European Commission funded network of excellence. This project seeks to embed digital preservation education and training in other, relevant curricula.

**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, 2011).

This virtual workforce is expected 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 were expected to double in 2011 (The Skills Portal, 2011). Elance, an outsourcing company for online workers, revealed the number of businesses hiring independent workers to work remotely doubled in 2011, and 83 percent of small businesses surveyed reported plan to hire up to half of their workforce as virtual workers in 2012 (Elance, 2011).

The US Congress established telework policies in 2000 and updated the law in 2010. Currently only about 120,000 members of the 2.1 million government workforce telework regularly (Lunney, 2012). However, in challenging economic times, the opportunity to reduce expenditures may be the catalyst for growth of virtual workers within the US federal government. In a December 2011 letter to Office of Personnel Management Director Berry, Congressmen Connolly and Sarbanes (2011) cited cost-saving examples resulting from the implementation of telework policies, including $36 million in real estate costs by avoiding construction of individual offices for 3,464 employees.

Research conducted among current internship site supervisors and studies like those cited 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 web site provides compelling rationale, stating that over 8 million people are working virtually across the USA (Columbia University, 2012).

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 (van Dorp, 2008, p. 23). But these 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 relocating to take advantage of an internship opportunity. Place-based internship positions 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 place-based 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, 2008, p. 54). Virtual interns learn to employ current information and communication technology to conduct their work and collaborate with their site supervisor and co-workers. Virtual interns are required to exhibit a high level of independent and critical thinking, because they receive fewer and/or more infrequent directions. According to a study reported in *The Economic Times* (2011), communications, critical thinking and writing skills are the three key qualities that most employers look for in a potential employee.

**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 (1977) “posits that people learn from one another, via observation, imitation, and modeling”. Social learning 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 creates “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). Another theorist, Dewey (1966), believed that knowledge emerges only from situations in which learners have to draw them out of meaningful experiences. 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 Dresang and Robbins (1999) 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. “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 and Bachman, 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.

**Internships at SJSU**

The SLIS at SJSU, San José, CA, USA, offers its 2,200 students living in 48 states and 17 countries the choice of two 100 percent online master’s degree programs: the nation’s largest online ALA-accredited Master of Library and Information Science (MLIS) and
the nation's first completely online Masters of Archives and Records Administration (MARA). Students in both programs take a core set of required courses and can elect courses that provide a theoretical and practical education in archival science and 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; furthermore, fieldwork builds beneficial connections between students and prospective employers. SLIS has an extensive outreach program to encourage employers to offer internships, and as a result, more than 100 internships are offered each semester across the USA, Canada, and several other nations.

Until recently, most internships were place-based. To participate in these internship positions, students worked with an internship coordinator to locate an acceptable place-based internship opportunity. This arrangement was unsatisfactory for many students, especially those who lived in rural areas, as their options included temporarily residing near an approved internship site, commuting long distances daily to and from the site, or forgoing participating in an internship experience altogether.

To overcome these obstacles, SLIS has become more proactive in attracting virtual internship opportunities for students. The virtual internships are modeled after the original field-based professional experiences. Students are required to work 45 hours for each unit of credit, or 135 hours for a three-credit course. The school provides a faculty supervisor for the structured learning experience, and the host organization provides a qualified site supervisor. The differentiating factor between the virtual internships and the place-based internships is that all work for the virtual internship is performed remotely through web-based technology provided by the school, the student, and/or the internship site. As with the online classes in which students are enrolled, virtual internship hours are flexible, allowing students to work from home evenings and weekends.

SLIS is in the process of developing a Digital Curation Career Pathway to include six courses to ensure that students understand and are able to perform the actions essential to manage and preserve digital research data through each stage of the DCC Curation Lifecycle Model (DCC, 2012a). Interpreting Digital Curation broadly, the SLIS DC career pathway will also address the maintenance, preservation, and enhancement of digital objects other than digital research data throughout their lifecycle.

An internal Digital Curation curriculum committee and an external advisory committee was formed to develop a tentative outline for the DC career pathway within the MLIS degree program and recommended six courses: Foundations of Digital Curation, Selection and Appraisal, Managing Digital Collections, Digital Preservation/Conservation, and a Digital Curation Internship. The curriculum committee will review updated information regarding digital curation programs, including the findings of Closing the Digital Curation Gap (2010), a collaborative project funded by IMLS and the Joint Information Systems Committee, which will conclude in October 2012, before finalizing their recommendations. One course will definitely be included, the "Digital Curation Internship". The internship experience will offer students the opportunity to engage in actions essential to manage and preserve digital objectives through each stage of the DCC Curation Lifecycle Model (DCC, 2012a).

When considering the internship experience, we determined that the digital curation landscape is a global one, characterised by pockets of innovative activity in unexpected settings. These factors indicate two considerations:
an internship component is essential if we are to be successful in providing students with up-to-date, relevant digital curation knowledge and skills; and

in order to provide students with the best possible opportunities, the internship component must not be limited by geographical location.

A feasible approach therefore is to provide internship opportunities on a virtual basis.

To gauge interest in virtual internships in digital curation, a survey of archival internship supervisors who had actively participated in the school's place-based internship program over the previous three years was conducted in October 2010[1]. Of 78 supervisors contacted, 46 completed the survey. One-half of the 46 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 agreed to explore the possibility. Because SJSU is located in the heart of Silicon Valley, it is not surprising that those who expressed early interest in this project are mainly 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, Oddball Films and Video, 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.

In 2011 SILS students were surveyed about their internship experience, leading to the development of a 2012 pilot study. Findings from this research are reported below.

Summer 2011 initial virtual internships experience surveys

A fellowship in the amount of $7,500 from the California State University provided funding for Dr Franks to conduct a research project titled, Building a Virtual Internship Program for Graduate Students. The aim was to design a virtual internship program for all SLIS students that could serve as a model for a virtual internship course in digital curation to complement new digital curation courses to be developed at SJSU. The original intent was to identify students for virtual internship positions for the fall of 2011 in order to study their experiences. However, it was learned that a small number of students had already participated in virtual internship experiences during the fall 2010, spring 2011, and summer 2011 terms as part of the traditional SLIS internship program. This provided an unexpected opportunity to gather data from students who had already acquired virtual internship experience.

Therefore, on 27 July 2011, 303 students enrolled in an MLIS internship course during the fall 2010, spring 2011, and summer 2011 semesters were invited to participate in an internship survey. A total of 229 students started the survey, but only 208 of the 229 (90.8 percent) answered all of the questions. In total, 17 respondents indicated they had participated in a virtual internship experience. The responses of the students engaged in virtual internship experiences are referred to in this paper.

Nine of the 17 virtual interns were required to visit a physical location at least once, and most of the sites were located in California. The remaining sites were
located in Toronto, Canada; CoLab campus in Second Life; Tennessee; Dubai, UAE; and Bellingham, Washington.

A summary of job titles, job description/tasks, and qualifications/skills needed was developed. Among the job titles listed are: Business Information Research Intern, Public Interest Research Reports Intern, Digital Learning Objects Virtual Intern, Taxonomist, EAD Recon Intern, and Library Services & Content Management Intern. Although these were not digital curation internships, many of the tasks required, e.g. digitizing photographs, analyzing digital images, processing digital collections, and adding metadata to digital objects – can be linked to specific phases of the DCC Curation Lifecycle Model.

Aside from the need to master theory and practice related to specific knowledge domains, students stressed the importance of soft skills. For example, they indicated they would like to see topics such as setting realistic expectations and virtual teamwork skills included in either an orientation or short training program before the virtual internship takes place. When asked the types of skills either gained or further developed through their internship experiences, the top three skills were project management, working independently, and time management as shown in Figure 1.

The recommendations made by students in response to the July 2011 survey were taken into consideration during the fall semester in order to create a virtual internship subsite on the SLIS web site. In addition, during the fall 2011 term, additional virtual internship opportunities were identified, and a panel presentation was scheduled to allow potential interns to learn more about the virtual internship opportunities from site supervisors themselves.

For the spring 2012 term, all virtual interns, regardless of career goal or internship site placement, were placed in one class under the direction of Dr Franks. A student assistant was embedded in the online course to gather ideas to enhance the virtual internship web site further. The lessons learned from feedback from both virtual interns and virtual internship site supervisors would be used to continue to strengthen the virtual internship program and to develop the Digital Curation virtual internship course.

Figure 1.
Skills acquired or enhanced through virtual internship placements

The focus of the spring 2012 pilot study was to gather data to enhance the virtual internship experience for all future SLIS students and site supervisors. Digital curation virtual internships – which will include the partnership between US students and New Zealand internship sites, among others – will take place in spring 2013 and take advantage of the information gathered through the 2012 pilot study. The expansion to international sites for virtual interns will highlight one of the major benefits of a virtual internship program: students will have the advantage of working with experienced professionals regardless of the geographic location of either.

Franks supervised 20 virtual interns during spring 2012; 17 were MLIS students and three were MARA students. Each student was required to work a minimum of 135 hours to earn three units of credit toward their degrees. In addition to their internship responsibilities, all students were expected to meet the following course requirements:

- Participation in weekly discussions in an online learning management system.
- Communication about their internship experience through weekly blog posts.
- Attendance at a minimum of two of four web conferences during the term.
- Completion of an online evaluation of the internship site.
- Submission of a report which included a statement explaining how each student learning objective identified in the internship application was achieved and providing evidence (e.g. materials in appendices, separate digital files, or links to work posted online).

A successful virtual internship experience relies upon the efforts of three parties: the intern, the site supervisor, and the student internship supervisor. Communication between the site supervisors and the student internship supervisor occurred before and during the pilot on an informal basis, either when preparing or participating in panel presentations, developing job descriptions for the internship database, or answering questions related to student expectations.

Because of multiple internship positions at several sites, the 20 virtual interns were placed in 13 different sites. Five of the students were placed with two site supervisors that responded to the October 2010 survey on digital curation, Stanford University Archives and OddBall Films and Video. In April 2012, a brief survey was sent to all site supervisors, with a response rate of 100 percent.

The following information was gathered (participants were allowed to select more than one item from a list provided and/or select “other” and write in the item).

- The preferred method of communication with interns was e-mail (91.7 percent) followed by phone and Skype (41.7 percent). The preferred method of file sharing was also e-mail (84.6 percent) followed by Google Docs (61.5 percent), and Dropbox (15.4 percent).

- The majority of site supervisors hosted virtual interns in order to help prepare future professionals in a real-world setting (84.6 percent), but 46.2 percent appreciated access to an individual with fresh ideas while 38 percent also saw it as a way to alleviate a heavy workload.

- The majority of the respondents appreciated the flexibility of available work hours possible (66.7 percent); 58.3 percent cited the low cost and overhead of hosting an intern virtually; and 58.3 percent cited the option of choosing interns from outside of their local area.
When asked for recommendations that could help a virtual intern prepare prior to the start of the semester, a number of responses were provided, including:

- Be very comfortable with communication via online, phone and webinar type environments.
- Understand the communication methods and approaches used by the organization.
- Read about the responsibilities and expectations of “telecommuting.”
- Familiarize self with subject matter (e.g. EAD, DACS, Archivists’ Toolkit).
- Be familiar with common tools for virtual work (e.g. Skype, g-chat, Google Documents).
- Acquire hardware and software needed to transfer data and information back and forth to the site supervisor.
- Set a schedule of “work time” even though it is virtual.
- Prepare ahead of time and schedule your time adequately.

Site supervisors expect students to possess both hard and soft skills:

- **Soft skills.** Time management, sense of commitment, realistic expectations, willingness to ask questions, self-management, strong communication skills, flexibility, ability to multitask, ability to meet deadlines, detail-oriented, ability to learn new systems of organization and new software. A self-starter able to work on their own, using their own judgment.

- **Hard skills.** Excel, GoogleDocs, D2L, Collaborate (web conferencing), Skype, Jing or other Screencasting applications, fearlessness in exploring applications.

Site supervisors recommended the School better prepare students for virtual internships by:

- providing them with a way to collaborate with supervisors, investigating options for appropriate communication tools;
- checking in with supervisor in second and fourth weeks of program; and
- communicating more with site supervisors regarding expectations of number of hours, and work evaluation.

The following recommendations for other site supervisors were provided:

- Establish clear expectations, guidelines and outcomes; emphasize virtual is as much work as in person and that deadlines must be met.
- Set weekly Skype meeting and clear objectives for projects. Be open to switching gears if new ideas are developed.
- Keep track of time spent; try to use a specified amount of time each week so you do not have to cram a lot of hours into the last weeks. Enjoy!
- Develop a plan before accepting virtual interns.
- Prepare manageable project chunks. Two very different projects allow the intern to continue with some work while waiting for something in the first project.
Respondents were invited to participate in a panel to explain future opportunities to new students. Three of the site supervisors participated in a virtual internship site supervisor panel web conference on 9 May 2012.

Site supervisors are required to submit an online evaluation of their intern(s) by the last day of class. The evaluations are confidential but used to compute the students’ final grades.

A cursory analysis of student success and satisfaction was made based on course completion and comments included on the student’s evaluation of their internship experience. Two of the 20 students (10 percent) withdrew from the course early in the term. Two of the 20 (10 percent) failed to meet the minimum requirements and earned a grade of “no credit.” The remaining 16 (80 percent) performed satisfactorily in their internship positions and received credit for the course. If success is correlated with passing the course, there was an 80 percent success rate. Only one of the 16 students who received credit cited a less than positive experience on their site evaluation form. That student was not able to adapt to her supervisor’s management style, finding the situation demanding and stressful. Several others provided conditional recommendations, however, explaining that the internship experience might not be appropriate for every student. They recommended that students become familiar with the internship environment, acquainted with the site supervisor, and understand clearly their work responsibilities before accepting any internship position.

In addition to further analyzing the effectiveness of the pilot course during summer 2012, the survey conducted in July 2011 will be repeated to query students who engaged in internship experiences during the fall of 2011 and spring and summer of 2012. Responses of virtual interns will be analyzed and compared with responses from the previous study. Responses of students who participated in the pilot course in spring 2012 will be compared to those of students who had participated in virtual internship experiences but not as part of the pilot program. Correlation between responses of students in place-based experiences will be made with students in virtual internships. All data gathered will be used to strengthen both the place-based and virtual internship programs.

Digital curation in New Zealand

New Zealand is a small relatively isolated country situated in the Southern Pacific Ocean about 2,000 kilometres from Australia. It has a well-developed information infrastructure, with formal educational programs for information managers evolving since the 1940s (Chawner and Oliver, 2012). There is one provider of postgraduate education for information management 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 worldwide prominence, largely due to the activities of their National Library. In 2004, the National Digital Heritage Archive (NDHA) program was established by the 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 was outlined by its leading proponent, 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 ongoing activity carried out to build this community of practice is the formation of the Digital Preservation Practical Implementers Guild (Archives New Zealand, 2011) that includes participants from the cultural heritage and university sectors, broadcasting and government departments. As the name suggests, members mostly represent those organizations 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; and
- collecting data to inform preservation strategy development.

Participation in team meetings using web conferencing technology would ensure that students are included in the organisational context as opposed to simply carrying out tasks remotely. As the leading provider of online education in library and information science in the USA, SJSU/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 is a critical factor to incorporate into program design. Mass digitization projects involving volunteers working from home (Familysearch, 2008) could be used as a starting point for identifying approaches to ensuring data quality.

Conclusions
The ultimate goal of our research is to develop a virtual internship program that can be adapted to the needs of digital curation student and used as a required course in a planned digital curation sequence of courses. Both the internship surveys conducted to date and the spring 2012 pilot virtual internship course reflected information gathered from students engaged in a variety of internship positions, but none of those positions were labeled as “digital curation.” However, some of the positions did require students to perform tasks that can be linked to one of the phases of the Digital Curation Lifecycle Model. Lessons learned from students and site supervisors working on such tasks, as well as information gathered related to virtual internships in general, will be used by Franks and Oliver to identify site supervisors and develop digital curation virtual internship opportunities in New Zealand.

Building upon the virtual internship work completed to date, Franks and a colleague from SJSU’s College of Business received a $27,855 Curricular Innovation Project grant, “Building an Interdisciplinary Virtual Internship Program: Expanding Field Experience Opportunities for SJSU Students.” This work, to be completed by 31 May 2013, will expand the type of sites offering internship opportunities through more proactive efforts and develop a framework for an interdisciplinary approach to expand opportunities for SJSU students.

Gaps between the knowledge and skills needed for success in digital curation positions and the knowledge and skills students gain by taking existing SLIS courses are currently being identified. New courses will be developed to fill in the gaps, and a mix of existing and new courses will be integrated into a new Digital Curation career pathway.

Once this new career pathway has been designed, students will complete the required courses. Among the required courses will be a digital curation virtual internship program with internship sites in New Zealand.

Note

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**Further reading**


**About the authors**

Patricia C. Franks, PhD, is CRM Associate Professor and Coordinator for the Master of Archives and Records Administration (MARA) Degree at the School of Library and Information Science, San Jose State University, San Jose, California, USA. Patricia C. Franks is the corresponding author and can be contacted at: patricia.franks@sjsu.edu

Gillian C. Oliver, PhD, is Senior Lecturer in Archives and Records Management, School of Information Management, Victoria University of Wellington, Wellington, New Zealand.

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