ALISE '18

THE EXPANDING LIS EDUCATION UNIVERSE

FEBRUARY 6-9, 2018 • DENVER, COLORADO

Proceedings of the Association for Library and Information Science Education Annual Conference: ALISE 2018

First supermoon of 2018, Denver, CO, by Keith Burton

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Promoting Excellence in Library and Information Science Education

Proceedings of the Association for Library and Information Science Education Annual Conference: ALISE 2018

The Expanding LIS Education Universe

Denver, Colorado

February 6-9, 2018

Conference Co-chairs

Shimelis Assefa

University of Denver

Peiling Wang

The University of Tennessee, Knoxville

Proceedings compiled by

Peiling Wang and Ashlea Green

The University of Tennessee, Knoxville

Shimelis Assefa

University of Denver

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Preface

We are proud to present the first conference proceedings of the Association for Library and Information Science Education (ALISE). The Association celebrated its centennial in 2015 and is poised to move forward as a global leader! The ALISE 2018 annual conference (February 6-9, Denver, Colorado) serves as a platform for academics, researchers, educators, professionals, students, and retirees to present relevant research, share best practices in pedagogy and discuss strategies to advance library and information science education and research.

The ALISE conference proceedings as a serial (ISSN 2573-2269) are deposited to and accessible from the Illinois Digital Environment for Access to Learning and Scholarship (IDEALS) Open Access repository (https://www.ideals.illinois.edu/handle/2142/98928). Professor Linda C. Smith, from the University of Illinois at Urbana-Champaign (UIUC) School of Information Sciences, serves as the current IDEALS Liaison and proofread the proceedings. Ayla Stein, UIUC Metadata Librarian, set up the ALISE Community and Collection in IDEALS.

This volume includes the extended abstracts of the Opening Plenary, President's Program, 40 Juried Papers, and 10 Juried Panels, all of which are indexed by author and subject (terms are provided by the authors from the ALISE Taxonomy at http://www.alise.org/alise-research-taxonomy). Submitted paper proposals were reviewed by 81 reviewers; panel proposals were reviewed by 37 reviewers. Names of the reviewers are listed in the proceedings. Authors of the accepted proposals submitted a final extended version in the format of structured abstracts. Due to time and resource constraints, only typesetting of title, author, and affiliation was done using Microsoft Word; copyediting was not provided.

This volume also includes entries for 12 sessions by 11 ALISE Special Interest Groups (SIGs), 26 posters from the ALISE/Jean Tague-Sutcliffe Doctoral Student Research Poster Competition, and 68 Works-in-Progress (WiP) posters. These entries include the title, author [and the advisor for the doctoral student poster], and affiliation, arranged in alphabetical order of the title. SIGs and posters are not indexed. The descriptions of the SIG sessions are printed in the conference program and online at https://alise2018.sched.com/list/descriptions/type/SIG. Winner(s) of the Doctoral Student Research Poster Competition are selected during the conference and the results can be found at http://www.alise.org/alise-jean-tague-sutcliffe-doctoral-student-research-poster-competition#previous-recipients. Although both the Doctoral Student Research Poster session and the WiP Poster Session are in the conference program, individual posters are not listed in the print program or online schedule. The posters are now recognized in the proceedings.

Chairs of the papers, panels, and posters provide an introduction to their respective tracks as the page leading the section for the contributions.

Last but not least, our gratitude goes to 2017 ALISE President Dietmar Wolfram for his gentle guidance and never-failing support in the development of the ALISE conference proceedings.

Peiling Wang, Shimelis Assefa, and Ashlea Green

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President's Welcome

Welcome to Denver and the 2018 ALISE conference. The diverse landscape of our host city and state parallel the diversity and untapped potential of our conference theme, "The Expanding LIS Education Universe", which highlights the pedagogy and research associated with the growing range of careers for which LIS units prepare graduates at the bachelors, masters and doctoral levels.

The ALISE meeting is more than just a place to seek a job and to network with colleagues. It is a gathering place for the international community of LIS scholars, educators, professionals, support staff and students to engage in debate, dialogue, and recognition of the pedagogical and research contributions of our Association members and disciplinary colleagues.

The conference committee has organized a dynamic selection of juried papers, panels, SIG sessions, and meeting opportunities. Among this year's sessions, the ALISE Academy will address employment trends and how LIS programs and schools can prepare for shifts in the information landscape. The pre-conference workshop, which represents the culminating presentation of the series of workshops at recent ALISE meetings, addresses the future of LIS education and pedagogical research.

Our plenary events bring together noted leaders in our field to discuss not only how technological and social change influence our educational offerings, but also the roles we can play. The opening plenary panel highlights programs and specializations in allied areas offered alongside established MLIS programs and the role of these programs in preparing library and information professionals and researchers. The President's Program continues a panel on Media Literacy in the Era of Fake News that began at the Association for Information Science and Technology meeting last fall. The continuation of this ALISE panel will focus on the role of LIS educators in preparing the next generation of professionals who will help the public navigate the growing range media and information sources.

This conference would not have been possible without the contributions of many dedicated members of the ALISE community. My profound gratitude goes to our conference co-chairs, Shimelis Assefa and Peiling Wang, the entire conference committee, and the staff of SBI Management for their efforts in making this conference a reality. To highlight our outstanding submissions at this year's conference, I am very pleased that we have proceedings of the meeting to share with the LIS community. My sincere thanks go to the awards committee members who served to identify and recognize our very deserving colleagues for their contributions to LIS education and research. Special thanks also go to our many conference sponsors for their support.

As you engage in the conference sessions, I hope you will be invigorated by the expanding educational and research possibilities our field has to offer.

Dietmar Wolfram

2017-18 ALISE Presiden

Chairs' Welcome

It is with great enthusiasm that we welcome you to the 2018 ALISE annual conference in Denver, Colorado.

The field of library and information science is increasingly becoming inter-disciplinary and diverse in its methods, theories, content, and field of inquiry. Curricular offerings such as data science, research data management, digital humanities, informatics, human-computer interaction, web science, information architecture, etc. are being offered to expand educational programs in Library and Information Sciences. As the premier venue for discussing teaching and scholarship and recognizing the changing landscape of the field of LIS, the theme of the 2018 ALISE conference was appropriately titled, i.e., "the Expanding LIS Education Universe." Around this central theme, the 2018 ALISE conference called upon all interested scholars and practitioners to submit their work and so have the community responded in large numbers.

The 2018 conference is packed with very exciting lineups of papers, panels, posters, SIGs and other special sessions. We have presentations on wide range of topics around the science of teaching and learning in data science, data analytics, coding, research methods, user experience, justice, activism, critical thinking, computational thinking, accreditation, international LIS education, etc. Works in progress and doctoral posters equally address similar themes as juried papers and panels and the topics range from fake news, makerspaces, teaching programming, research data, data curation, information visualization, information seeking behaviors, to rural libraries. Through formal and informal programs and activities, we are certain your time at ALISE 2018 will be educational and enjoyable.

That is not all. This year for the first time, we are publishing conference proceedings. The extended abstracts of accepted juried papers and panels are included; in addition, title, presenters, and affiliations of SIG sessions and posters are also included. The committee learned a great deal from this undertaking and hopes future committees will continue to recognize the scholarship of our contributors in this way.

Finally, we are fortunate to work with dedicated and amazing colleagues who served in the conference program planning and as co-chairs in the different tracks and we love to seize this opportunity to thank them all immensely for their enormous contribution to the successful organization of the 2018 ALISE conference. Last but not least, our special gratitude goes to our ALISE president, Dietmar Wolfram, who has been a true champion and supporter of our work and the ALISE community.

Thank you and enjoy your time in Denver.

Shimelis Assefa and Peiling Wang

ALISE 2018 Conference Co-Chairs
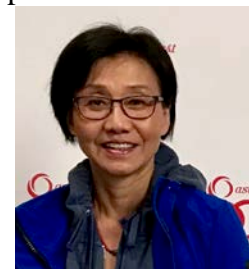
Opening Plenary

The Benefits and Challenges of Allied Programs and Specializations in LIS Units

Anne Gilliland[a] [gilliland@gseis.ucla.edu], Suliman Hawamdeh[b] [Suliman.Hawamdeh@unt.edu], Howard Rosenbaum [c] [hrosenba@indiana.edu], Paul Sherman[d] [psherma4@kent.edu]

Dietmar Wolfram[e] (Moderator) [dwolfram@uwm.edu]

[a]Department of Information Studies, University of California at Los Angeles

[b]Department of Information Science, University of North Texas

[c]Department of Information and Library Science, Indiana University

[d]School of Information, Kent State University

[e]School of Information Studies, University of Wisconsin-Milwaukee

ABSTRACT

LIS schools and departments are home to a growing number of degree programs and specializations at the graduate and undergraduate levels. This panel brings together educators who teach in or oversee allied degree programs or specializations within LIS degree programs. Each panelist will discuss the rewards and challenges of these programs and specializations within their units. Areas to be addressed include archival studies, user experience design, data science, information architecture and digital humanities.

TOPICS:

Education programs/schools; Curriculum; Pedagogy

INTRODUCTION

Many library and information science (LIS) academic units have expanded over the years to offer a broader array of educational programs and specializations to prepare library and information professionals for both established and emerging areas. What began as single programs such as the ML(I)S, may now include designated specializations, undergraduate degree programs and allied masters programs. How do these programs fit into an LIS home? How have

they contributed to their unit's identity? This all conference panel brings together LIS educators who teach in or oversee programs and specializations in allied areas in LIS units. Each panelist will provide a brief presentation that addresses the following questions:

• How has your unit benefited from the inclusion of your specialization/program as part of your unit's array of academic offerings?

• What have been some of the challenges you have encountered in offering your specialization or program?

• What are some of the best pedagogical and programmatic practices you've developed in making your specialization or program an integral part of your unit?

Following the presentations, there will be a discussion based on questions formulated by ALISE attendees at the ALISE Academy session on February 6th.

MLIS SPECIALIZATION IN ARCHIVAL STUDIES – UNIVERSITY OF CALIFORNIA LOS ANGELES BY ANNE GILLILAND

Archival Studies has been a specialization in the UCLA Department of Information Studies (IS) since 1995. More recently we have developed specializations in Media Archiving and Special Collections, and MLIS students may construct a program of study that crosses multiple specializations. Many doctoral students also focus on Archival Studies, aspects of which are integrated across core courses in both the MLIS and Ph.D. programs as well as addressed in an extensive and highly innovative range of courses and pedagogies. With a strong emphasis on plural constructions of the record and the communities, identities, media, actions and interpretations with which that record is associated, as well as on social justice, human rights, and both community-based and transnational archival practice, courses in Archival Studies are among the most in demand in IS and attract graduate students from many other programs across the university.

Professor Anne Gilliland is director of the Ph.D. program in the UCLA Department of Information Studies and of the Archival Education and Research Initiative (AERI), a global collaborative effort amongst academic institutions that seeks to promote state-of-the-art scholarship in Archival Studies, broadly conceived, as well as to encourage curricular and pedagogical innovation in archival and recordkeeping education.

PHD IN INFORMATION SCIENCE SPECIALIZATIONS – UNIVERSITY OF NORTH TEXAS BY SULIMAN HAWAMDEH

In recent years and with the increased emphasis on competency-based curriculum, a number of concentrations/specializations were added to the UNT interdisciplinary PhD program in Information Science. The program is designed to respond to the varied and changing needs of organizations in the information age. The concentrations/specializations include Cybersecurity, Consumer Behavior and Experience Management Concentration, Health Informatics, Journalism Concentration, Data Science, Linguistics, and Geospatial Information Science. Currently we have students placed in most of these concentrations. The concentrations provide participating faculty from other units on campus the sense of ownership. It is important to note that these

concentrations are grounded in information science from both theory and practice. Student are required to complete successfully the foundation courses in information science and at least one information science faculty is required to serve on the students PhD committee.

Dr. Suliman Hawamdeh is a Professor and Chair of the Department of Information Science in the College of Information at the University of North Texas, where he is also the director of the Information Science PhD program. One of largest interdisciplinary information science PhD program in the country. He is the editor in Chief of the Journal of Information and Knowledge Management (JIKM) and the editor of a book series on Innovation and Knowledge Management published by World Scientific. Dr. Hawamdeh founded and directed a number of academic programs including the first Master of Science in Knowledge Management in Asia in the School of Communication and Information at Nanyang Technological University in Singapore.

MASTER OF INFORMATION SCIENCE AND MASTER OF LIBRARY SCIENCE SPECIALIZATIONS – INDIANA UNIVERSITY BY HOWARD ROSENBAUM

Indiana University's Department of Information and Library Science offer seven specializations for our Masters of Information Science students and ten for our Master of Library Science students. All of these have been approved at the campus level and appear on the students' transcripts. The benefits to the students include easier degree mapping and a selection of courses that have a clear focus on a particular career path. From the administrative side, knowing which students are in which specialization facilitates short and long-range course planning. One challenge has been being able to offer all of the courses in each specialization when needed by students. Another is to maintain the specialization when there are a small number of students enrolled in it. The specialization directors advise all of the students in that specialization. This is especially useful when helping the students with required internships. In some of the specializations, we are able to have classes taught by working professionals, something the students appreciate and enjoy. We have just begun a curricular review of all specializations that we hope will improve them.

Howard Rosenbaum is a Professor of Information Science and Director of Graduate Programs in the Department of Information and Library Science in the School of Informatics, Computing, and Engineering at Indiana University. ILS has two masters degree programs, Information Science, and Library Science, and a Ph.D. in Information Science.

MS IN USER EXPERIENCE DESIGN – KENT STATE UNIVERSITY BY PAUL SHERMAN

Since the School of Information at Kent State University first developed the user experience research and design area as a concentration, and finally as a full program, many benefits have accrued to the students, the School, and the College of Communication and Information.

As we've steadily increased our enrollment to approximately 150 concurrent students, we have continuously improved our courses to better meet the needs of our students. From our initial offerings in usability testing and information architecture, we've expanded to offer practitioner-oriented courses in user research, content strategy, and interaction design. This has yielded

benefits to our students as they begin or progress within their career path in user experience. In turn, it's also improved our program's standing among competitors, and brought a very diverse and passionate group of researchers and designers to our School.

Paul Sherman has worked in the field of usability and user-centered design since the days of dial-up. He has conducted user research, usability testing and UX/UI design for mobile, web and desktop products and services in a number of domains. He creates and teaches graduate courses at Kent State's Master of Science program in User Experience Design, where is he an Assistant Professor and Program Coordinator. During the 2000's he was Senior Director of User-Centered Design at Sage Software in Atlanta, Georgia. He was also a User-Centered Design Manager at Intuit. In the 1990s he was a Member of Technical Staff at Lucent Technologies in New Jersey. Paul received his Ph.D. in 1997 from the University of Texas at Austin.

President's Program

Digital Literacy in the Era of Fake News:
Key Roles for Library and Information Science Educators

Barbara Jones[a] [bmjconsulting@gmail.com], Heidi Julien[b] [heidijul@buffalo.edu], Michael Seadle[c] [seadle@hu-berlin.de]

Dietmar Wolfram[d] (Moderator) [dwolfram@uwm.edu]

[a]Affiliate, School of Information Sciences, University of Illinois & Director Emerita of the American Library Association Office for Intellectual Freedom, Chicago, IL

[b]Department of Library and Information Studies, University at Buffalo

[c]Berlin School of Library and Information Science & HEADT Centre, Humboldt-Universität zu Berlin, Germany

[d]School of Information Studies, University of Wisconsin-Milwaukee

ABSTRACT

Fake news has itself become a prominent news topic in recent years. The ALISE President's Program Invited Panel continues a dialogue begun at the 2017 Association for Information Science and Technology annual meeting on "Digital Literacy in the Era of Fake News: Key Roles for Information Professionals" that focused on the need for and roles filled by information professionals in preparing the public to become more critical consumers of information products and services. The 2018 ALISE President's Program will address how library and information science educators can best prepare the next generation of library and information professionals to take on this important role in society.

TOPICS:

Information ethics; Information literacy; Education programs/schools

INTRODUCTION

The proliferation of seeming credible news stories and information sources that turn out to be inaccurate, at best, or completely fabricated, at worst, has left the public to wonder which information sources to trust. Information and digital literacy have become important skills for consumers of information products in today's society. The information sources to which people have access shape their understanding of the world and inform their decision making in their daily lives and how they participate in and give voice to their communities. The ability for readers to critically evaluate the merits of information sources, whether in print, electronic form, or other media formats is vital for an informed democracy. Research has indicated that Millennials and Post-Millennials, although quite at ease with information technology, also struggle with the evaluation of online sources (Connaway, Lanclos, & Hood, 2013; Connaway, White, Lanclos, & Le Cornu, 2013; Stanford History Education Group, 2016). Where and how do people achieve levels of information and digital literacy that allow them to navigate the perils of questionable information sources and identify the hallmarks of validity and veracity?

The conference planners of the 2017 ASIST Annual Meeting and the 2018 ALISE Annual Meeting in cooperation with the iSchools consortium proposed a two-part panel that examines these important issues. This ALISE President's Program Panel continues the discussion of issues raised at the 2017 ASIST meeting held in Crystal City, VA in late October 2017 (Connaway, Julien, Seadle, & Kasprak, 2017) that explored the myriad challenges (societal, institutional, social, behavioral, and cognitive) to providing that support. Information professionals, including librarians, archivists, journalists, and information architects can play key roles in helping the public to become informed consumers of information products and services. LIS educators, who help prepare the next generation of professionals, are ideally situated to educate and provide tools and strategies to the audiences they serve so individuals feel confident with how they select, evaluate and use information resources. In turn, information professionals, themselves, also must be effectively educated to then help others achieve digital and information literacy. Information authority has been profoundly destabilized in recent years, providing significant potential for information professionals to guide information consumers and creators.

The ALISE panel session will continue the dialogue by integrating the discussion topics from the 2017 ASIS&T panel in a debate of how LIS schools/iSchools can best prepare students in their various programs to take on information and digital literacy roles after graduation. The three panelists bring diverse experiences in addressing issues of information and media literacy. Dr. Barbara Jones, Director Emerita of the ALA Office for Intellectual Freedom, has been active in promoting intellectual freedom and information literacy for many years. Her involvement includes the News Know-how campaign of the News Literacy Project (http://www.thenewsliteracyproject.org/). Dr. Heidi Julien, chair and professor at the Department of Library and Information Studies at the University at Buffalo, has been conducting research in information literacy for many years and most recently completed a study of information literacy instructional practices in U.S. academic libraries (Julien, Gross, Latham, forthcoming). Dr. Michael Seadle, professor and Prodekan of the Humanities Faculty Humboldt-Universität zu Berlin (Germany), will discuss parallel issues in fake science (Seadle, 2016). Fake news and fake science are subject to the same measures that we use for research integrity violations.

Following brief presentations by the invited panelists, the moderator and speakers will encourage a dynamic exchange with audience members. Examples of questions will include:

- What role/s can information professionals play in helping the public to become better informed consumers of information?
- Are we educating information professionals to play a role in helping the public to become better informed consumers of information?
- If so, what exemplars should be considered? If not, what types of teaching and learning for information professionals should be implemented?
- How will the outcomes of these educational offerings be measured in terms of effectiveness?
- What types of research and dissemination of the research would provide a means for the library and information science (LIS) discipline to become leaders in the global initiative to help the public become better informed consumers of information?
- How are we, as LIS educators, researchers, and professionals, able to utilize the various tools and algorithmic solutions that detect and flag fake stories in preparing other information professionals to help the public to become better informed consumers of information?

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Contributed Papers: An Introduction

Following the call for juried paper proposals for the 2018 ALISE Annual Conference, a total of 80 proposals by authors from 11 countries (four continents) were submitted. Of the 80 papers submitted, 40 were accepted (a 50% acceptance rate) and appear in the Proceedings. Juried paper proposals were peer-reviewed by 81 expert reviewers who utilized a set of review criteria that included whether the papers were original and relevant to current and emerging issues in LIS education. All reviews were single-blind, and each paper was reviewed by at least two reviewers.

The Program Committee and individual reviewers made every effort to recommend papers that are original as well as have the highest quality of content and relevance to the conference theme, "The Expanding LIS Education Universe". Accepted papers fall under the following broad categories: diversity & inclusion, data science, research methods, user experience, information literacy, health literacy, data analytics literacy, critical thinking, international education, community outreach, collaboration, continuing education, LIS education trends, scholarship, technology, practice, leadership, curriculum development, and accreditation.

We believe that the authors of accepted papers, peer-reviewers, and topics covered reflect the diversity and international nature of the LIS education community and members of the Association for Library and Information Science Education (ALISE) as well as attendees of the 2018 ALISE Conference. It was a pleasure for us to read both the juried paper proposals and critical, yet constructive, comments by expert peer-reviewers. It is our hope that conference attendees will take part in and benefit from the discussions that will be generated in Denver.

On behalf of the Program Committee, we would like to thank all authors and reviewers for their invaluable contributions toward the success of the 2018 ALISE Conference.

Abebe Rorissa & Wooseob Jeong

The ALISE 2018 Annual Conference Juried Papers Co-Chairs

Academic Libraries: Expanding LIS to Serve Hidden Communities Within the Academy

Tracy Gilmore[a] [tgilmore@vt.edu] and Lenese Colson[b] [lcolson@odu.edu]

[a] Virginia Tech

[b] Old Dominion University

ABSTRACT

Academic librarians provide many outreach services to promote the use of resources and create awareness of library services that benefit students and faculty. Through cooperative partnerships, academic libraries have the potential to play a crucial role in outreach activities that benefit non-traditional campus constituencies. Staff employees, especially those in need of basic literacy and digital literacy skills, are often an overlooked segment of the campus community. The purpose of this paper is to raise awareness and explore the implications for expanding Library and Information Science education to train librarians in creating collaborative library outreach services that support university staff employees in need of reading and digital literacy services.

TOPICS:

Academic Libraries; Community and civic organizations; Continuing education; Information literacy; Specific populations

LIBRARY AND INFORMATION SCIENCE EDUCATION AND ADULT LITERACY

Public libraries are one of the first places many adult learners think of when they are ready to reach out for help. We have come to see the public library as a location for all manner of services and the academic library, protected by ivory tower, as a sacred space that must only be used by those deemed worthy. Yet, all librarians come from MLIS or MLS programs, where, neither future academic or public librarians are equipped to handle such literacy issues in their coursework. Currently, LIS programs do not provide literacy training for aspiring public or academic librarians. Adult literacy education or certification can give librarians the tools and guidance needed to start and implement an adult literacy program. Librarians facilitating these types of programs and services can provide patrons with the twenty-first-century literacies necessary in today's economy.

Expanding LIS programs to include the tools that support teaching various literacies beyond information literacy broadens the scope of outreach services that libraries can provide. Prior to starting an adult literacy program at the Westland, Michigan Public Library, Kristy Cooper had to refer people to literacy programs at locations that were not always convenient to them (Cooper, 2014). However, the training that she received from Washtenaw Literacy increased her knowledge in building a literacy collection, finding and training tutors, conducting assessments and student placement. to support this segment of the community.

With a focus on health information outreach, train the trainer projects such as the one in New Hampshire, provided librarians with the education necessary to provide health literacy services to their patrons. The National Network of Libraries of Medicine partnered with the New Hampshire State Library in Concord to train public librarians to use MedlinePlus (Carlson, Nelson, Johnston, & Koshoffer, 2015). Librarians who received this training then shared the workshop with their cooperatives. This project ultimately reached more than 50 public libraries in New Hampshire (Carlson, et al, 2015) and according to Janet Eklund the New Hampshire library administrator, the most important outcome of this project is the education of librarians and their confidence in providing health literacy services to their constituencies.

HIDDEN COMMUNITIES

Academic libraries are adept in outreach and collaborative initiatives, serving multiple communities within the academy and their local communities. University and community outreach, when done well, establishes partnerships, creates awareness, and garners goodwill for the library. Understandably, outreach is a common mission of academic libraries (Edwards & Thorton, 2013) and vital to promoting the resources and services available to the community at large. Outreach services are often targeted to traditional library users i.e. students, faculty, and various campus constituencies. One overlooked segment of the campus community are staff employees in need of basic digital and literacy skills. Non-teaching staff are not the usual focus of outreach and are often unaware of the services and resources that the library offers. In a preliminary review of the literature pertaining to academic library outreach, very little addresses staff employees or project-based collaborations with outside organizations. The purpose of this paper is to raise awareness and explore the implications that a collaborative partnership between academic libraries, human resources (HR), and non-profit adult literacy organizations can have on the professional development of staff employees in service-sector occupations.

Service-sector occupations include jobs such as housekeeping, food preparation, buildings and grounds keeping, and other related service type work. These are often jobs that do not require a high school diploma or equivalent (Bureau of labor statistics, 2017a, 2017b). This sector of employment is the lowest paid occupational group, with a median annual wage of $20,810 as of May 2016 (Bureau of Labor Statistics, 2017a, 2017b). In an era of massive income inequality and stagnant economic mobility, academic libraries can support collaborative outreach efforts that help service-sector employees close the opportunity gap with continuing education and professional development.

DIVERSITY, DEVELOPMENT, AND OPPORTUNITY

Access to higher education is often a benefit extended to employees who work at universities. However, these benefits, for the most part, do not transfer to employees that lack the requisite education or basic skill sets to attend university level courses. Furthermore, wage employees are often precluded from attending professional development courses due to work schedules that do not offer the flexibility to take classes during the workday. Libraries that provide specialized outreach to employees especially when delivered at times that best accommodate the adult learner, are better positioned to help these valued employees take advantage of such benefits.

A Virginia Tech librarian, who received training in adult basic literacy from Literacy Volunteers of New River Valley, a local non-profit adult literacy organization, had the opportunity to pilot a small-scale program working with three university dining services employees in a weekly English conversation group. All three women were native Mandarin speakers who left prominent careers before immigrating to the United States and aspired to improve their English language skills. At the end of a year of weekly sessions the former engineer, who was a line cook, became a lead cook and successfully had one of her recipes included on a dining hall menu. The former neurologist moved to upstate New York and became a nurse's aide providing homecare services. And the former biologist, whose goal was to speak English more clearly, gained confidence in speaking with her children's teachers.

Due to an overwhelming need to extend these services to even more service-sector employees a partnership was formed to improve the literacy needs with a larger scale program. According to Meyer (2014), these types of partnerships are beneficial in raising awareness of local non-profit organizations, highlighting the value of libraries, building a network of higher education professionals, and takes advantage of shared resources. Two Virginia Tech departments, University Libraries and the Office of Employee Relations, along with Literacy Volunteers of the New River Valley (LVNRV), are actively creating a collaborative partnership to support the literacy needs of Virginia Tech service-sector employees. LVNRV provides free one-to-one or small group tutoring in basic literacy, English for speakers of other languages (ESOL), digital literacy, and basic math (Literacy Volunteers of the New River Valley, 2017). This organization fosters support, advocates, and instructs adults who seek opportunities to achieve greater independence through literacy.

SKILLS-UP

Through a proposed initiative called Skill UP VT, several Virginia Tech departments will combine efforts to support adult literacy services for campus employees. Collaboration is essential to the success of the program. Human Resources will support employees by providing incentives and benefits such as paid-time during working hours to participate in skill development programs. University Libraries will provide the space, resources, internet and computer access. Literacy Volunteers of NRV provides the instruction, coordinates volunteers, classes, and matches students with tutors for one-on-one support. They can also support the logistics of assessment and placement, keeping track of the tutors and students

Project-based collaborations that include student organizations are ripe with potential volunteers. Connecting with on-campus groups such as VT Engage, Virginia Tech's service-learning and civic engagement center, which collaborates with communities, students, and faculty, can increase awareness and support this type of initiative. Various institutional offices and external non-profit organizations can provide libraries with flexibility, personal relationships, and increase openness to work outside of academic units (Mehra, 2007; Meyer, 2014). Leveraging these types of collaborations can enable the library to extend its reach far more than acting alone (Meyer, 2014). Academic libraries can act as liaisons between the literacy organization and other university departments to help increase student and campus volunteerism, improve employee skills, and expand awareness of local non-profits and library outreach.

When individuals improve their basic literacy skills and computer skills, they have the power to improve career opportunities, increase their earning potential and ultimately change their lives. Expanding LIS education to include the requisite pedagogies in adult literacy will enable librarians to create scalable programs that meet the needs of their constituencies in both academic and public libraries.

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Approach to Harmonization of Entry Requirements for Graduate Program in Information Science at European Higher Institutions: EINFOSE project

Tatjana Aparac-Jelušić, Sanjica Faletar Tanacković, and Kornelija Petr Balog

Faculty of Humanities and Social Sciences, University of Osijek, Croatia

ABSTRACT

Various aspects of harmonization at European Higher Education Institutions (HEIs) that offer programs in Library and Information Studies (LIS) have been studied since early 1990s. Since 2004-05 – when a project on Curriculum Development was funded through Erasmus program – up to 2016, there were no projects on education in Library and Information Science funded by European Union. The main goal of this paper is to present and discuss the results after the first year of the Erasmus plus project entitled European Information Science Education: Encouraging Mobility and Learning Outcomes Harmonization (EINFOSE).

TOPICS:

Accreditation; Curriculum; Education programs/schools; Online learning; Pedagogy

INTRODUCTION

The main goal of the paper is to present and discuss the results after the first year of the Erasmus+ research project entitled *European Information Science Education: Encouraging Mobility and Learning Outcomes Harmonization* - EINFOSE (http://einfose.ffos.hr). Special emphasis is given to one of EINFOSE project's deliverables: results from the students and teachers' evaluation of the first summer school organized as a part of the project (*European Summer School on Information Science* – ESSIS).

Various aspects of harmonization at European Higher Education Institutions (HEIs) that offer programs in library and information studies (LIS) have been studied since early 1990s. In 2005 a project, funded also through Erasmus program, resulted in the international conference organized in Copenhagen, and several articles and one e-book on curriculum development (Löring, L. & L. Kajberg, 2005). Since then there were several attempts to conduct a follow-up study, such as the one proposed by EUCLID (*European Association for Library & Information Education and Research*) but none of them was successful. It was only in 2016 that a proposal for EINFOSE project, submitted by a group of European scholars to Erasmus+ call, was accepted for a two-year funding period (2016-2018) (EINFOSE, 2017).

The aim of the project is to study and ultimately overcome differences among entry requirements and learning outcomes in the field of Information Science (IS) at eight European

Universities, partnering institutions in EINFOSE project: University of Barcelona, Spain; University of Borås, Sweden; University of Graz, Austria; Hacettepe University, Turkey; University of Hildesheim, Germany; University of Ljubljana, Slovenia; University of Osijek, Croatia and University of Pisa, Italy. These differences have been causing large mobility barriers between European HEIs that offer Master of Arts (MA) in IS and problems in recognition of learning outcomes and ECTSs (European Credit Transfer System) at the EU level.

CHALLENGES AND EXPECTATIONS

One of project's working hypothesis is that common entry requirements could mitigate or even eliminate the differences in enrolment procedures at different HEIs that offer programs in IS and might contribute to the higher enrolment of students with different educational background at the graduate level programs in IS. The project seeks to investigate how these barriers could be eliminated or lowered. To achieve this goal partners intend:

- To strengthen partnership between HEIs involved;
- To exchange best practices through seminars for teachers from partner institutions;
- To organize two summer schools in order to provide students with the basic knowledge of the IS field so they could start their MA programs in IS well prepared;
- To design and deliver online teaching and communication platform containing material for four courses as Open Educational Resources (OERs) that could later be developed as Massive Open Online Courses (MOOCs);
- To present the results of various intellectual activities that aim to enrich teaching and learning processes at each partner's institution;
- To provide recommendations for the harmonization of learning outcomes and their recognition;
- To strengthen the purposeful mobility at the European level.

Target groups for this project are students with a Bachelor degree, university teachers, professional organizations in the IS field and policy and decision-making authorities that are responsible for the Quality Assurance (QA) and Qualification Framework (QF) at EU and national levels. Communication between the partners and distribution of tasks are carefully planned and follow the timeline of the project. As required by Erasmus plus program, Multiplier Events are planned with a goal to involve participants from various stakeholders who could comment and suggest improvements for each of the intellectual outputs presented.

The summer schools (ESSIS 2017 was held in Katlenburg, Germany from August 27 until September 1, 2017 and ESSIS 2018 will take place in Graz, Austria in July, 2018) are seen as a unique networking opportunity, which could initiate further international (and multi-national) initiatives.

RESEARCH

The study presented in this paper was conducted in September 2017, after the ESSIS 2017 was held. The data was gathered with the help of quantitative and qualitative methodology. First, participating students filled out an online evaluation survey. This was followed by in depth semi-structured interviews with three students coming from non-information science field (at undergraduate level). Students A (BA in Italian language and literature) and C (BA in business)

came from Italy, and a student B (BA in nuclear energy) from Turkey. This study tried to answer the following research questions: (1) What is the educational background of students participating at ESSIS 2017? (2) What learning outcomes did students achieve at ESSIS 2017? (3) In what (L)IS topics are students in particular interested and would like them to be addressed at ESSIS 2018? (4) How are students satisfied with ESSIS 2017? (5) What are the students' preferred teaching methods for ESSIS? (6) What should be changed for ESSIS 2018? Also, a focus-group discussion with teachers who taught at ESSIS 2018 were conducted on the last day of the summer school at the Project Management Team meeting, with the goal to evaluate ESSIS from teachers' perspective, highlighting its strengths and discussing its weaknesses and opportunities.

A total of 15 students (out of 22 students who participated in the ESSIS 2017) filled out the online survey (response rate 68.18%). The students were evenly distributed among partnering institutions and the majority of respondents (60%) had a Bachelor degree in a scientific area other than (L)IS (e.g. nuclear energy engineering, management engineering, language and literature, business administration, administration, civil engineering).

When asked to rate (on a scale 1 to 5, 1 being the lowest and 5 the highest mark) the degree to which they have mastered the learning outcomes of ESSIS 2017, the respondents were quite positive, as can be seen form Table 1.

Respondents indicated that internationality of the summer school added significantly to its value (Mean 4.9). This aspect of the summer school was also visible in the interviews. Namely, all three respondents, when asked to single out what they liked most about ESSIS 2017 emphasized this "international setting", "possibility to meet new friends from abroad", and also the fact that there were many instructors coming from various institutions and countries.

While a total of 80% thought that the work-load of the summer school was appropriate, only 33% reported that they plan to continue working on the post-summer school assignments (on topics relevant to the four courses taught: *Advances in information science, Research methodology in information science, Principles of information seeking and retrieval*, and *Evaluation of information services*) in order to obtain additional ECTS credits.

Overall, students were satisfied with ESSIS 2017 (20% thought it was outstanding and 67% thought it was very good) and all (100%) would recommend it to their friends. In the interviews, all three students emphasized their satisfaction with the summer school – its organization and program, but also the venue and instructors. All three interviewees volunteered the information that they liked it so much that they are going to talk about it to their colleagues and recommend them to take part in the ESSIS 2018. Also, a student from Turkey added that this was his first experience at the summer school and that it was so positive that it motivated him to look for similar experience next summer.

When asked about the changes that should be made in ESSIS 2018, the students emphasized three main issues: teaching methodology, length of the summer school and scope of topics. In interviews, when asked about the topics they personally liked at ESSIS 2017, the interviewees singled out bibliometrics and data visualization (student A), text analysis and the principles of work of search engines (student B), and evaluation (student C). Although respondents indicated

that the mixture of lectures and group assignments were well suited to the format of ESSIS 2017, they noted that in ESSIS 2018 more room should be given to students' group work and individual assignments. In the interview, student B, for example, particularly liked the group work and practical assignments because he saw that as the opportunity to further connect and get familiar with other students at the school. Closely related to this, students also recommended that the duration of the next summer school (ESSIS 2018) should be a bit longer (at least five full working days) but also that short breaks should be introduced more frequently (after every 45-minutes) because they found it difficult to follow new topics for larger periods of time. Finally, when asked about the topics which they would like to be addressed (to a larger degree) at ESSIS 2018 they noted the following: big data, data mining, public library issues, heritage preservation, information organization, databases and publishing.

Table 1. Learning Outcomes

Learning outcomes	Mean
I gained new insights	4.5
I learned new tools for solving problems	4.2
I am able to better combine new knowledge and draw conclusions	3.9
I appreciate the new theories and tools, and the relevant conclusions that could be drawn from that	4.3
I improved my learning skills	3.9
I am able to solve problems in group of international students	4.3
I understand better the professional terminology	4.1

On the last day of ESSIS 2017, after the Closing Session, the discussion was held among Project Management Team and teachers, mainly in regard to the format and content of the summer school. On the teachers' side there was also a strong inclination toward the smaller number of courses offered (max. three), and the following were proposed: *Introduction to Information Sciecnes, Information Retrieval* and possibly *Evaluation of Information services*. This reduction in courses would enable better coverage of the topics for which students expressed special interest (big data, data mining, public library issues, heritage preservation, information organization, databases and publishing) and a more focused and coherent introduction to emerging trends in the field of IS.

CONCLUSION

The study presented in this paper (online survey and in person interviews with students, and focus group with teachers) provided solid guidelines for the second summer school that will be organized as a part of the EINFOSE project. Based on the feedback given by students and teachers, it was decided that at ESSIS 2018 only three courses will be taught (focusing on fewer relevant topics), more room will be given to student assignments (individual or group work) and their active participation in classes. Also, special attention shall be given to social events and networking opportunities (both among students themselves, and among students and teachers) in this valuable international environment.

One of the main outcomes of the **EINFOSE** project in general will be the development of *Policy Recommendation for the Entry Requirements and Learning Outcomes Harmonization* The draft of this document will be available for public discussion at the EINFOSE conference *International Symposium on the Future of Education in Information Science* – FEIS which will be held in Pisa, Italy in September 2018 (http://feis2018.di.unipi.it).

The EINFOSE objectives are in line with *ET2020*, especially its key priorities from the *Modernization agenda* (EC, 2011) that relate to the improvement of the quality and relevance of teaching and learning, promotion of student' and staff' mobility, cross-border cooperation and the emphasis on the importance of the "knowledge triangle". All partners involved in EINFOSE project are determined to further develop their partnership network, share experience with other colleagues, and to take an active part in the implementation of the goals of the 2013 *Communication on Opening Up Education* (EC, 2013), in particular of these goals that might result in easier recognition of digital skills and qualifications across borders.

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The Beginning, Acting, Telling (BAT) Model: Integrating Information-Seeking Research and Information Literacy Research

Valerie Nesset, Department of Library and Information Studies, University at Buffalo, State University of New York (SUNY)

ABSTRACT

The Beginning, Acting, Telling (BAT) model which combines aspects from research into information-seeking behavior and research into information literacy instruction is introduced. The model uses a stylized image of a bat to depict and represent features inherent in the research process.

TOPICS:

Information literacy; Information needs; Information use

INTRODUCTION

In the LIS discipline, as research into information-seeking behavior and information literacy has become much more commonplace, the two concepts have remained largely separate, the former demonstrating an emphasis on how users search for information inside and outside the workplace and the latter on instructional strategies in educational environments, specifically in the context of school or academic libraries. Where the research does overlap is in the emphasis on information retrieval, especially pertaining to searching and to a lesser extent to evaluation and relevancy; information-seeking behavior focusing more on the user, and information literacy on instructional strategies. Furthermore, research into information-seeking behavior has resulted in the development of several diagrammatic process models (Bates, 1989; Dervin, 1983, 1992; Kuhlthau, 1991, 2004; Wilson, 1999) that can predict behavior in different contexts to provide a series of steps or stages that users can follow on their own. Information literacy research, however, tends to report on instructional strategies that help users understand how to better find information by exploiting different navigational tools such as indexes, online library catalogs, and search engines. Neither research area, however, examines in-depth other aspects of the process such as before the search begins or how the information is used once retrieved and evaluated.

A specific example of these two major gaps is found in the results of a larger study into the information-seeking behavior of third grade students (Nesset, 2009). The results revealed that these younger students required extensive preparation through instruction before they were ready to begin searching for information on the topic under investigation and that they also needed guidance afterwards in such aspects as interpreting the information and integrating it to fit the parameters of the assignment. To address these gaps, features from research into information-seeking behavior (e.g., diagrammatic modeling) and information literacy (instructional strategies) were combined to form a model for information literacy instruction, the Beginning, Acting, Telling (BAT) model.

INFORMATION-SEEKING BEHAVIOR AND INFORMATION LITERACY INSTRUCTION

One of the main purposes of modeling information-seeking behaviors is to present a more simplified, concrete version of reality and identify and describe relationships between concepts (Case 2012). These models, for example, Kuhlthau's (1991, 2004, 2008) Information Search Process (ISP), focus primarily on the users, documenting and illustrating their thoughts, feelings, and actions through the use of visual imagery, usually diagrams, as they move through a series of stages. While the diagrammatic structure and simplicity of the models allows the user to visualize what the process will look like, these models often emphasize a particular stage to the detriment of others and struggle to adequately depict the need to revisit certain features as part of an iterative process.

Unlike models of information-seeking behavior, literacy instruction models, for example, the Big6 (Eisenberg & Berkowitz, 1990) are almost always textual and do not take into account the affective or physical domains. They often appear as a series of steps to be followed or questions to be asked in a certain order. As they do not make use of visual cues as models do, they are more abstract, requiring the user to memorize the steps or questions, potentially making them more difficult to apply. Similar to the models of information-seeking behavior, however, is the inadequate explication of an often-iterative process.

An Integrated Model. The Beginning, Acting, Telling (BAT) model (Figure 1) is a three-stage diagrammatic model that was designed to bridge these gaps to provide a more holistic overview of the research process by incorporating aspects from both approaches. The BAT incorporates the diagrammatic features characteristic of models of information-seeking behavior in its use of the visual image of a bat. A bat was chosen to represent the process because it provided a useful mnemonic both visually and in its name. A bat's body comprises three main parts – two wings and its head. The head is literally the brains of the animal, directing all movement, with the ears acting as its navigational system through the use of sonar. The wings act as the support for the head and allow the bat to carry out its various tasks such as searching for food. Thus, in the diagrammatic representation, to emphasize the equal importance of all of the stages, the same way that an actual bat requires all of its body parts to work together, no stage acts in isolation of another or is perceived as more important. The first stage (Beginning) represented by the wing to the left of the image is a highly instructional stage to prepare the student to begin the actual search for information, listing such instructional aspects as inquiry into the broad topic under investigation, reading, and construction (i.e., activities such as concept mapping and vocabulary building). The *focused inquiry*, the actual assignment or task that must be completed by the student, is represented by the ears because it directs the process in the same way sonar guides the bat. The second stage (Acting) which outlines the various actions the student must take during the information search is represented by the head (i.e., brains) because it is largely self-directed. The final stage (Telling), represented by the right wing integrates aspects related to information use, often requiring guidance by an educator. Thus the wings (Beginning, Telling) while they act as support mechanisms for the head (Acting) they are equally important as they are the sole means of movement. Indeed, the lines representing the wings in motion are used to represent additional, more abstract aspects of the research process. In the same way that the bat's flight may be influenced by external factors such as the wind, the research process is also affected. Such things

as what the student learns as they navigate the process (thinking) and whether or not metacognition takes place (reflection), affective behaviors (feelings), and impact factors or things largely out of the student's control such as currency of resources and website design (things that matter), all influence the process in some way. Making them explicit can help the student to be aware of their potential effects whether positive or negative and increase or mitigate their influence as appropriate. Finally, all actions depicted in the model are in the present, active tense to help provide a sense of being a part of the model in real time.

Thinking & Reflection/Cognitive Behaviors:	Learning, metacognition (reflection)
Feelings/Affective Behaviors:	Anticipation, Curiosity, Happiness, Diversion, Satisfaction, Pride, Relief
	Incomprehension, Frustration, Distraction, Disappointment, Dissatisfaction, Boredom
Things that Matter/Impact Factors:	Assignment design, website & search engine design, currency and readability of
	resources, classification schemes, metadata, filtering software

Figure 1: The BAT (Beginning, Acting, Telling) Model

This final version of the BAT was revised informed by findings of a validation study that presented a very basic version that showed only the actions associated with each stage to two third-grade classes in an inner-city school in New York State (Nesset, 2014a, 2014b, 2015). The model has also been aligned to indicators in the New York State Information Fluency Continuum (New York City School Library System, 2013), which forms part of the Common Core curriculum (Nesset, 2017) and as it is content-independent, can be applied to any subject. In fact, preparations are underway for the model to be integrated into the 2017-2018 curriculum for a special science program to be offered to a select group of students in a school district in a city in New York State.

CONCLUSION

By providing a visual model that shows the entire research process at a glance the BAT COincorporates the best aspects of the results of research into information-seeking behavior & research into information literacy instruction. Easy to remember, engaging, and informative, the BAT serves as an example of how the integration of concepts from these two approaches can be used to bridge the gaps inherent within both thus expanding the LIS educational universe by enhancing the educational experience.

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Big Data Analytics Literacy Development and LIS Education: Looking Forward From Within

Felippe Cronemberger and Abebe Rorissa

University at Albany, State University of New York

ABSTRACT

Big Data Analytics (BDA) has been receiving increased attention across a variety of research fields. As literature on the topic evolves and emphasis on factors that affect its use, researchers are increasingly paying attention to other factors like skills and abilities that are important to value creation. However, the need for organizations to develop data analytics capability coexists with the need for "data analytics literacy", that is, the ability to make sense of this new set of tools. From a workforce development standpoint, this challenge is rather incipient. This study will survey LIS educators and professionals who are users of data analytics with the purpose of better understanding to what extent each stakeholder – those concerned with educating professionals for data driven environments and those concerned with data analytics use – has contrasting and/or complementary views of big data analytics and its role. While views may converge or diverge, we believe that LIS researchers and practitioners that use BDA have much to contribute to this debate. We hope that by examining the nature of BDA skill gap from the perspectives of the two groups, the current study will help inform the discussion by those who are interested in BDA skills development and its use in library and information environments.

TOPICS:

Big Data; Information literacy

INTRODUCTION

Big Data analytics (BDA) or simply Data Analytics figure among the trendiest topics since the beginning of this century. While discussions involving technological breakthroughs abound, not so much attention has been given to organizational capabilities that are necessary to make sure that data analytics use lives to its promise. Literature about those capabilities is still scant and, as it evolves, suggests that workforce and skills development are crucial to ensure success in data analytics use. In that context, information and data literacy should now be discussed in light of the data analytics phenomenon, a reality that poses important challenges to information professions as well as to the educational and research agenda in information science. Given the emerging and interdisciplinary importance of data savviness across a myriad of fields and industries, this ongoing research paper suggests that more attention should instead be given to "data analytics literacy", a goal to which information scientists should be committed achieve and one that LIS schools need to champion and nurture its growth. Hence, this study will survey LIS educators and data analytics users among information professionals to h address the following research questions: 1) What's LIS professionals' level of understanding about data analytics and its use?; 2) How do LIS

professionals with data analytics as one of their responsibilities or tools view information and data literacy related to their core work?; and 3) To what extent does understanding of the nature and role of data analytics by LIS educators confirms, contrasts or complements that of data analytics users' who are information? Findings of the current study may reveal differences and overlaps in views that may inform both sides with respect to this emerging and interdisciplinary field and its potential.

THEORETICAL BACKGROUND

The opportunity to derive insights from large amounts of and complex data has been dramatically changing the way organizations and society at large go about solving problems and making decisions. In response to the Big Data reality (Chen, Chiang, & Storey, 2012), BDA has emerged as the technological promise those who rely on data have been avidly looking for. Aside from the increasing volume of algorithms and platforms for BDA, there is still little understanding of what is necessary to ensure that there is value to be created. Because it is common knowledge that a technology's impact may depend on a variety of conditions and factors (Orlikowski, 2000), it is not daring to ask to what extent and under what conditions does the impact manifest, if at all. In order to advance our understanding, it is critical to assess not only what data analytics can do for organizations, but also what organizations can do to embrace data analytics and become successful at the endeavor as well as reap the benefits.

This includes knowing what capabilities organizations have and how they can get where they need to be. One way of enhancing organizational capabilities is certainly through talent and workforce development (Cheese, Thomas, & Tapscott, 2008). In fact, developing talent to use analytics has become a legitimate concern (Harris, Craig, & Light, 2011) and more attention has been focused on the importance of investing the resources to develop "analytics capability", especially from a human resource standpoint (Davenport, Harris, & Shapiro, 2010). In fact, developing skills in analytics emerged as a major concern for a number of organizations and economies (Kwon, 2013; Maruyama, Kamiya, Higuchi, & Takemura, 2015; Rha et al., 2017).

Research on data analytics capability is still limited (Dremel, Overhage, Schlauderer, & Wulf, 2017; Gupta & George, 2016). For most other technologies, frameworks and models that can help us understand elements that facilitate or jeopardize their adoption, use, and success abound. Predominantly, DA has been studied from an operational or supply chain perspective (Gunasekaran et al., 2017; Liu & Yi, 2017; Wamba et al., 2017). Some efforts, however, have acknowledged that big data analytics capability is not a technological issue, but rather a matter of alignment (Akter, Wamba, Gunasekaran, Dubey, & Childe, 2016; Ji-fan Ren, Fosso Wamba, Akter, Dubey, & Childe, 2016) and other factors such as the right talent (Ekbia et al., 2015; Kiron, Shockley, Kruschwitz, Finch, & Haydock, 2012).

Interestingly, all of those factors or aspects take into account a more intangible side of resource-based view on information technology capability (Bharadwaj, 2000; Mithas, Ramasubbu, & Sambamurthy, 2011), one that does not necessarily consider data as necessarily the most important resource (Kitchin, 2014). This brings attention back to the fundamental and already classical problem involving the development of "data-to-knowledge capabilities" (Ackoff, 1989; Davenport, Harris, Long, & Jacobson, 2001). Importantly, in order to achieve such data-to-knowledge vision, it is necessary to look towards the foundations of information science and gauge

LIS educators' and professionals' view of the mechanisms and steps that should be taken so that the DA vision and potential can be achieved.

RESEARCH MODEL

In the current study, two sides were considered: a) the supply side, or the side that has the expertise and institutional mandate to prepare or educate future data and information professionals, namely LIS educators; and b) the demand side, or the side that expects information professionals to have certain skills so that data analytics can become an integral part of the information environment. The interplay between these two sides reveals a gap (see Figure 1) and this research introduces the importance of a preliminary understanding on what both sides consider critical. Results may highlight how LIS educators can contribute to a better use of this emerging technology by information professionals in all sectors.
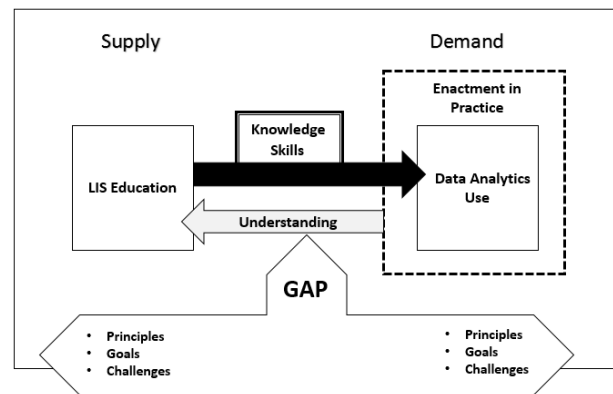
Figure 1. Research Model

METHODS

This research will examine perspectives of both LIS educators and data analytics practitioners on what is needed to successfully use data, big data and data analytics. In order to obtain data to answer our research questions, a survey questionnaire will be administered to both groups. The questionnaire will have a mix of closed and open ended questions and statements that were created based on an extensive review of related literature. Since levels of familiarities about some of the topics may vary across survey participants, a Likert scale (Croasmun & Ostrom, 2011; Joshi, Kale, Chandel, & Pal, 2015) will be used for the close-ended questions and statements. In order to enhance reliability, questions and statements will be pilot tested with sample comparable to the two groups in the study.

MOVING FORWARDS AND LIMITATIONS

A logical continuation of this research effort involves supplementing survey data with semi-structured interviews with selected LIS educators and BDA practitioners in library and information environments, preferably those who have not responded to the survey questionnaire. Identifying points of overlap and divergence between those two different perspectives may inform both audiences on how they can reciprocate to accomplish talent and workforce development goals.

Some limitations are anticipated for this project. Firstly, the power of the study may be limited due to the limited pool of participants. That is expected particularly on the data analytics user side. Secondly, understanding of data literacy may vary across participant groups. While that might reveal itself as part of our findings, it may make our efforts to refine our research model a little more difficult. Moving forward, in-depth interviews may help filling the gaps with information that could be either combined with results from the survey questionnaire, or develop to a more comprehensive understanding around "data analytics literacy" and its relationship with what is known as data literacy.

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Building Connections between LIS Graduate Students and Undergraduates: A Case Study in Curricular Engagement

Eleanor Mattern, University of Pittsburgh

ABSTRACT

This paper considers how LIS graduate programs can expand their reach through greater engagement with undergraduate students. The author uses a case study approach to experiment with connecting graduate and undergraduate students via an experiential learning project and suggests that there were perceived benefits for both student groups in doing so. This paper is intended to initiate a dialogue about deepening LIS graduate programs' connections with undergraduate students. It provides a broader look ways in which other professional graduate programs engage undergraduate students through curriculum or other means, considers the benefits in doing so, and highlights approaches through which LIS graduate programs can facilitate this engagement.

TOPICS:

Archival arrangement and description; Archives; Curriculum

INTRODUCTION

This paper posits that LIS graduate programs can expand their reach by building meaningful opportunities for LIS graduate students to engage with undergraduates. It explores the benefits of engaging graduate and undergraduate students through a case study involving the Archival Access, Systems, and Tools course at the University of Pittsburgh. In the spring 2017 term, this graduate course focused on an experiential learning project, one that involved an intra- and inter-organizational partnership with multiple units at the University and with the Flight 93 National Memorial site. Through this collaborative project, graduate students had the opportunity to work with a small group of undergraduate student researchers, with perceived end benefits for both groups of students. For the graduate students, this engagement served as a means to gain practical experience with volunteer management and user studies, both central aspects of the library and archival professions. For the undergraduates, participation in a project like the one that formed the focus of Archival Access, Systems, and Tools can support the development of information literacy skills and provide them with deeper insight into LIS as a profession. This paper considers the larger question of how LIS graduate programs can better engage with undergraduate students and the programmatic and student benefits in doing so.

LITERATURE

This paper extends an area of investigation discussed in literature published in STEM fields to LIS: the benefits of undergraduate experiential research opportunities and undergraduate-graduate mentorship relationships. In an article in *Science*, Susan H. Russell et al. (2007) find "Many types of undergraduate research experience fuel interest in STEM careers and higher degrees. No formulaic combination of activities optimizes the URO [undergraduate research opportunity]…Rather, it seems that the inculcation of enthusiasm is the key element—and the

earlier the better" (p. 549). The published literature indicates that participation in undergraduate STEM research experiences increases the probability in enrollment in a STEM graduate program (Eagan et al., 2013). There is gap in library science literature, however, that addresses this same association with undergraduate engagement through research and experiential learning and matriculation into LIS degree programs.

The STEM literature further suggests that when graduate students are involved as the mentors to undergraduates, there are benefits to the graduate students, who gain teaching, management, and communication skills (Bettencourt, Bol & Fraser, 1994; Dolan & Johnson, 2009; Hopkins, 2017). This is an additional area to explore through LIS programmatic initiatives that connect graduate students and undergraduate students. All of these skill areas are, certainly, relevant to librarians, archivists, and other types of information professional.

THE COURSE

This paper reports on a first effort to consider the benefits of connecting LIS graduate students with undergraduate students through an experiential project associated with an archives course. A requirement for MLIS students in the Archives and Information Science pathway, the *Archival Access, Systems, and Tools* course introduces descriptive standards and archival management systems and confronts students with ethical and legal issues related to representing and providing access to materials. In the spring 2017 offering, the instructor (Mattern) collaborated with her colleague in the School of Education, who has a longstanding relationship with the Flight 93 National Memorial site and serves as a research mentor to undergraduate students in the University's *First Experiences in Research* program.

More than a decade of work by a small team of staff and volunteers has produced a collection of over 850 oral history interviews with family members and friends of Flight 93 victims, first responders, eyewitnesses, media, and others. The discoverability of this collection is low and access is mediated through a small number of staff members. Through an experiential learning project, MLIS students piloted and evaluated an access tool for oral history materials, producing staff and volunteer documentation about implementing the tool and a series of recommendations to help the Flight 93 National Memorial project team make an informed determination about adoption. Concurrently, the undergraduate students used the oral histories for developing individual research projects.

The graduate students first connected with the undergraduate students in the *First Experiences in Research* program at a social event held early in the term, followed by a joint trip to the Flight 93 Memorial to meet with the Oral History project staff. Later in the term, greater engagement between the graduate and undergraduate students was facilitated through a weekend workshop, during which the undergraduate students contributed to the experiential project. The undergraduates' participation was twofold. First, as users of the collection, they provided the graduate students with information about keywords they would use to search across the oral histories and shared their thoughts on the access tool. Second, the graduate students piloted a volunteer training program and documentation about using the access tool on the backend; the undergraduates' feedback and the observations they gathered helped the graduate students to improve the training approach and documentation for the Flight 93 volunteer mentors. The undergraduates' participation in this description and access project was brief, but it highlighted

possible ways that engagement of this kind can offer benefits for both groups of students, particularly when involving a greater length of time.

FINDINGS

The author administered a short online survey both the undergraduate and graduate students at the conclusion of the spring 2017 semester and the instructors recorded informal student feedback on the undergraduate-graduate engagement throughout the term. To undergraduate students, the author asked: "Please share anything you learned about libraries and archives through your participation with the library science students and course" and "In April, you provided assistance to the library science students and tested adding oral histories to the [piloted access tool]. Please provide your reflections on working with the library science students on this day." To the graduate students, the author asked: "Please comment on your management experiences working as a supervisor for the First Experiences in Research students as they worked with the [access tool]."

The survey findings and observations suggest there were perceptible benefits and benefits that could have been augmented through stronger connections between the two groups. In this case study, the graduate-undergraduate engagement provided a conduit for information sharing and mutual learning. The graduate students received information from the undergraduates that deepened their understanding of how other researchers may engage with the oral histories. They were reminded of language that may be unfamiliar to individuals outside their profession and adjusted the materials prepared for Flight 93 volunteers accordingly. Finally, they gained experience with volunteer management and mentorship, aspects of most library and archival professionals' work (Driggers & Dumas, 2011, p. ix); in their feedback, they advocated for more sustained interaction with the undergraduates to gain experience in this area.

For the undergraduate students, they acquired an understanding of terms and concepts that are central to information work, namely "metadata" and its critical role in discovery and access. One student described learning "all the different languages and aspects" of librarianship and archival work. It was evident that their involvement in the project gave them insight into library and archival work; the students commented with surprise that technology is so central in LIS education and the profession. Another undergraduate student reported, "I learned that intricate discussion between librarians and researchers is necessary to create meaningful resources," recognizing the importance of user studies in LIS.

CONCLUSION

This paper presentation will further introduce the case study, provide a broader look at literature on connecting graduate and undergraduate students and ways in which other professional programs are doing so, and finally consider the larger benefits of this engagement. It will conclude with a series of recommendations for LIS graduate faculty to building connections between their students and the undergraduate population. This case study is a small entry point into a consideration of the benefits of connecting graduate LIS students and undergraduates through meaningful, experiential projects. STEM fields have found that engaging undergraduate

students in research encourages them to consider advanced degrees and careers in STEM. The undergraduate students in this case study suggested that their understanding of librarianship evolved through their engagement with the graduate students. For LIS programs, expanding their reach to undergraduate students could serve as a recruitment strategy and have simultaneous benefits to the graduate students who work with them. LIS faculty should investigate undergraduate research programs and offices on their campuses as a starting point for growing engagement and develop mechanisms for sustained interaction between the undergraduate and graduate students to ensure mutual benefits to both groups.

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Co-designing the Next Generation of Education for Children and Youth Librarians: A Research-Practice Partnership

Mega Subramaniam[a], Amanda Waugh[a], and Tamara Clegg[b]

[a]College of Information Studies, University of Maryland

[b]College of Information Studies and College of Education, University of Maryland

ABSTRACT

In this paper, we re-envision the education of youth librarians so that they can better understand how youth ages 0-18 learn with technology and to promote 21st century skills among youth. We engaged in-service youth librarians in participatory design activities to develop a refined set of knowledge, skills, and approaches from disciplines outside of LIS that are well suited to advance youth learning. We coined a term to describe these knowledge and skills: *Youth eXperience (YX)*. Presenting the set of courses and lessons learned from our participatory design, we illuminate opportunities and challenges such research-practice partnerships offer.

TOPICS:

Continuing education; Curriculum; Young adult services; Children's services; Public libraries

INTRODUCTION

Too often, we in the academy rue the division of research and practice. This is often evident in the disjuncture between what is covered in the MLIS curriculum and what is needed in the communities our graduating librarians serve. While the student body of MLIS programs can offer feedback to the library and information science (LIS) schools, these students may not be working at libraries and/or may have limited exposure to the needs of the communities that they would like to serve. In the youth librarianship area, development in learning, technology, and youth culture is so swift that librarians need to adopt new roles and approaches in working with youth that are quite different from what they have learned in graduate preparation programs.

YOUTH EXPERIENCE (YX)

In this paper, we take up this challenge of re-envisioning the education of children's and youth librarians so that they can better understand how youth learn with technology and promote 21st century skills among youth ages 0-18. Drawing on the latest thinking and research from domains in and outside LIS, four categories of interrelated knowledge and skills sets emerge as potentially needed by librarians to promote learning and innovation among youth:

1. *Transition from expert to facilitator* by engaging in active and continuous learning with teens and for teens (Braun, Hartman, Hughes-Hassell, & Kumasi, 2014, Braun & Visser, 2017) to "re-imagin[e] services and spaces" (IMLS, 2015, p. 2).
2. *Apply interdisciplinary approaches* drawing on research, methods, and best practices from domains such as the learning sciences to establish equal partnerships and learning opportunities that facilitate discovery and use of digital media. (ARUP, 2015; Bertot, Sarin, & Percell, 2015; IMLS, 2015).
3. *Develop dynamic community partnerships* that reach beyond the library, specifically "building partnerships and collaborations in their communities" (Braun, et al., 2014, p. 23).
4. *Work with youth from non-dominant groups* who need the libraries the most (Braun, et al., 2014, p. 23; IMLS, 2015).

We have coined a term to describe the knowledge and skills that children's and youth librarians must possess as the *Youth eXperience (YX)* (inspired by the term *User Experience* in computing). We offer a YX specialization within our MLIS program and also as a post-master's certificate program for in-service librarians. Through a series of participatory design activities with children and youth services librarians across the country, we answer the following three questions:

(1) What knowledge and skills do librarians need to possess to excel as YX librarians (in addition to the ones we have identified above)?
(2) How do we bring in approaches, methods, and best practices from disciplines outside of the LIS (if needed) into the YX curriculum?
(3) How do we package these skills into courses (including types of assessments, etc.) for pre-service (in our MLIS program) and in-service youth librarians (continuing education certificate programs)?

METHOD
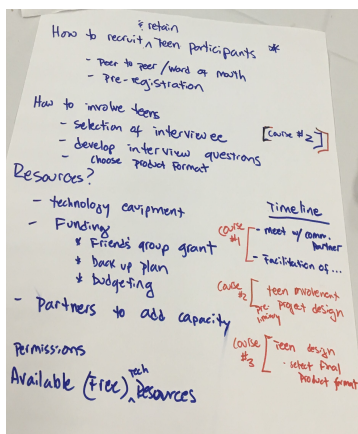
Figure 1

Using the skills and knowledge described conceptually in the reports mentioned above, we tentatively outlined the learning objectives of the four YX required courses using our team's collective expertise in youth and children's librarianship, the learning sciences, human computer interaction, emerging literacy, and youth learning/culture. These courses were *Facilitating Youth Learning in Informal and Formal Environments, Promoting Rich Learning with Technology, Design Thinking and Youth* and *Capstone in YX*. Course learning objectives were developed with the end in mind - the Capstone course acts as a culminating project pulling all the skills and dispositions together. We conducted participatory design sessions with 57 youth service librarians at both the Young Adult Library Services Association (YALSA) symposium and the American Library Association Midwinter (ALAMW) meeting. These sessions drew from a toolbox of participatory design techniques, including "big paper" brainstorming exercises, ideation using sticky notes and presentations by the participating librarians. All activities were

designed to solicit unfettered feedback and determine which skills were the most critical and useful for them (Guha, Druin, & Fails, 2013, Walsh et al., 2013). These sessions were

documented using field notes, audio recordings, and photographs (see Fig. 1).
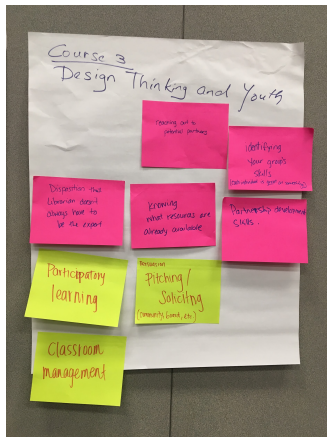
Themes, or "big ideas," (see fig. 2 & 3) emerged from these design sessions and formed the basis for refining these courses. A thematic content analysis approach similar to that described by Libarkin, Thomas, and Ording (2015) was utilized to transform these needs into refined learning objectives, which then informed the topics that need to be covered, skills that will be facilitated, and

assignments that will measure the achievement of the objectives for each of these courses.
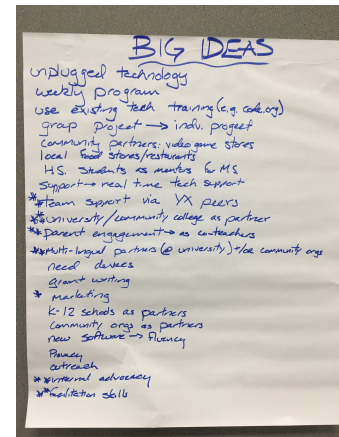
Figure 2

Figure 3

FINDINGS

What knowledge and skills do librarians need to possess to excel as YX librarians (in addition to the ones we have identified above)? As a result of the above-mentioned design activities, the needs of the children's and youth librarians were adequately captured. Through the design thinking process at both YALSA and ALAMW, we uncovered several skills that librarians indicated were needed, but were lacking in their formal or professional development trainings that they received. Librarians were generally comfortable with producing youth programming, but found that they needed skills to assess learning and the quality of programs, to facilitate programming that involves rapidly evolving technology (often times technology that they are not comfortable with or know how to use), to promote and sustain partner relationships, and to raise funds and obtain support and resources to implement and sustain technology-infused youth programs. For example, at ALAMW, the participatory design session revealed that librarians were deeply in need of training to keep

abreast of current technology (mentioned six times), to develop and sustain community partnerships (mentioned five times), and

Figure 4

to successfully raise funds (mentioned four times), as well as several other areas. Most often these skills fall outside of traditional librarianship curriculum, resulting in current librarians seeing themselves as a "jack of all trades" and realizing the importance of being skillful in the above-mentioned areas. Figure 4 illustrates the "Big Ideas" as expressed by the participants from a single session at ALAMW. These training gaps were then categorized into the following categories: *Community Partnerships, Technology Skills and Access, Working with Children and Parents in a Learning Context, and Management.* At the end of these four sessions, our team met
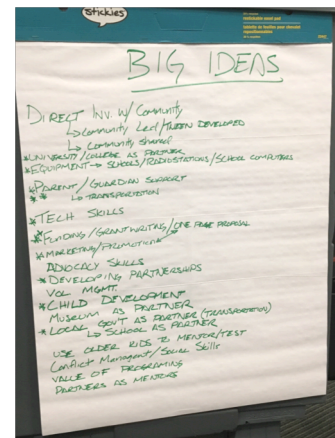
to examine data that we have collected and strove to incorporate these needs of the YX librarians into the coursework.

How do we bring in approaches, methods, and best practices from disciplines outside of the LIS (if needed) into the YX curriculum? Clearly some of the above-mentioned areas required us to examine the availability of approaches, methods, and best practices from disciplines outside of LIS, as these contents are not being taught in existing youth and children's librarianship programs. We drew from disciplines outside of the LIS through the two major channels listed below:

A. Our team's and partners' collective expertise: Our YX team includes a learning scientist, who is well versed with developments in technology-infused learning environments, facilitating learning in these environments, and using design thinking processes to build such learning environments with and for youth. Additionally, we also tapped into the expertise of our advisory board members for this project, which include educators and scholars who work in areas of youth identity development, family learning, STEM learning, as well as leaders and innovators of the future of youth services in libraries at ALA (see http://yx.umd.edu/people/ for a complete list of our advisory board members).

B. Our team's scholarly networks: Collectively, our team has active research collaborations with scholars from learning sciences, computer science, human-computer interaction, public health, human development, family learning, educational psychology, youth culture, engineering, social work, urban development, new media, gender studies, urban studies, and many more. We leveraged these collaborations to ask these scholars for guidance on approaches, practices, and methods in their disciplines.

Here, we share two examples (among many) that demonstrate the skills and knowledge that we brought into the YX curriculum from disciplines outside of LIS:

1. One of the needed skills for librarians identified in research question (1) is to be able to assess learning and the quality of programs. The classic methods of assessing quality of programs in libraries have been through attendance, retention, and circulation data. Using the channels mentioned above, we were able to include the Youth Program Quality Assessment (YPQA) technique (derived from the youth development domain) for librarians to assess the quality of their technology-infused youth programs in the *Promoting Rich Learning with Technology* course.

2. Another needed skill for librarians identified in research question (1) is to be able to facilitate programming that involves new technology, even with technologies that librarians may not be familiar with. In the *Design Thinking and Youth* course, we included content on engaging youth voice in the design of youth programming (derived from the human computer interaction domain) where librarians will serve as mentors/facilitators to youth rather than experts, and also relegate some of the technology facilitation and mentoring to "expert" youth as peer mentors.

How do we package these skills into courses (including types of assessments, etc.) for pre-service (in our MLIS program) and in-service youth librarians (continuing education certificate programs)? Once we identified the content (skills) and the readings that are needed for the YX courses, we came together as a team for a half-day session and ordered them into the

four core courses that we had originally planned for YX. We listed each topic/skill in one sticky note/card, which we then placed on a white board with four columns (one for each course). We debated the rationale and the progression of skills and knowledge from one course to the other throughout this half-day activity. The assessments were sequenced and developed in a way that will allow both pre-service and in-service librarians to begin thinking about the major deliverable in the Capstone Course in YX (the last course) when they begin their first course, and then progressively develop their Capstone project from one course to the next.

CONCLUSION

While the advantages for research-practice partnerships is evident from the findings above, one of the major challenges we faced is that there was only a limited amount of content that we can cover in each course. However, the list of knowledge and skills that librarians need is vast. As a result, we carefully examined the frequency of the knowledge and skills mentioned or alluded to by the librarians during the design sessions, and made decisions to include or exclude content based on these frequencies. Often times, these were hard decisions to make. Whenever possible, for the topics that did not make it into the courses, we developed additional modules that are made available outside of the courses, or consciously added recommended readings in addition to required readings in these core courses for YX.

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Coding with a Critical Lens: A Developing Computer Programming Curriculum for Diversity and Equity

Bill Kules

University of Maryland, College Park

ABSTRACT

LIS and computer science programs need to address issues of diversity and equity in technical courses like computer programming. This is important because as students transition to their professional careers they will need to understand, navigate, overcome and undo inequitable practices and cultures within their work environment. This paper describes a curriculum to help students recognize, analyze and take action when they encounter these issues. It describes the rationale, framework and structure of the materials, and identifies current challenges. It closes by arguing for stronger, more explicit connections between technical skills courses and program goals related to diversity and inclusion.

TOPICS:

Curriculum; Education programs/schools; Pedagogy; Students; Social justice

INTRODUCTION

As LIS and computer science programs expand to educate students for the ever-growing array of jobs in the information professions, they are beginning to address issues of diversity and equity in their computer programming courses. To date, the focus is primarily on how to help students learn programming skills more successfully with course material that is more relevant to the interests of diverse students and by adopting more inclusive teaching practices (Alvarado, Dodds & Libeskind-Hadas, 2012). A few programming courses directly address these issues as part of the course content (Kules, 2017a; Lewis, 2017; Salo, 2016). This is important because as students transition to their professional careers they will need to understand, navigate, overcome and undo inequitable practices and cultures within their work environment (Reynolds & Hartman, 2014).

This paper describes a developing curriculum to help students recognize, analyze and take action when they encounter these issues. It has been used at both the graduate and undergraduate level. This paper describes the rationale, conceptual frameworks, and some practical consideration. It concludes by identifying some of the challenges and arguing for stronger, more explicit connections between technical skills courses and program-level diversity and inclusion themes.

RATIONALE

There are compelling ethical and practical reasons why information professionals need to understand these issues in their organizations and communities (Forsgren & Humble, 2016; Sinclair, 2004; Wajcman, 2009; Wolske, Rhinesmith & Kumar, 2014). Within organizations, the value of diverse teams is well established (Phillips, 2014), but organizational success depends on teams managing diversity effectively (Jackson & Ruderman, 1995). Programmers and other technical professionals will be more effective team contributors if they understand how these issues intersect with team dynamics. Thus an important element of this curriculum is helping students to understand the dynamics of teams and particularly the relationship to issues of team culture and individual bias.

FRAMEWORKS

The curriculum uses two primary conceptual frameworks: social justice teaching and organizational/team dynamics. The social justice approach addresses issues of social identity and how this impacts power relationships and confers advantages or disadvantages. It helps students to recognize and analyze issues more deeply than common approaches to diversity, which emphasize cultural and social differences and commonalities (e.g., cultural competency) without necessarily addressing issues of inequality (Adams & Zúñiga, 2016). Structural inequality occurs at multiple levels – individual, institutional, cultural (Hardiman, Jackson, & Griffin, 2013) and reinforces unearned, inequitable, and often-unrecognized forms of privilege and oppression (McIntosh, 1988).

All of these elements are evident in teams. Teams reflect their organization, but team culture is more easily changed than the larger organizational culture, so they provide a useful entry point for this curriculum. We already use small groups extensively in our coursework so they provide a natural learning environment where patterns of privilege and oppression emerge. By analyzing and acting upon these issues within their groups, students can develop skills in a supportive environment, where mistakes are recognized as learning opportunities. Connecting understanding to strategies for action provides a way for students to feel empowered to take action.

STRUCTURE

The initial curriculum was part of a graduate level introduction to JavaScript course taught in Spring 2016. It has been refined and used in five more classes, including two semesters of a mid-level undergraduate Python course and one section of an introductory undergraduate Python course. The learning outcomes capture two essential elements of knowledge and skill:

1. Explain how programming is situated in and reflects broader social structures, constructs and issues, e.g. race, class or gender.
2. Within their teams and small groups, notice when inequities surface and take positive action to work with their peers to resolve them.

Readings and activities are used for weekly reflective discussion on the "bigger picture" of computer programming. We introduce a reflective practice at the beginning of the semester, starting with more pragmatic questions focused on the programming language and computational

thinking concepts. The diversity and equity elements are introduced about half way through the semester, after the students have settled in and gotten to know each other. At the end of the semester students write a final essay analyzing one example of a diversity or equity issue in technology.

Discussion topics include:

- Coding for social good
- Coding in its social context
- Systems of power in tech: individual, organization, culture
- Forms of inequity, unearned privilege and oppression in tech
- Taking action and forms of resistance in tech
- Team dynamics - structures to support equitable practices

We draw readings from a variety of sources. We avoid scholarly journal articles in favor of shorter, more engaging formats such as blog posts, opinion pieces and popular press articles. Samples of readings and discussion prompts include:

- *How to Hold Governments Accountable for the Algorithms They Use* (Diakopoulos, 2016) – Algorithms determine prison sentences and Social Security benefits. So we need to know how they work. What does this tell us about the power and use of algorithms?
- *Missed Connections: What Search Engines Say about Women* (Noble, 2012) – Algorithms can reinforce existing social and cultural bias. How do we respond as programmers and technology designers?
- *How Diversity Makes Us Smarter* (Phillips, 2014) – Research shows that socially diverse groups (that is, those with a diversity of race, ethnicity, gender and sexual orientation) are more innovative than homogeneous groups. Diverse teams also present challenges. Why is this so? How have you personally experienced diverse groups?
- *Google's Ideological Echo Chamber* (https://assets.documentcloud.org/documents/3914586/Googles-Ideological-Echo-Chamber.pdf) and *The e-mail Larry Page should have written to James Damore* (The Economist, 2017) – The memo and this response illustrate the ongoing debate about what diversity means in tech companies generally. Damore's memo describes his experience at Google and his critique of diversity efforts there. He was subsequently fired, leading to a public dialog. The Economist published a point-by-point rebuttal to his arguments. How compelling are Damore's and The Economist's arguments for you? Do you agree with their conclusions? Disagree? Why?
- *What If I Had James Damore of Google on a Team?* (http://www.incontextdesign.com/what-if-i-had-james-delmore-of-google-on-a-team/) – This post reflects on the challenges of working in diverse technology teams and presents six techniques to help diverse teams work together. As you work on your team projects, have you noticed any of these issues? Consider how you can incorporate these techniques into your project team.

DISCUSSION AND CONCLUSION

The discussions with students are tremendously satisfying, but there are a number of challenges in teaching this curriculum. It requires changing the way the course is taught by using more inclusive pedagogy (Kules, 2017b; Alvarado, Dodds & Libeskind-Hadas, 2012). It takes time to develop a level of trust within the class, and not all students are willing to engage. Student essays and course evaluations reflect a range of reactions and levels of growth. Some students are enthusiastic and grateful for the opportunity to discuss programming in a larger context. They find it meaningful and motivating. Some students continue to question the rationale. One current challenge is to help students – especially more privileged students – recognize how this is relevant to their own careers. Overall, most student essays demonstrate an ability to recognize and analyze diversity and equity issues.

Developing this curriculum has stimulated conversations within the iSchool. Presentations have prompted faculty colleagues to discuss how diversity and equity themes could be integrated into their own courses. It has also provided an opportunity for discussions with the student diversity group, iDiversity. In turn, this led to significant contributions to the readings and suggestions on structure.

As the number of students in our undergraduate program continues to grow, we are offering additional sections of these courses, which are being taught by more instructors. Instructors have varying levels of knowledge, skill and comfort with the issues and the teaching approaches needed to do this work. It requires techniques that differ from those used in a traditional skills-focused course. Instructors who have primarily taught programming as a skills course are challenged to expand their teaching approach, and not everyone is prepared to teach this material. It can be emotionally charged and personally unsettling, as well as transformative (Bell, Goodman, & Ouellett, 2016). This highlights the need for professional development for faculty – and for instructors to commit to "doing our own work." As instructors, this entails understanding our own individual social identities, experiences of privilege and oppression, and how this impacts not only our teaching, but also our own experiences as programmers or creators of technology so that we can authentically and effectively engage with the material and our students (Bell, Goodman & Varghese, 2016).

In the larger academic context, this curriculum demonstrates one way for programs to respond to the ongoing challenge in LIS education of meaningfully engaging curricula with issues of diversity, inclusion and equity (Jaeger et al., 2015). This can be visualized as a part of a "T-shaped" curriculum. Courses focused on diversity and equity can provide deep understandings, while other courses, like this one, examine how they intersect with the course topic. This can help students develop the technical and ethical skills needed to be successful as they move into their careers as information professionals.

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Collective Leadership Roles for Supporting Community Digital Literacy Initiatives

Kirstin C. Phelps, University of Illinois at Urbana-Champaign

ABSTRACT

Supporting digital literacy skill development is a relevant priority for communities, given the importance of digital literacy to navigating daily life. The community settings where people gain literacy make leadership an equally important skillset for library and information professionals; particularly as successful programming initiatives often require multi-organizational partnerships to offset unique information needs and potentially burdensome financial, human, and infrastructure challenges. In this paper, we discuss a collective leadership framework which serves as the foundation for a case study exploring community organizing around digital literacy initiatives. The main conceptual foundations will be highlighted and it will be argued that the framework can contribute understanding on how to address challenges present in multiple stakeholder community collaborations, with implications for the development of essential leadership education and training for LIS professionals.

TOPICS:

Community engagement; Research methods; Information literacy; Education programs/schools

INTRODUCTION

Digital literacy, defined broadly to encompass not just individual capacities but also cognitive, socioemotional, and critical thinking dimensions (Lankshear & Knobel, 2008), is considered by many to be an essential life skill for navigating daily life in the information age. Traditionally, the educational sector was seen to be the main provider of digital literacy education and training; connected to other literacies and implemented in pedagogical frameworks. National standards, like those provided by the International Society for Technology Education (ISTE), have been developed to provide guidance for teachers integrating digital literacy development into their classrooms, as well as for schools connecting digital literacy development to broader educational outcomes. Digital literacy, however, is not solely the need of students or youth. Adults and seniors also require preparation, access, and support in the ongoing learning required for digital literacy development. Informal learning spaces are just as important of contexts for digital literacy development and practice (Meyers, Erickson & Small, 2013). These informal learning spaces, which may include libraries, museums, online communities, workplaces, etc., as well as digital literacy based programs, offer alternatives to the formalized pedagogy often demarcating the school setting. In addition, these settings may provide connections to other, related areas such as digital inclusion as well as focus on the related areas of making and STEAM (science, technology, engineering, arts, and math) education (Wolske, 2016). The rise of the information economy and changing work roles have expanded concerns about digital literacy development beyond the educational realm to encompass a variety of sectors.

Given the varied settings in which digital literacy may be developed, the implementation of digital literacy initiatives is often beset by challenges around organizational boundaries, identifying and sourcing resources, and building relationships. At a community level, concerns about digital inclusion and workforce preparation have created an emphasis on digital literacy connected to social and economic development goals. Interest in urban innovation zones, technology incubators, maker spaces, and smart cities can all be considered from the perspective of community-based initiatives attempting to develop the capacity of local citizens for positive outcomes, with libraries often serving as key stakeholders. These initiatives often reflect social innovations, or "processes by which relevant stakeholders jointly develop solutions to wicked problems that none of them can solve on their own" (de Moor, 2015, p.1). Contrary to traditional notions of innovation which focus on competitive advantages, social innovations are grassroots efforts that focus on community members' efforts to create solutions to local challenges (Gurstein, 2013). Yet, the collaboration processes required of community members focused on addressing wicked problems do not spontaneously emerge (de Moor, 2013). Instead, they reflect rich, complex social contexts in which the relationships among individuals and organizations are embedded. Information professionals working in such settings can be key to the success of social innovation partnerships by enacting key leadership roles. However, leadership is an under-developed focus for many library and information science (LIS) programs (Singh & Vorbach, 2017).

To better support the implementation, success, and sustainability of community-based social innovation initiatives, such as digital literacy programs, we must first understand more about the processes of collaboration and organizing which occurs among a variety of stakeholders. A collective leadership framework, borrowed from the field of leadership studies, explores different social roles involved leadership processes and provides a novel lens for a case-based inquiry of digital literacy initiatives within a local community.

FRAMEWORK FOR COLLECTIVE LEADERSHIP

Conceiving of leadership as a collective process where any individual can enact essential roles is a shift from traditional notions of leadership, which are often situated around functional dimensions of leadership via positional authority or necessary competencies. While leadership and management are increasing in demand within LIS schools, a curricular gap exists in developing management and leadership skills in LIS graduates (Singh & Vorbach, 2017). The preparation of LIS graduates to take on leadership roles is lacking; partially due to the inconsistency of course offerings within LIS schools (De Grandbois, 2013), overly theoretical focus of courses at the expense of practical applications (Line, 2007), and a reticence among students themselves to pursue such responsibilities (Holley, 2015). In contrast, a collective leadership framework expands the perception of what is meant by, and who can participate in, leadership processes. It also provides a more realistic framework of social influence (i.e. leadership) within social settings.

Interest in alternative approaches to leadership has been precipitated by the insufficiency of traditional, top-down leadership models to manage the complexity and rate of change facing many organizations. The rise of knowledge work, the mass diffusion of information communication technologies (ICTs), and the shifting demands of the competitive marketplace have resulted in the use of flatter, more team-based work structures, i.e. collective leadership designs (Avolio, Walumbwa & Weber, 2009; Kocolowski, 2010; Dinh, Lord, Gardner, Meuser, Linden & Hu, 2014;

Pearce & Wassenaar, 2015). Such leadership strategies are gaining prominence because they extend the role of leadership beyond a single individual and encourage the participation of all members in group processes. According to these models, leadership is frequently defined in terms of social roles – recurring sets of behaviors taken within a group context (Zigurs & Kozar, 1994) – rather than as a formal position.

A conceptual framework for collective leadership, based upon a long tradition of defining leadership as a set of complex roles (Hollander, 1985), was recently synthesized into four main roles (Carson, 2006). Each of the roles represent a cluster of behaviors different individuals can enact (See Table 1) within a group and encompass skills commonly associated with leadership,

Table 1. Collective Leadership Roles

Role	Description
Navigator	*Establishes purpose, and direction*
Engineer	*Organizes the group and structures tasks*
Social Integrator	*Develops and maintains cohesiveness*
Liaison	*Develops and maintains useful external relationships*

such as communication, decision-making, articulating a vision, conflict management, etc.

Compared to traditional leadership, collective approaches have been found to better predict positive group outcomes, as individuals are free to apply their knowledge and skill when and where needed (Fausing, Joensson, Lewandowski & Bigh, 2015; Pearce & Wassenaar, 2015). A collective leadership framework is particularly relevant to the organizational realities many informational professionals find themselves working within – including those focused on digital literacy. Such initiatives often involve specific information needs and have high resources demands which are frequently handled through formal and informal collaboration among a variety of stakeholders.

A collective leadership framework situates key individuals and organizations based upon the roles they play, and are identified as playing, within the group rather than due to their formal title or organizational position. As such, collective leadership both provides a way to understand more nuanced patterns of influence and information flow among collaboration partners, as well as opens opportunities for individuals to choose to serve as key roles – while mitigating the mantle of having to 'be the leader'. Instead, collective leadership acknowledges that individuals ply their skills and knowledge to the challenges and tasks at hand, but also that the individuals in those roles may change over time or as the task requires.

CONCLUSION

Information professionals often serve key positions where both technical and non-technical expertise is needed. With the rising interest for digital literacy programming within communities, where libraries often serve as the home for makerspaces or fabrication labs, LIS professionals have need of both technical acumen and leadership skills. However, current models of leadership used

within the LIS fields often focus on administrative duties or competencies needed for formal positions. Collective leadership provides a framework for reframing leadership as a process, where skills are enacted in different roles show to be essential for group functioning. Such a framework has the potential to expand the education of LIS professionals while also more accurately reflecting social realities of organizational life. In instances of multi-partner collaborations, collective leadership also provides a lens through which to explore processes of organizing that could have important ramifications for programmatic success.

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Cultivating a Critical Thinking Mindset in the Era of "Alternative Facts"

Rajesh Singh and Kevin Rioux

Division of Library and Information Science, St. John's University

ABSTRACT

This exploratory research examines the critical thinking skills and mindsets of 35 LIS students as they discuss two case studies in an online management course. Three categories of mindsets were identified: Idealists, Pragmatists, and Skeptics. Findings reveal that 75% of participants used strategic approaches to resolve information accuracy and ethics problems presented in the case studies. This suggests that cultivating critical thinking mindsets in new information professionals is effective in helping them address societal or organizational challenges associated with our contemporary era of "alternative facts". New perspectives are also offered regarding the use of pedagogical case studies as tools for developing these strategic critical thinking skills and mindsets among new information professionals.

TOPICS:

Critical librarianship; Information literacy; Information ethics; Pedagogy

INTRODUCTION

Contemporary rhetoric about "fake news" and "alternative facts" has had a powerful influence with respect to information sources, raising awareness and expectations of information accuracy among users. It is also challenging information professionals to demonstrate new skills that reinforce their positions as credible, reliable sources. Consequently, this so-called "post-truth" era poses challenges for library and information science (LIS) educators in their efforts to prepare new information professionals who can strategically confront "fake news" and "alternative facts".

Against this backdrop, we assert that LIS faculty can begin to pedagogically address these challenges by cultivating strategic, critical thinking mindsets among their students by using problem-based case study discussions in their courses. Despite the popularity of case study teaching methods in LIS, empirical evidence on the effectiveness of case studies is limited (Horava & Curran, 2002; Moniz, 2009). Case studies have been found to enhance students' problem solving, analytical, and decision-making skills, but little is understood about the role of case studies in cultivating LIS students' critical thinking mindsets. This study is an initial foray into this area of inquiry.

DATA COLLECTION AND ANALYSIS

This exploratory study aimed to understand the critical-thinking mindsets of 35 graduate students enrolled in two sections of an online LIS management course. One section was delivered in the spring semester of 2016, and the other in the spring of 2017.

The selected case studies were "A Word to the Wise" by A. J. Anderson, and "A Difficult Decision" by Cynthia Thomes. Ample opportunities were given to students to demonstrate a critical thinking mindset as they attempted to resolve the ethical issues, dilemmas, and problems presented in the case studies, which called upon their dispositions toward problem-solving as well as their decision making, communication, and leadership skills.

Specifically, students' case study discussions and responses were assigned points (on a scale of 1-5) for the following criteria: a) demonstrates critical thinking through thoughtful and reflective discussion of ethics case studies; b) provides evidence of leadership skills, managerial decision making, and problem-solving skills by offering thoughtful and strategic solutions; and c) applies relevant management/ethics theories and concepts in resolving the given issues and problems.

The scores for these three evaluation criteria were summed up and placed into three mindset categories: **Idealist** (top 25% score), **Pragmatic** (middle 50% score), and **Skeptic** (lower 25% score). Students' reflections on the effectiveness of the selected case studies in enhancing their learning about management skills were also analyzed based on these mindset categories.

FINDINGS

Findings show that the **Idealists** (8/35) took idealistic positions as they discussed ethical issues put forth by the case studies. Idealists believed in finding the perfect solutions for the problems that drove class discussions. Their responses were detailed, analytical, comprehensive, and demonstrated decision-making and problem-solving skills. Idealists outperformed their counterparts by finding solutions and applying relevant ethics/management theories, concepts, and models. As they delved deeper into discussing ethical challenges, Idealists adopted strategic approaches and relayed experiences and perspectives that they had witnessed in their own workplaces. They approached problems with an attitude of optimism and confidence, and were resolute in wanting to improve a situation. Enthusiasm and appreciation of the case study approach in facilitating management education was clearly evident in their wrap-up reflections.

The **Pragmatics** (19/35) considered the reality of the given case study, and were more inclined to take practical approaches in resolving ethical issues and dilemmas. Although a substantial number of Pragmatics (8/19) also considered idealistic solutions, their ultimate approaches were deemed to be more pragmatic that idealist. Additionally, Pragmatics demonstrated analytical and problem-solving skills, but their responses were less comprehensive and detailed than those of the Idealists. Nevertheless, a majority of Pragmatics (15/19) performed well in finding strategic solutions for case study problems by applying ethics/management

theories, concepts, and models. Finally, Pragmatics' wrap-up reflections emphasized the effectiveness of case study pedagogy in evolving their management perspectives.

The **Skeptics** (8/35) did not fully articulate the ethical issues presented in the case studies. Skeptics' responses merely reflected "common sense" rather than being grounded in relevant management and ethics theories and concepts. Additionally, Skeptics' responses were not comprehensive and they did not reflect strategic insights in resolving the ethical issues presented by the case studies. They seemed to find it difficult to apply relevant ethics/management theories, concepts, and models in their online discussions. Consequently, their responses tended to be incoherent, and they remained skeptical or uncertain about which overall approach to take in resolving ethical issues and challenges. Nevertheless, their wrap-up reflections revealed Skeptics' appreciation for case study pedagogy and how it helped to evolve their management perspectives.

CONCLUSION

Overall, findings reveal that 75% of participants (the Idealists and the Pragmatists) reflected a *critical thinking mindset*, which was evident in their strategic approaches to improve the problematic situations presented by the case studies. Even though the Skeptics underperformed relative to their counterparts, their wrap-up reflections were quite similar to those of the Idealists and the Pragmatics in their appreciation of case study discussions in helping them strengthen their managerial and critical thinking skills. This study demonstrates that cultivating a critical thinking mindset in information professionals would be an effective way to address emerging societal, technological, or organizational issues in the "fake news" and "alternative facts" era. Finally, this study has implications for designing holistic LIS programs that aim to cultivate critical thinking mindsets throughout the curricula.

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Curriculum Development in LIS Education for Data Science Specialization

Hammad Rauf Khan, University of North Texas

ABSTRACT

This exploratory research looks at every data science program being offered in the United States and reviews the core courses, what type of degree, and discipline they are being offered in. This will provide LIS schools with an overview of degree type and core courses that are currently being offered in the data science curriculum, and the results found from this research could be used as a starting point in curriculum development for a data librarianship program in LIS.

TOPICS:

Education of information professionals; Data science; Information practices; Data management; Big Data

INTRODUCTION

The amount of data being created and shared today is the most civilization has ever witnessed and this can be credited to technological innovations and the internet. Librarians have aided patrons in research and obtaining information, however today they are also being asked to help with accessing data and helping with data discovery tools. In a 2013 Library Journal article for Placements & Salaries the authors discussed new job titles appearing for library positions in academia, such as Research Data Librarian, Data Coordinator, and Data Curation Specialist. This 2013 article also coined the term "databrarian".

In October of 2015 the American Library Association(ALA) President, Sari Feldman, officially launched the 'Libraries Transform' campaign. The campaign is a result of the changing roles of libraries and librarians in today's information landscape. Karno and Roth (2017) note that most ALA accredited library schools have transformed into I-Schools "emphasizing the technological and data-driven nature of information science, and distancing themselves from traditional approaches to library school education" (p. 38).

Most LIS schools today offer different programs of studies, such as archival, imaging technology, health informatics, information organization, information systems, law librarianship, music librarianship, youth librarianship, and school librarianship. Why are there no programs in LIS schools focused on data librarianship? There is a clear need in academic libraries for data management and services to provide support to their institutions. Out of the 60 ALA accredited LIS schools, Indiana University Bloomington offered a Data Specialization track in their Master of Library Science degree program. Do LIS programs prepare students for handling data and being able to successfully hold a data librarian position? Looking at the 60 ALA accredited LIS schools,

none offer any focused direction for students who are interested in data librarianship. Kim's (2016) article, "Who is Teaching Data: Meeting the Demand for Data Professionals", looked into the lack of courses in the LIS curriculum that actually prepare students to work with data.

Interdisciplinarity is not only a knowledge view, but a curriculum approach that applies the methodology and language from more than one discipline to examine a common theme (Klein, 1990). The discipline of data science can be considered interdisciplinary as many different fields and disciplines require the interpretation of data. The term "Data Science" came into existence in 1990 according to Smith (2006). Data Science is an emerging discipline that has begun to

> "include the study of the capture of data, their analysis, metadata, fast retrieval, archiving, exchange, mining to find unexpected knowledge and data relationships, visualization in two and three dimensions including movement, and management. Also included are intellectual property rights and other legal issues" (Smith, 2006, p.163).

This research will gather every data science program being offered in the United States and look at what type of degree, discipline, and core courses that are currently being offered in the discipline of data science. This can benefit LIS Schools in understanding what types of core courses and degrees are being offered in data science programs and use the results as a starting point in developing their own curriculum in LIS focused on a data science specialization for librarians.

SIGNIFICANCE

In society, the need for a good education is a value held by most. It is hard to define what a good education is, because the term "good education" is very subjective. Most will agree that a good education is one where the instructor is able to help students master a subject. John Dewey (1938) in his book, "Experience and Education", discusses that the goal of education is to present information in such a way that the experience prepares students for more experiences of a similar nature in the future. Is the education in Library and Information Science (LIS) providing students with experiences that will help meet the challenges they will face in the future?

The advancement of technology, changes in the information landscape, and the expansion of theories in library and information science has lead to the continuing growth of the field, but without much change to the ad-hoc approach in the Library and Information Science (LIS) curriculum. The LIS curriculum is facing challenges as the demand for workforce skills in libraries is rapidly changing.

One of the major changes affecting LIS jobs is the phenomenon of Big Data. Katal, Wazid, and Goudar (2013) described big data as having the four Vs: Volume, Velocity, Variety, and Value. If we look at this definition of big data, then this concept is definitely not new to library science as librarians have been dealing with big data since the ancient Library of Alexandria. Librarians in the past dealt with big data in the forms of scrolls and printed books, but librarians never termed these collections as "Big Data".

Librarians have been collecting, organizing, and disseminating big data for many years, however the current LIS curriculum is in need of bridging the gap to meet professional demands of big data skills in academic libraries. Information Science, which is truly interdisciplinary, has

been focusing to meet the big data challenges of the the future and workforce demands of employers. LIS education needs to begin to take into account that many disciplines are now beginning to implement data science courses that handle big data, analytics, data curation, data mining, and data management. These topics are just as important to LIS education as they are to the discipline of data science. In fact, librarians have been performing analytics, data curation, data mining, and data management without having a degree or certificate in data science.

> "Academic libraries have a long history of collecting data and reporting their analyses. Traditionally library data collection focused on gathering information about library materials, expenditures, staffing, or service activities. The data were often compiled into library statistics and considered as a way to assess a library's resources and performance" (Chen et al., 2015).

Librarians in academia are not only going to need to promote information literacy to faculty and students, but also data literacy. Are LIS students that are graduating from ALA accredited institutions equipped with the knowledge required for pursuing positions as data librarians?

DATA

The data for this research was collected from many different universities located in the United States using their campus URL's that were made available through the website http://www.mastersindatascience.org/schools/. The website offers a comprehensive directory of data science programs being offered in the United States. The researcher was able to locate a URL for every program and had to perform manual information extraction from the university websites. An excel sheet was used to record the following schemas: University Name, State, Degree, Discipline, Core Courses, and URL. The attributes listed under these schemas will help with understanding the different association rules and there is a need to analyze this data to identify patterns associating to the different attributes.

534 data science programs were recorded in the United States. The programs are being made available at 258 different universities that offer either a certificate, master's, or Ph.D in the discipline of data science. Total document word count resulted in 15,101 words. Since the data was gathered through a website offering data science program information for graduate students, the limitation of this study is that the researcher was unable to gather undergraduate degrees being offered in data science and only looked at programs being offered in the United States.

RESEARCH METHOD

This exploratory study compiles and analyzes data representing certain characteristics from 258 universities in the United States that are offering data science programs. The data compilation sources representing the curriculum core courses of the respective programs are the university web sites as of May 2017. Rapidminer was chosen as the text mining tool for this research as it is one of the most popular open source software in the field of data mining. The software has a GUI-based integrated development environment and includes an extension package for text mining.

The amount of textual data gathered and comprised into the excel sheet is too large for manual analysis and requires the need of Rapidminer for effective extraction. It is important to mention that text mining is not one technique but in fact several techniques. Rapidminer's text mining comprises of components of text selection, grammatical analysis, string matching, statistical techniques, and relationship extraction. This project uses association rules algorithm to understand the relationships between terms used in core courses in programs being offered at different universities. Association rule mining, according to Zhang and Wu (2011) is one of the fundamental research topics in data mining and knowledge discovery that helps in identifying interesting relationships between item-sets in datasets and predicts the associative and correlative behaviors for new data.

The data format was in .xlsx excel file format which is compatible with Rapidminer. The following operators were used in the text mining process, "Process Documents from Data", "Select Attributes", "Numerical to Binomial", "FP-Growth", "Create Association Rules".

RESULTS
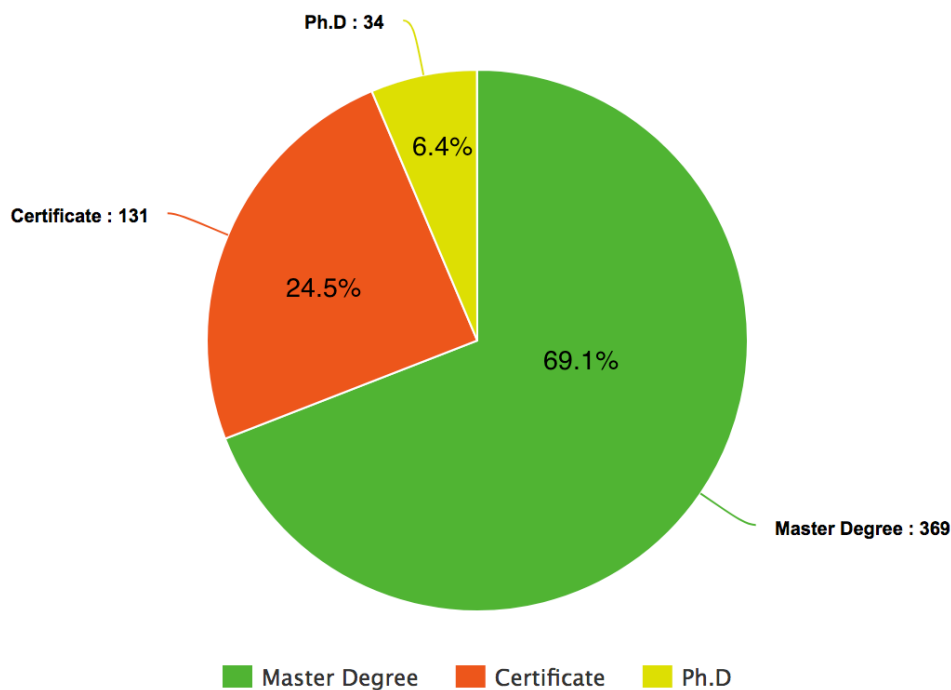
Figure 1. Graduate Offerings in Data Science Programs

In Figure 1, it can clearly be seen that most graduate offerings in data science programs are for master degrees, followed by graduate certificates, and then Ph.D. Table 1 displays the results found through association rules in the data. Association rules explore the relations between attributes in the data, detecting attribute-value conditions that occur frequently together.

Table 1. Association Rules

Term	Association	Confidence
Analytics	Data	1.00
Warehousing	Data	1.00
Big	Data	1.00
Science	Data	.691
Predictive	Analytics	.667
Management	Systems	.667
Technology	Information	.676
Learning	Machine	.741
Visualization	Data	.868
Care	Health	.929
Intelligence	Business	.942
Mining	Data	.949

CONCLUSION

This exploratory research was able to find term associations located in the data science core curriculum titles, providing insight into what is being taught in data science programs in the United States. New curricula must achieve a balance between a topic's coverage that is appropriate for students to succeed, and it must reflect industry workforce needs. Academic libraries have begun to deploy Research Data Services(RDS) at their institutions, and there is a need to develop a specialization in LIS that is focused on data librarianship. Text mining using association rules in the data science core curriculum is just the beginning of understanding how LIS curriculum can implement core courses found in the data sciences, which can benefit students interested in becoming data librarians. This is not to say that there are not any data mining and data analytic courses being offered in LIS, but LIS is in need of a new direction and specialization with the emergence of RDS. This research is an initial step towards understanding the cross-disciplinary relationship between data science and LIS. Semantic analysis can benefit this research in the future, along with finding curricula gaps in LIS that are related to workforce demands of academic data librarians.

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Cyberbullying, Digital Citizenship, and Youth with Autism: Global LIS Education as a Piece in the Puzzle

Abigail Phillips[a] [abigail.phillips@usu.edu] and Amelia Anderson[b] [amelia.anderson@fsu.edu]

[a]Utah State University

[b]Florida State University

ABSTRACT

Librarians are beginning to address the lack of services for youth with autism spectrum disorder (ASD) by providing flexible and tailored programming and services. One important need among youth with ASD is a better understanding of how to navigate the online environment safely and responsibly. Due to challenges in social interaction and communication, youth with ASD may be more susceptible to cyberbullying and misinterpretations during online communications than their peers. This paper illustrates how librarians can play a critical role in digital citizenship education for youth with ASD, and provides implications for LIS educators preparing future librarians through MLIS curriculum.

TOPICS:

Social media; Young adult services; Curriculum; Information literacy; Specific populations

INTRODUCTION

In the United States, autism is the fastest growing disability with most current estimates of 1 in 68 children identified as having Autism Spectrum Disorder (ASD) (CDC, 2016), and close to 1 in 160 children worldwide have autism (WHO, 2017). Youth with ASD often have social, developmental, and communication difficulties that pose challenges for engaging in common everyday activities such as going online (Orsmond & Kuo, 2011). Currently, research on the provision of library services to youth with ASD is limited, made up of a few practitioner books and similar guides for special needs youth programming (Farmer, 2013; Klipper 2014). As the diagnosis of ASD is becoming more prevalent, there is an increased urgency for the development of library services that aid in the intellectual, emotional, and psychological needs of youth with ASD.

This study offers one of the first empirical observations to contribute to the field regarding how librarians can better serve digital youth with ASD. We conducted virtual, semi-structured interviews with 15 librarians from across North America currently working with ASD youth over a period of three months. During analysis, we discovered areas that have the potential to be included in MLIS curriculum. These areas are supported by insights gathered during the interviews

from participating librarians. Some of these insights include needed guidance on collaboration with schools and school ASD curriculum development, growing demands for more tailored special needs youth programming, information literacy skills for the digital environment, and approaches to conducting outreach to social service agencies and youth organizations.

Previous exploratory research has shown that young adults with ASD do use libraries, even discussing them in online environments with other ASD youth (Anderson, 2016). In this research, we investigate how librarians might address a crucial information literacy need for members of this population, and examines the ways in which librarians, through library services and empathy, can help prevent cyberbullying among young adults with ASD and support those who experience cyberbullying. Empathetic services, "structured activities carried out one-on-one or in groups and everyday unstructured interactions in which the role of the librarian is to provide social, emotional, and psychological support", are essential when considering services to youth with special needs (Phillips, 2016, pp.17).

Librarians as community resources. Librarians are one community resource that has received scant research attention in this area, though more work is beginning conducted. As information literacy advocates and digital citizenship instructors, librarians provide youth with resources and programming on ethical and responsible online behavior (Phillips, 2014). For some youth, the library acts as a safe and relaxing environment, separate from oftentimes overwhelming school and home lives (Morris, 2013).

Librarians are questioning how to meet the burgeoning needs of a digital public. And, while doing so, discovering gaps in MLIS curriculum. One of these gaps is a lack of training and education on supporting special needs youth. In our research, we've focused specifically on youth with ASD as a population of interest. As one participant stated, "I think it's so important, and I think this is an area that's really untapped by libraries." There has been a slow increase in inclusive library programming and outreach children and youth with ASD. During an interview, another participant, Rachel (*pseudonym), discussed developing sensory programing including storytimes and in-house accessibility training for library staff. Sensory storytimes and similar programming not only show that the library is responsive to needs of autistic children, but also provides literacy and communication tools that support lifelong learning and social engagement (Cottrell, 2016). However, library services for older youth with ASD (ages 12-18) are often neglected. Many of the librarians we interviewed are in the early stages of creating programming for teenaged youth. While it is critical to provide educative materials and programming as early intervention for children with autism, these children become teenagers who still deserve programming and services that support their needs.

Youth with ASD and social media. Teens with ASD are no different from peers in that they seek out social media platforms for support, understanding, and information seeking (Davidson, 2008). Kuo and colleagues report "that adolescents with ASD who used computers for social purposes reported more positive friendships than those who used computers for other purposes. Notably, peers were the companions with whom adolescents with ASD most frequently engaged in these computer activities" (Kuo, Orsmond, Coster, & Cohn, 2013, p. 922). Yet this growth in social media use opens up a potential for cyberharassment, specifically cyberbullying (Network of Autism Training and Technical Assistance Programs, 2017).

Implications for LIS educators. LIS researchers and educators can contribute to the preparation of future librarians in helping youth with ASD, particularly considering information literacy and digital citizenship. From a global perspective, though the interviews conducted are with librarians in North America, autism has an international reach and findings are relevant to educators in MLIS programs worldwide. LIS educators have long provided guidance for outreach to underserved populations, youth advocacy, and special needs program development. Our findings suggest that a combination of education and empathy work is needed for young librarians to feel prepared to support youth on the autism spectrum in the library. Finally, this paper will encourage further discussion regarding MLIS course development focusing on services for ASD youth, online participation, and digital citizenship.

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A Data, Information and Knowledge Map: Epistemic and Ontological Considerations for Information Literacy Education

Nic DePaula, University at Albany

ABSTRACT

In this paper, I develop a *data, information and knowledge map* to aid the teaching of these basic concepts in information literacy. This map has a linguistic, humanistic and scientific orientation that conceives of information as interpretation, data as recorded information and knowledge as a product of science, research and reasoning. However, I also point to challenges in these activities for developing complex knowledge, including bad inferences, biases and politics.

TOPICS

[Information literacy; Education; Scholarly communications; Information use; Information ethics]

INTRODUCTION

When teaching about *data, information* and *knowledge,* the DIK pyramid is often used and information is defined as meaning added to data (Ackoff, 1989; Meadow, 2006). In other occasions, an exhaustive list of distinct definitions from diverse thinkers is provided (Bawden & Robinson, 2012; Zins, 2007). Numerous good treatises, of course, have provided insightful explanations about these concepts. Nevertheless, given new developments in information literacy (Mackey & Jacobson, 2014) and problems with echo chambers, fake news and social media control of information (Cohen, 2017), these are important concepts to be revisited and reconceptualized. More specifically, information needs to be understood as a type of human interpretation of variable quality and reliability. For complex knowledge to be developed, reliable information is generally required, which can only be derived from science, research and critical reasoning. Data, however, is considered an aspect of medium, that is, recorded information with predetermined purposes.

This work is based on and in response to various theoretical developments in philosophy (Bhaskar, 2008; Oberholzer & Gruner, 2016; Searle, 1998), social theory (Bourdieu, 1991; Searle, 2008), the information sciences (Cornelius, 2002; Hjørland B, 2007; Mai, 2013) and information literacy (Mackey & Jacobson, 2014). I develop a data, information and knowledge map that illustrates important characteristics of reliable information and how it is used to develop complex knowledge about the world. Although the literature on information literacy often focuses on the technology aspect of information, and more recently on the importance of embracing web 2.0 capabilities (Mackey & Jacobson, 2014), I stress the importance of distinguishing between interpretation and medium, reliable and unreliable information, and noting the problems of biases in the basic reasoning processes. Given the complexity of fields of information (e.g. business, arts, politics, etc) and numerous human biases it is difficult for any one individual to develop complex knowledge. Nevertheless, if one is to do so, it will require science, research, and social critical dialogue. A single source of information is unreliable and there is no easy way to learn the truth.

A DATA, INFORMATION AND KNOWLEDGE MAP

We begin this essay with a particular definition of *information*. Information is conceived as *symbolic interpretation*. By this I mean interpretation of ontologically objective and subjective phenomena via symbolic systems (Bourdieu, 1991). A numeric measure of a drink in liters, the conscious identification of someone as "pretty" (or "bonita" or "hübsche"), and the English instructions on how to build a boat, are symbolic interpretations of existing phenomena or of how a phenomenon may come to exist. Interpretations can be *true* or *representative* if they physically correspond to some aspect of reality (Searle, 1998). However, interpretations may also be useful without having such aesthetic or physical correspondence (e.g. the diagram of an atom; models of psychological trauma). Interpretations assume a human subject to develop the sense of *meaning,* both as definition ("Y means open") as well as purpose ("Y *should* mean open"). Information exists not only as representation of phenomena, but also are formalized in various ways to achieve various functions or purposes. The individuals or groups supporting these purposes may intend or be aware they exist, but they may not properly understand their systems of belief (van Dijk, 1998). Understanding phenomena, their potential generalizations, as well as functions and purposes, in the natural and human world is difficult. Nevertheless, humans can obtain reliable and useful interpretations of the world and build a developed and sophisticated body of knowledge through research and scientific interpretations along with critical reasoning and dialogue.
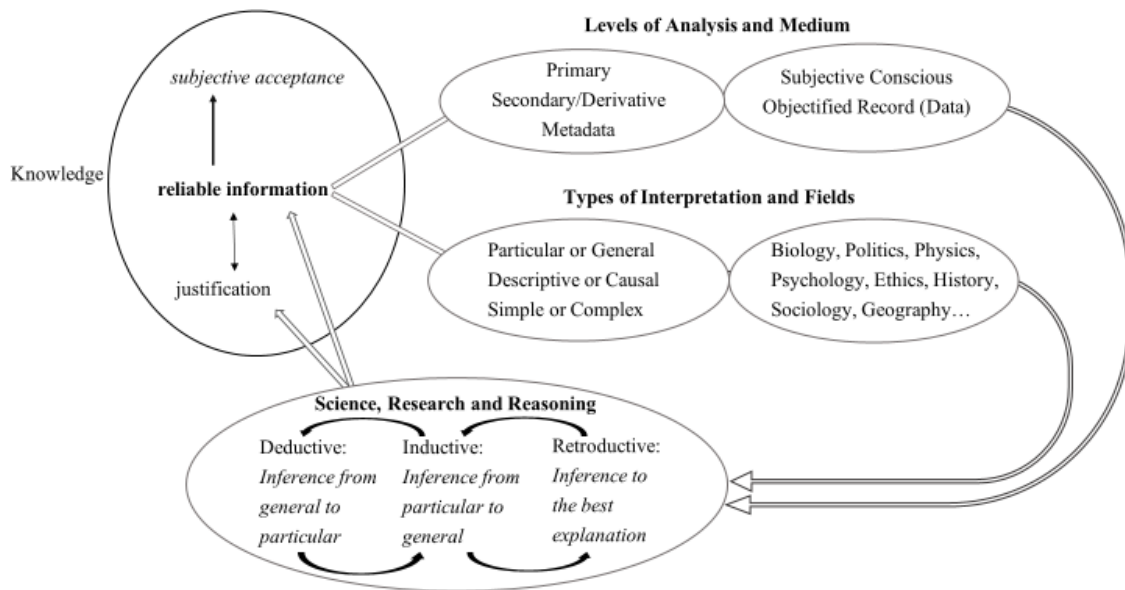
Figure 1. A Data, Information and Knolwedge Map

Given our linguistic and mathematical characterization, true or reliable interpretations are information or propositions that can be true, useful or reliable descriptions of phenomena. I will use the term *reliable information* to refer to these. Although reliability may connote accurate description of fact (e.g. the President died) or a prediction of the future (e.g. if the President smokes, he will likely get cancer) I also refer to reliable information as those interpretations that are fair or critical (e.g. the President smokes, but he is trying to quit). Although any one piece of information may be reliable itself (e.g. the President *did* die) the accumulation of reliable

information for more complex knowledge requires not only true description but a reasonable and intelligent assessment of the facts themselves (e.g. Why did he die? Why is it important?). Reliable information can exist as *ontologically subjective* (i.e. as part of human conscious); or as *ontologically objectified* in material (e.g. rocks, papers, CDs). We conceive of *knowledge* as ontologically subjective, as does Buckland (1991). However, by our definition, knowledge is also *epistemically objective*—a reliable interpretation about the world not unique to a human mind. As shown in Figure 1, a necessary component of knowledge is the *subjective acceptance* or belief a person has on the information. However, just accepting a proposition does not lead to reliable information. *Epistemically subjective* interpretations are personal and unique (e.g. what one deems to know about one's own judgement) and cannot be generalized (Searle, 1998). Nevertheless, we may obtain general and epistemically objective interpretations about subjective experience of others (e.g. we know that when people are physically attacked, they generally feel pain).

In our map, I also emphasize a few important distinctions about the level of analysis. The *primary* level of analysis is the denotative or immediate interpretation. E.g., when someone makes a public social media post as: "Huma's emails point to a pedophila ring and @HillaryClinton is at the center", the text is the primary information, which may be assessed as reliable or not (*it is not*). The wage of an employee or address of a customer in a database may be also analyzed at this primary, factual level. However, we can also infer from this *secondary* or *derivative information*. Indeed, all communication requires this "metacommunicative" inference (Watzlawick et al., 1967). In the case of the Clinton post above, we may infer the person's goals or intentions to interpret the message. Derivative information may also be conceived as deductive inferences that use analytical models, such as measures of central tendencies (e.g. employee average salary) and the application of Bayesian statistics (e.g. predicting consumer purchase). In all cases, moving from primary to secondary information requires further information. The other important level of analysis is the *metadata,* which is information *about the record.* In the Clinton example above the metadata indicates @DavidGoldbergNY made the Twitter post at 12:34 PM on Oct 30, 2016.

Information in general is also characterized by types of interpretation and the diverse fields in the world from which they arise. The types of interpretations identified here are particularly useful when discussing science and research. Although any event, process or thing may always be considered as *particular* or *specific*; *general* interpretations refer to a collectivity of particulars (across time or space) and may point to *causal mechanisms* (Bhaskar, 2008) that explain the shared characteristics of the collective (e.g. North Koreans love their leader because of systematic indoctrination). Therefore, *descriptive* explanations are often about a particular occurrence, whereas *causal* explanations refer to general concepts. E.g., a history of the German Nazi party in World War II is about a particular case and largely descriptive (although it may contain some causal propositions). However, a research article that proposes smoking causes cancer, makes both a *general* and *causal* claim. Both descriptive and causal, particular and general phenomena may be analyzed within the fields or body of knowledge from which they arise and from which interpretations are given. Why people smoke may be best explained via sociological knowledge, whereas why smoking causes cancer may be best explained through knowledge of biology. I also distinguish between *simple* and *complex* interpretations to highlight that some reliable interpretations are more difficult to develop (e.g. atomic structures; political geography) than others, depending on type of phenomenon or technology available. Although it has long been simple to know how to locate a bank branch in our city, the Internet also makes it trivial to acquire

reliable European health data reports anywhere in the world. However, explanations are field-bound. Engineers are better able to explain how to build bridges and ships; while economic and human geographers may better explain why the ships are built and why people move over bridges.

Data in our map is conceived as *recorded information*. From the Latin, a "datum" is "something given" and philosophers have also suggested that a datum may be conceived as "lack of uniformity" (Floridi, 2010)—not only the writing, but the border of the page itself is a datum. A common conception is that data are existing symbols but without meaning (Meadow, 2006). However, it is more useful and congruent with common parlance today to think of data simply as information recorded via technological media. Datasets of wild fires, the tweets of a politician, the paper reports of individuals who have committed crime: these are *data*. This is an important point because *data have specific purposes* and meaning embedded on their structure—though they can be repurposed. The distinction between information and data are thus at the level of medium (e.g. paper, stones, transistors) not meaning—although the technological procedure of recording may develop a symbolic system of codification (e.g. the binary system). This ontological objectification via technology establishes a number of information properties such as *durability, automatic processing* and ease of *transmission.* A fiction novel in a digital text file is objectified (becomes data) in computer transistors via rules of binary logic, may be automatically processed for viruses, or read out loud by a software program, and can be communicated across time and space.

SCIENCE, RESEARCH AND REASONING

In our framework, science via experimental design (e.g. clinical trials), research by qualitative methods (e.g. interviews, case studies) and critical philosophical analyses are all necessary for knowledge; and doing science does not mean abandoning critical reasoning (e.g. science may critique "big science" (Noe, 2017)). These activities, either individually or through social communication, are necessary for knowledge largely due to the limitations of the human mind. Although we accept that humans can obtain reliable descriptions of the world, our psychological biases are too numerous (Benson, 2016; Kahneman, 2013). Knowing the algorithms of social media sites, the economic implications of Trump, or the psychological trauma of a friend are challenging tasks and cannot, generally, be obtained by simply reading a credible article or hearing a podcast from a University Professor. Knowledge production is a resource intensive task. Although new data are being processed at astronomical rates, and diverse interpretations about the world are constantly being publicized, *reliable information* does not change so frequently. Reliable information regarding the mechanics and likelihood of climate change due to human-induced CO_2 were interpreted over a century ago and are still reliable (Arrhenius, 1897; Weart, 2008). Given the reliability of the scientific and research process itself in addressing human biases, although slow and complex, its methods also serve as *justification* for developing reliable information—an important requirement for knowledge. Although we do not discuss scientific, research and critical methods in detail here, we discuss the basic inferential processes required for all of these activities, and how they are frequently misused (Pennycook et al., 2015; Sagan 1996).

In order to move from simple, particular and descriptive accounts of basic and immediate phenomena (e.g. I know how to login to the website; they know Sally broke up with Mike) to the understanding of more complex and causal phenomena (e.g. why did they lie about the weapons of mass destruction?) humans require *deductive, inductive* and *retroductive* inferences. Deductive

inferences begin with a general claim and make a valid conclusion about a particular condition. If I know that climate change does not exist and that discussing things that do not exist are useless, then I can deduce that any particular discussion about climate change is useless. This absolute and deterministic process is problematic, of course, when the initial premise is not reliable. Unfortunately, deductive reasoning with unreliable premises are a common feature of human thought and help proliferate "pseudo-profound bullshit" (Pennycook et al., 2015; Sagan, 1996). Inductive reasoning, on the other hand, makes general propositions *from* observation of particular phenomena. If I observe that eating fast food gives me a stomachache, I may induce that when I eat such food I will have a stomachache. Such factual observations are necessary for developing any kind of objective knowledge, but they may only lead to (a posteriori) general claims (e.g. probability distributions) if observed multiple times and methodically to control for bias. Therefore, deductive and inductive reasoning may feed into each other. However, any such reasoning requires research, critical dialogue or controlled experiments. Only the simplest and most banal of things may be understood uncritically or without study. Moreover, one needs to be careful with *positivism,* or an over reliance on surface appearances without understanding causal mechanisms (e.g. the cause was not the fast food, but the restaurant; the cause is not the gender itself, but cultural discrimination). Lastly, we have *retroductive* or *abductive* reasoning. Perhaps not popular because of its name, this common inference involves educated guesses or "inferences to the best explanation" (Harman, 1965). When a doctor receives a patient with unique symptoms, she must make an inference about the condition with partial information. Problems without clear principles or probabilities necessitate such "best" guesses. This is a common reasoning procedure for all (e.g. how can we design a novel study about autism?; what can I do if I lose my job?) and may simply be instinctual (Peirce, 1898). However, humans are not experts in most fields and are generally biased in their decision making (Benson, 2016). For individual personal opinion to generally produce reliable information it necessitates a "crowd"-based system with "diversity of opinion, independence, decentralization, and a way to derive a collection decision" (Weinberger, 2010)—requirements as difficult to fulfill as science, research and critical reasoning itself.

INFORMATION AND POLITICS

Our framework proposes how knowledge may be obtained, but various factors determine the actual quality of the body of knowledge in a society and within a field. The U.S. government, for example, has a strong investment bias for engineering and biological science, at the expense of the arts and humanities (AAAS, 2017). Although digital and Internet technologies provide a base for the development of reliable information in diverse fields (e.g. easier to find research and to conduct dialogue), an important problem is *who* has control of the data, the apparatus to process them, and the actual information people obtain. As social media become prominent sources of information for people (Greenwood, Perrin, & Duggan, 2016), the Twitter presidential account may be used to block some, and political ads can be purchased through Facebook without regulation (Caplan, 2017; Watson, 2017). Although there is evidence that diversity of opinion is encountered on social media, the same amount of "filter bubbles" and "echo chambers" are found (Flaxman et al., 2016). Moreover, only a few companies hold monopolies on how content is presented and distributed (Cohen, 2017). Given the complexity of existing knowledge about the world, and the necessity to be constantly working or entertained, there is little time for any one person to acquire diverse and complex knowledge. Nevertheless, the only path is through science, research and critical dialogue.

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Developing A Framework for Educating and Training Mid-Career LIS Professionals

Jennifer Campbell-Meier [jennifer.campbell-meier@vuw.ac.nz], Brenda Chawner [brenda.chawner@vuw.ac.nz], Anne Goulding [anne.goulding@vuw.ac.nz], Philip Calvert [philip.calvert@vuw.ac.nz], and Chern Li Liew [chernli.liew@vuw.ac.nz]

Victoria University of Wellington, New Zealand

ABSTRACT

This paper discusses selected results of a survey of the continuing professional development (CPD) needs of mid-career librarians. While there are many studies of the CPD needs of librarians at an early stage in their library careers, information about the needs and practices of those who have been in the profession for some years is lacking. The online survey was designed to identify the areas in which these mid-career librarians felt that they needed development, and their preferences for delivery methods and mechanisms. The results are used to develop a framework for the education and training of this group of library professionals.

TOPICS:

Education of information professionals; Continuing education; Education programs/schools

INTRODUCTION

The rapid pace of change in the information environment has led to many discussions in library and information science (LIS) publications about the skills, knowledge and competences library professionals need to operate effectively and meet their users' needs (Audunson, 2007; Broady-Preston, 2009; Wilson & Halpin, 2006). The majority of studies focus on the formal education of those new to the profession, however, with few specifically considering the qualifications, skills, and knowledge LIS professionals need when moving into mid- and late-career positions (Lyon et al, 2011; Rafiq & Arif, 2017). This paper aims to address the lack of information on mid-career librarians' continuing professional development (CPD) practices, needs, and preferences through the presentation of selected results of an online survey of this group of professionals. In the paper, we use the term 'formal education' when referring to traditional LIS education involving direct interaction between teachers and learners. 'Informal education' includes flexible learning opportunities often offered through the Internet in the form of self-paced courses. In addition to formal and informal education, 'training', taken here to mean the development of new and improved skills, also plays a part in professional development.

RESEARCH PROBLEM AND QUESTIONS

Mid-career library professionals currently have few structured or formal education options for professional development, although some LIS tertiary education programs have developed short courses and/or offer current courses to graduates for upskilling (Broady-Preston & Bell, 2001; Corrall, 2010). Professional organizations also offer courses for ongoing professional

development but these are often intended for new professionals, rather than those at higher levels. Specialized training courses, content offered by non-traditional educators like Library Juice, or vendor training are also options for developing an LIS professional's skills and knowledge, but the short course format may not provide enough detail for true specialization. In addition, many informal education options, such as self-paced tutorials on the internet, cover a variety of technological and communication skills, although their quality and currency varies considerably. Despite this variety of professional development opportunities, their current ad-hoc nature means that LIS professionals need to take individual action to keep their knowledge up to date, and there are no widely-accepted frameworks allowing them and their employers to assess their progress. The problem that this research addresses is that while CPD is vital for mid-career library professionals to keep current with developments in the field and to prepare them for senior management positions, the extant body of knowledge suggests that they are not receiving the relevant support and training they require to do so. Moreover, there is a lack of empirical research evidence relating to this group's CPD needs, practices and preferred modes of delivery which can be used to design CPD opportunities relevant to their position and requirements.

The objectives of the study are:

- To identify the skills required by LIS professionals at different career stages
- To propose a framework for educating and training mid-career professionals that incorporates both ongoing professional development and formal qualifications

To that end, this paper discusses the preliminary results of a survey of the professional development needs of mid-career librarians in Australia, New Zealand, Canada, the United Kingdom, and the United States. This paper gives an overview of key results and discusses the similarities and differences in the mid-career development needs of librarians within national contexts. The paper concludes by presenting a basic framework for LIS educators and mid-career professionals to support ongoing career development.

BACKGROUND

Research and literature about the skills, knowledge and competency needs of librarians often focus on the content of initial professional qualifications and programs (e.g. Robinson and Bawden, 2017). In the LIS field, post-graduate education has become the norm in most Western countries, making a Master's degree following a Bachelor's degree in any subject the standard entry-level professional qualification, particularly in North America (Swigger, 2010). In a recent article, Chawner and Oliver (2016) identified alternative models to this type of qualification, in part to meet the challenges and changing demands of the field. They also identify the lack of advanced qualifications that build on an entry-level qualification as one of the major differences distinguishing LIS from other professions. For those looking for new positions or new challenges, a lack of formal continuing study options can present an obstacle when they are asked to present evidence of their development and skills (La Chapelle & Wark, 2014; Peet, 2017). This situation presents an opportunity for LIS programs to work with professional organizations and other stakeholders to expand LIS education opportunities using a more formalized approach. Before this can be achieved, however, there needs to be a clear understanding of the development requirements of this group of library professionals.

While there have been studies of development needs in specific areas of professional practice (e.g. competencies for bibliometrics (Cox et al., 2017)) there has been less discussion specifically focused on the qualifications, skills, and knowledge an LIS professional needs when moving into mid- and late-career positions (Lyon et al, 2011; Rafiq & Arif, 2017). Currently, LIS professionals interested in expanding their knowledge and skills following their initial qualification have access to a range of formal and informal educational experiences that offer varying levels of learning opportunities. Studies have found, however, that many of these experiences lack formality and certification requirements and that engagement in CPD for mid-career information professionals relies primarily on the personal motivation of the individual (Burton & Lyon, 2017; Corcoran, & McGuinness, 2014). Despite this patchy picture of ongoing CPD opportunities for those who have been in the profession for some years, the need for librarians to be interested in, and willing to engage in, lifelong learning is highlighted in many studies (e.g. Partridge, Lee & Munro, 2010). The results of the 8Rs studies in Canada present a comprehensive picture of the changing nature of academic library work, and support those emphasizing the need for librarians to continue to develop their skills and knowledge (Delong, Sorenson and Williamson, 2015). Of particular relevance to the study reported here is their data on training participation rates which often showed a gap between interest and participation. The authors question the extent to which librarians' development interests and needs align with those of their institutions, and whether current training and development programs meet both staff and institutional needs. The study reported here will explore these issues from the perspective of mid-career librarians.

METHODS

The study employed the descriptive survey method (Pickard, 2013). This is appropriate because the research aims to develop knowledge about a particular issue, enabling us to describe the situation more completely than previously. An online questionnaire using the Qualtrics online survey software was designed, and a link to the survey was distributed via LIS email lists in Australia, New Zealand, Canada, the United Kingdom, and the United States. The link was also distributed via social media. The email message sent to the lists invited mid-career professionals to take the survey so the sample is self-defining and self-selecting. The sampling method is a combination of convenience and purposeful/judgement sampling as it targeted those within easy reach (convenience sampling) while also seeking responses from those with the characteristics required (purposeful/judgement sampling) (Etikan & Musa, 2016). Because of the nature of the sample, the results cannot be generalized to the wider population but the results do provide a more informed understanding of the situation with regard to the CPD of mid-career professionals.

The questionnaire gathered data on the background of respondents (age, position, sector etc.) and then asked questions relating to their current CPD practices, needs and preferences. Participants were asked about their career goals, the skills they believe are essential for meeting those goals, and the extent to which their current CPD activity is helping them achieve them. They were also asked about formal and informal ongoing professional development activities, and their interest in undertaking further study. Most of the questions were closed-end but some free text boxes were included. The quantitative data were analysed using SPSS to identify the demographic characteristics of respondents, their educational background, which types of CDP they have used, their preferred topics for further development, and their preferences for CPD delivery. The

qualitative data from the free text boxes were coded into categories or broad themes using an emergent coding process, where codes emerged from a close reading of responses.

The survey had over 600 responses and participants were from all five countries targeted and from further afield.

FINDINGS

Preliminary data analysis indicates that 40% of participants worked in academic libraries and 40% worked in public libraries. Around 90% were between the ages of 31 and 60, suggesting that participants were mid-career professionals as intended. Over 75% of respondents had a Masters degree and more than 40% self-identified as a Librarian or Assistant Librarian. The vast majority (over 75%) were members of professional associations.

A majority (55%) noted that they were likely to be looking for a new job in the short or medium term, and over 90% were planning to pursue professional development. Turning to the areas that respondents felt were a priority for their development, management and leadership was selected by the highest number of respondents followed by the management of technology and then teaching and learning. Respondents also noted a large range of specific topics within the broad categories in which they thought they required development. While a small proportion of participants were undertaking formal study leading to a qualification, there seemed to be a preference for CPD activities which used more formal methods, e.g. presentations followed by discussions and activities, and over 60% said it was important to some extent that they gained recognition for their involvement in CPD. A majority of respondents said that their CPD needs were being met although many of the free-text comments at the end of the survey noted the difficulty of funding and resourcing development activities.

CONCLUSION

The evidence suggests that the mid-career professionals participating in this research were interested in undertaking CPD and that management and leadership is the area in which the highest number feel that they require development. The results of the research have informed a mapping of skills of mid-career professionals and the types of CPD opportunities appropriate to develop those skills. The mapping forms the basis of a framework for LIS educators, employers and mid-career professionals to support ongoing career development to be presented in the full paper.

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Developing MISSILE Curriculum to
Train LIS Students as Mobile Technology Consultants

Devendra Potnis [dpotnis@utk.edu] and Suzie Allard [sallard@utk.edu]

University of Tennessee at Knoxville

ABSTRACT

Project MISSILE (Mobile Information Skills and Solutions in Library Education) developed an interdisciplinary curriculum for training library and information science (LIS) students to serve as mobile technology consultants (MTCs) for libraries and not-for-profit organizations including schools and churches. The Institute of Museum and Library Services (IMLS) funded planning for this project. This paper introduces the curriculum design that resulted from the assessment. We also seek feedback and guidance from the 2018 ALISE Conference attendees, to further strengthen this innovative interdisciplinary curriculum.

TOPICS

Education programs/schools; Pedagogy; Students; Mobile systems; Social computing

INTRODUCTION

In the background of rising popularity of mobile technologies, organizations are increasingly investing in mobile applications and technologies to serve their patrons effectively and efficiently. As a result, there is a growing demand for experts in developing and managing mobile applications and technologies (MAT).

Project MISSILE (Mobile Information Skills and Solutions in Library Education) developed an interdisciplinary curriculum for training library and information science (LIS) students to serve as mobile technology consultants (MTCs) for libraries and not-for-profit organizations including schools and churches. Planning for this project was funded by IMLS in 2016, and with input from the Project MISSILE's advisory board, consisting of researchers and practitioners from libraries and information technology (IT) industry, the feasibility and utility of the proposed curriculum has already been assessed.

This paper introduces the curriculum design that resulted from the assessment. We also seek feedback and guidance from the 2018 ALISE Conference attendees, to further strengthen this innovative interdisciplinary curriculum with the following four clusters.

CLUSTER 1. IT AND PROGRAMMING FOR DEVELOPING MOBILE APPS

During the planning grant period, we are developing a new 3-credit course titled "Mobile Application Development" which is based on hybrid mobile app development techniques (Potnis, Regenstreif-Harms, & Cortez, 2016). Unlike existing online courses available on Lynda.com,

KhanAcademy, and others, our course meets the information needs of various functional areas of libraries (e.g., reference services, digital archives, etc.). The core modules of this course are:

(a) Fundamental concepts related to mobile-Commerce and mobile-Business

(b) Strategic planning and management of mobile apps

(c) Mobile users

(d) Fundamentals of object-oriented programming

(e) Hybrid design and programming with hands-on assignments and in-class activities

It will be a flipped classroom experience for students where they will learn theoretical knowledge through lecture slides, book chapters, and videos at home before every class session. The instructor will devote the class time to in-class exercises, hands-on mini-projects, and in-depth discussions where students will get an opportunity to reflect on their learning experience.

MISSILE students will also complete INSC 580 Information Technologies and INSC 598 Web Design, two of our existing courses, from this cluster. For instance, INSC 580 covers fundamentals of networking and web programming, two of the technical competencies Potnis, Regenstreif-Harms, Deosthali, Cortez, and Allard (2016) identified as requirements to serve as MTCs (see Figure 1).

1. Mobile Application Development
2. Human-Computer Interaction
3. Computer Networking
4. Project Management
5. Leadership and Change Management
6. Negotiation
7. Data Management/Curation
8. Policy Management
9. Grant Writing, Accounting, and Budgeting
10. Entrepreneurship

1. INSC 510 Information Environments
2. INSC 520 Information Organization
3. INSC 530 Information Access and Retrieval
4. INSC 504 Research Methods
5. INSC 542 Social Informatics
6. INSC 580 Information Technologies
7. INSC 590 Mobile App Development
8. INSC 598 Web Design
9. ACCT 505 Financial Accounting I
10. ECON 505 Economics of Strategy
11. BUAD 518 Innovation in Practice
12. INSC 550 Management of Information Organizations
13. INSC 562 Data Curation
14. ENT 510 Leadership in Nonprofits and Social Entrepreneurship
15. INSC 559 Grant Writing
16. INSC 588 Human-Computer Interaction

Figure 1. Mapping Competencies on MISSILE Coursework at UT

CLUSTER 2. BUSINESS ADMINISTRATION & MANAGEMENT

We have been working with the Haslam College of Business at UT to avail the following business courses to MISSILE students, which are currently open to MBA students alone:

(a) BUAD 518 Innovation in Practice, a 3- credit course with topics such as consulting practices, project management, business planning, and transformational change leadership;

(b) ACCT 505 Financial Accounting I, a 1.5-credit course focusing on financial accounting principles;

(c) ECON 505 Economics of Strategy, a 1.5-credit course on microeconomics relating to organizations' strategic decisions; and

(d) ENT 510 Leadership in Nonprofits and Social Entrepreneurship, a 3-credit course for developing business-minded thinking and leadership skills in the future leaders of organizations with societal and nonprofit missions.

Our interdisciplinary training will make LIS students more employable by providing them with the skills and knowledge needed to respond to the global technology landscape. For instance, BUAD 518 will provide an applied learning experience for student teams to solve challenges faced by not-for-profit organizations, including libraries. They will develop a statement of work (e.g., a statement of procuring MAT for libraries); innovative problem solving; MAT consulting practices with libraries; business planning for libraries; and transformational change leadership, project management and messaging.

Two of our existing courses (e.g., INSC 542 and INSC 550) will also equip students for managing MAT for libraries. Currently, the INSC 542 Social Informatics course involves students in a variety of topics related to the application of information and communication technologies for society, governments, and businesses. It also touches on information ethics, privacy, security, policy, patents, trademarks, and copyrights, using case studies from Harvard Business Review and MIT Sloan Management Review. This course equips and requires students to serve as information consultants for local small businesses and not-for-profit organizations including libraries, churches, and schools, as part of the final class project. Leveraging the PI's partnership with the Knoxville Chamber of Commerce and his professional network in the Knoxville metropolitan area, this course introduces students to local organizations for pro-bono consulting opportunities. The INSC 550 Management of Information Organizations course covers supervisory, management and leadership concepts, strategies, and techniques applicable to information professionals working in libraries, archives, records management, and other information organizations.

CLUSTER 3. HCI

INSC 588 Human-Computer Interaction: This course introduces human and technological factors of importance to design of usable information systems. Basic phenomena of human perception, cognition, memory, and problem solving, and relationship to user-centered design are studied. Methods and techniques for interaction design and evaluation are explored.

CLUSTER 4. INFORMATION SCIENCE

Students will need to earn 18 credit hours by completing the following six 3-credit hour courses:

(a) INSC 504 Research Methods for Information Professionals
(b) INSC 510 Information Environment
(c) INSC 520 Information Representation and Organization
(d) INSC 530 Information Access and Retrieval
(e) INSC 559 Grant Writing
(f) INSC 562 Digital (Data) Curation

MISSILE students will take INSC 510, INSC 520, and INSC 530 in the first semester of their matriculation since these are the core courses of the SIS graduate program. Figure 2 shows a sample timeline and specific sequence of courses that we have identified with the help of our Advisory Board.

Fall 2018 (9)	Spring 2019 (9)	Summer 2019 (0)	Fall 2019 (9)	Spring 2020 (9)	Summer 2020 (0)	Fall 2020 (9)
INSC 510 Information Environments (3)	INSC 504 Research Methods in Information Sciences (3)	1st Internship with Local Not-for-Profits	ACCT 505 Financial Accounting I (1.5) ECON 505 Economics of Strategy (1.5)	BUAD 518 Innovation in Practice (3)	2nd Internship with Local Not-for-Profits	ENT 410 Leadership in Nonprofits and Social Entrepreneurship (3)
INSC 520 Information Representation and Organization (3)	INSC 542 Social Informatics (3)		INSC 590 – NEW COURSE – Mobile App Development (3)	INSC 550 Management of Information Organizations (3)		INSC 559 Grant Writing (3)
INSC 530 Information Access and Retrieval (3)	INSC 580 Information Technologies (3)		INSC 598 Web Design	INSC 562 Data Curation (3)		INSC 588 Human-Computer Interaction (3)

Figure 2. Sample Timeline and Sequence of Courses

Thus MISSILE students will go through a rigorous academic training of 45 credit hours after completing 16 interdisciplinary courses from four clusters as part of the required curriculum to serve as MTCs for libraries and not-for-profit organizations.

ASSESSMENT

The professional success of MISSILE students in terms of securing internships, part-time jobs, and full-time jobs for managing MAT in not-for-profit organizations, including libraries, will be the most appropriate indicator of the success of Project MISSILE. Meanwhile, a positive feedback received from our advisory board, our recent journal publications on this topic, and several MAT experts working in libraries, who have already committed to guide MISSILE students as part of our proposed guest speaker series, underline the need, significance, and timeliness of Project MISSILE. We look forward to further strengthening our innovative curriculum based on the feedback and guidance we expect to receive from the 2018 ALISE Conference attendees.

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Developing Research Practitioners: Exploring Pedagogical Options for Teaching Research Methods in LIS

Nicole D. Alemanne[a] and Lauren H. Mandel[b]

[a]Valdosta State University

[b]University of Rhode Island

ABSTRACT

This paper reports on an investigation into the effectiveness of teaching research methods in library and information studies. Students from four semesters of a methods course were surveyed to explore their retention of learning objectives and views of and engagement with research as practitioners. The results show promise for further research in the pedagogy of LIS research methods courses. Respondents demonstrated achievement and retention of course learning objectives and a generally positive attitude toward research. The study incorporates a research design that may be used for further research into the interplay among pedagogical methods, course outcomes, and professional research practice.

TOPICS:

Pedagogy; Research methods; Online learning

INTRODUCTION

This paper reports on an investigation into the effectiveness of teaching research methods to master's-level students in library and information studies (LIS) programs. The research focused on a required research methods course taught every fall and spring at an American Library Association-accredited program. The research explored outcomes of the strategies used to teach the course in four semesters: Fall 2013, Spring 2014, Fall 2015, and Spring 2016. In Fall 2013 and Spring 2014 course content was delivered in a blended format using asynchronous lesson delivery and biweekly face-to-face class sessions, and students completed individual research proposals via an iterative process through which they received feedback and a chance for modification after each stage. In Fall 2015 the course was taught online asynchronously and students completed the research proposal in teams through the same iterative process. In Spring 2016 the course was again taught online with biweekly synchronous sessions, and the research proposal was replaced with an experiential learning approach in which the students worked in teams to conduct and complete a research project for an outside client. The same textbook was used across all four semesters and similar course content was covered.

BACKGROUND

The LIS community is engaged in a long-term debate about how best to teach research methods in LIS programs, especially considering the challenge inherent in the diversity of student academic backgrounds, as many enter LIS graduate programs with little or no research or statistics background and with anxiety about learning these subjects (Dilevko, 2000). And "many

students who do take a basic course in research methods often cannot see the practical applicability of the course" (Berg, Hoffman, & Dawson, 2009, p. 593). In light of this, LIS research methods courses must explain what research is, why research is done, the purpose of research, and how to use research, and demonstrate the importance of research in professional settings (Juznic & Urbanija, 2003; Mandel, 2017).

Furthermore, research is becoming more important for LIS practitioners as professionals— 90% of US/Canadian LIS practitioners read at least one research journal, half apply research findings to their practice, and 42% occasionally or frequently perform research either in their job or for the profession (Juznic & Urbanija, 2003). Also, it is important for LIS practitioners to contribute to the professional knowledgebase through research (Evans, Dresang, Campana, & Feldman, 2013; Luo, 2011), and research is an essential component of LIS as a profession (Juznic & Urbanija, 2003; McClure & Bishop, 1989).

In light of this, there is a need to develop new strategies to teach research methods in LIS programs (Juznic & Urbanija, 2003), such as offering hands-on experience collecting and analyzing data (Evans et al., 2013) and providing opportunities for students to experience the full range of research activities from planning through publication in coursework (Mandel, 2017; Mandel, Estrella, Taft, & Vaandering, 2016) and in field experiences (Berg et al., 2009). Research on the impact and efficacy of different pedagogical approaches in developing LIS practitioners who are comfortable with and expert in research is needed to inform LIS programs as they evaluate and revise research methods courses. While there are studies that explore specific pedagogical approaches to teaching research methods in LIS (e.g., Luo, 2017; Ondrusek, Thiele, & Yang, 2014) and the effect of research methods courses on the work of LIS practitioners has also been investigated (e.g., Luo, 2011), this study adds to the conversation by developing a research design for exploring the interplay among pedagogical methods, retention of course learning objectives, and research practice in professional settings.

METHOD

The research addressed three questions: To what degree the different approaches to the research proposal/research project assignment affected (1) students' retention of course learning objectives, (2) students' views of research after completing the course, and (3) students' engagement with research after completing the course. To answer these questions the researchers developed a survey consisting of 20 closed-ended questions covering three categories: respondents' experience with the course, their current use of research, and their opinion of research. Invitations to take the survey were emailed to 54 former students; 20 surveys were completed, a 37% response rate. Of the completed surveys, 35% represented students in the Fall 2013/Spring 2014 courses (N=7), 30% represented students from the Fall 2015 course (N=6), and 35% represented students from the Spring 2016 course (N=7). Due to the low Ns for the subsets, the researchers decided to use descriptive statistics and to analyze the responses for all respondents rather than breaking out the results by semester and format.

FINDINGS

Using descriptive statistics the researchers were able to develop top-level findings for the three research questions: respondents' retained knowledge of course learning objectives, their views of research after completing the course, and their current engagement with research.

Retained knowledge. To gauge achievement of course learning objectives respondents were asked 11 multiple-choice questions querying their retained knowledge of course content. On all but three questions, 75% or more of respondents answered correctly and 90% or more answered four questions correctly (Figure 1).

90%+ Answered Correctly

If you were conducting a study using a sample of subjects who are available to you, what type of sample would that be? (95%)

When a participant's identity is not known to the researcher we refer to this as what? (90%)

If you wanted to study the characteristics of a large population, which method would be most appropriate to use? (90%)

In an experiment, which group is the control group? (90%)

75%-89% Answered Correctly

Which of the following is not a variable? (85%)

Qualitative data analysis is the method by which what kind of data is analyzed? (85%)

Which of the following are three elements of informed consent? (80%)

What type of research is conducted to identify why phenomena or events occur? (75%)

<75% Answered Correctly

What is reliability? (70%)

Which level of measurement describes a variable that has attributes that are merely different? (65%)

What is a research design? (55%)

Figure 1. Retention of Course Learning Objectives

Comfort with research skills. Respondents reported having a relatively high comfort level with research skills after they finished the course. When answering a series of 15 questions, the median responses for all of the questions fell into the top two categories on a five-point scale, with respondents reporting being "somewhat comfortable" with nine areas of research skills and "very comfortable" with six areas. Respondents were most comfortable with general research knowledge, preparation and planning, and two of the six methods. They were somewhat less comfortable with the majority of research methods and with tasks involved in analyzing data and communicating findings (Figure 2).

Views of research. To understand the respondents' views of research after completing the course, respondents were asked for their views of the importance of research to the LIS field and for their jobs. All of them reported that research is important to the field, and 60% reported that it is important for their jobs.

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	Very Comfortable (5/5)	Somewhat Comfortable (4/5)
General Knowledge	Purposes of research Research ethics	
Preparation and Planning	Reviewing literature Sampling	Defining variables Operationalizing variables
Research Methods	Survey Interview	Content analysis Experiment Focus group Observation
Data Analysis		Qualitative Quantitative
Communication		Writing findings

Figure 2. Comfort with Research Skills (Median Responses on 5-Point Scale)

Engagement with research. The final area explored was respondents' engagement with research after completing the course. Respondents were offered 12 research activities, and were allowed to choose as many as applied (so the total adds to more than 100%). When asked about research activities they conduct at work, the top activities reported are accessing research articles to assist patrons (55%), reading research articles for work-related projects (40%), and accessing research articles for work-related projects (35%). However, 40% of respondents reported not using research at work (Figure 3).
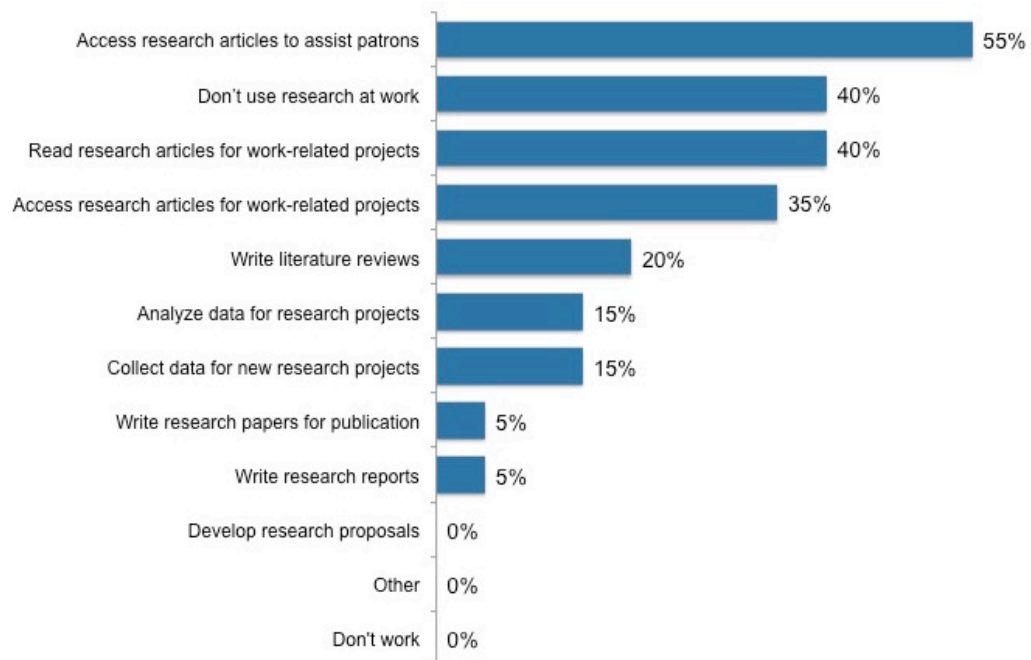

Figure 3. Research Activities Conducted at Work

Respondents were also asked about their comfort in completing research tasks. All reported feeling "very comfortable" (median of 5 on a 5-point scale) with evaluating the quality of published research. They reported feeling "somewhat comfortable" (4 out of 5) with the majority of other tasks queried (such as writing a literature review; conducting surveys, interviews and content analyses; and analyzing quantitative and qualitative data). They were "not at all comfortable" (3 out of 4) with conducting focus groups and experiments and publishing research findings. Finally, when asked a series of questions about their engagement with research, the top responses were related to reading and using research articles, understanding how to conduct original research, and understanding key issues of research ethics. Respondents disagreed with statements connected to enjoying conducting research and believing that the research they gather through original research has an impact on their jobs.

DISCUSSION

These initial results show promise for further research in the pedagogy of LIS research methods courses. Survey respondents demonstrated retention of course learning objectives and a generally positive attitude toward research. However, although respondents reported relatively high levels of comfort with research skills in general, they were somewhat less comfortable with the idea of completing a number of research tasks (for example, while they reported being "very comfortable" with survey and interview methods in general, they are "somewhat comfortable" with completing those tasks). It would be necessary to expand this study to obtain enough respondents to conduct deeper statistical analyses to understand these findings.

Further research with larger samples is also needed to understand the impact of different pedagogical methods, such as applying an experiential learning approach in which students complete research projects for clients versus developing research proposals for projects that are not completed during the course. Another important area to address is the connection of results to the types of libraries in which respondents work and respondents' roles at work. Forty percent of respondents reported that they do not use research at work. It would be enlightening to explore this result in greater depth. How connected is it to the type of library and role, and how much is it influenced by a librarian's comfort level with doing research? Finally, it is important to conduct research that explores the interplay of specific course delivery methods (e.g., blended online versus asynchronous) and pedagogical approaches. This study presents a research design that can be augmented to address these questions.

CONCLUSION

The investigation into the effectiveness of teaching research methods to master's-level students in library and information studies programs reported on in this paper produced initial results that show promise for further research and outlines an approach that can be used to answer further questions. However, the findings also demonstrate the limitations of conducting research on small samples from individual LIS programs, suggesting that expanding the research to include more LIS programs and research methods courses may prove fruitful.

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E-Advising: Expanding Advising for Distance LIS Students

Sue Kimmel, Elizabeth Burns, and Jeffrey DiScala

Old Dominion University

ABSTRACT

Online instruction and programming have expanded the universe of LIS education but have also expanded the needs of online students for assistance navigating institutional structures and requirements. With 24-7 access to coursework, accounts, and the university website, students expect prompt answers to questions through electronic or e-advising. From recruitment to alumni relations, LIS programs and their universities are seeking to expand how they reach distance students in online programs. We will share innovative uses of technology and staffing for e-advising along with what online students have told us in a survey about the kinds of advising they need and expect.

TOPICS:

Online learning

INTRODUCTION

Online instruction and programming have expanded the universe of LIS education. Across the field, we have worked to convert our courses into the online environment and to implement pedagogies appropriate for online teaching and learning. However, the physical classroom is not the only aspect of graduate education impacted by moving to an online space. The changes in instruction and advising have not just changed at the course level, but also at the program and university levels. From recruitment to alumni relations, LIS programs and their universities are seeking to expand and adjust how they reach distance students in online programs.

For the online student, the challenge of commuting to campus and hunting for a parking space has been replaced with navigating course management systems and other online technologies. Yet students report that it is not technology that is most challenging, but a sense of isolation and lack of confidence as students (Combes & Anderson, 2006). These are issues we need to address with human contact at the program and university levels, and with an expanding focus on electronic or e-advising for online students (Luna and Medina, 2007; Waldner, McDaniel & Widener, 2011).

RELEVANT LITERATURE

With the increase of availability and demand in distance learning (Ortagas, 2017), more of our students will never physically set foot on our campuses, let alone in a faculty office. Distance education provides more flexible opportunities for students who live in rural areas or non-traditional students who have full-time jobs and/or family responsibilities. LIS students choose programs that are entirely online because they aren't required to relocate (Oguz, Chu, & Chow, 2015). Students in online MLIS programs are, on average, older than those choosing a

blended or face-to-face program (Oguz, Chu, & Chow, 2015). Nontraditional students, employed full-time, are more likely to choose an online program, with the flexibility to work asynchronously and keep their current job (Pastore & Carr-Chellman, 2009).

In their survey of online students in MLIS programs, Oguz, Chu, and Chow (2015) found that areas needing improvement for online students included advising, mentoring, and career services. Combes & Anderson (2006) studied the sources of anxiety and frustration in online LIS students. They found students who experienced isolation wanted earlier and more consistent contact with their instructors, more information on their courses, and a more detailed explanation of overall university expectations. These students felt they were missing the contact and information available to on-campus students. They specifically asked for an online orientation and more transparency about university procedures. When this study was completed in 2006, students identified technology as a barrier, but not as strong a barrier as feelings of isolation and anxiety. Over a decade later, we would argue that technologies have improved but the emotions experienced by online students and need for human contact are still very real.

Time is a particular barrier exacerbated for online students, especially students who work during university office hours or live in different time zones. They may become accustomed to 24-7 access to courses, the university website, their accounts, and library databases, possibly resulting in frustration when questions arise with any of these outlets and they cannot receive immediate answers. Buchanan (2004) studied students in a web-based MLIS program and noted their frustration navigating the university's maze of information and trying to get answers through emails and phone calls regarding finances, registration, field work, and graduation. Online students do not experience the same affordances as those who can come to campus and wait in offices until they receive assistance. Buchanan (2004) suggests that institutions create the infrastructure necessary to support online students, providing them the same service and human connection that on-campus students receive.

Mellon and Kester (2004) surveyed online LIS students to determine program satisfaction and areas for improvement. A need for human interaction was one of their primary findings. The program featured a student manager as point of contact for early and immediate interaction with online students, to help with completing paperwork, and to be a "caring individual" (p. 217) for those students. Aversa and MacCall's (2013) case study of a synchronous, online LIS program that was successful in retaining and graduating students also reported using a "distance education coordinator" to assist students. Additionally, the program in the Aversa & MacCall case study implemented town hall meetings every semester where students had access to the program director and faculty for questions about scheduling and other issues.

While there are indications that some efforts are being made by LIS programs to provide the appropriate advising for their online students, the literature has little to share on best practices to ensure that online students have the best chance at success.

Findings and Potential Impact

To help mitigate some of the challenges and barriers to online learning for students, we have taken several proactive steps in our online LIS program to provide e-advising to our students throughout our program. These include a program advisor with responsibility for initial and continuing contact with students from the first inquiry through admissions, program of

study, other program requirements, and graduation. In the proposed paper, we will detail course interventions and other innovative uses of technology and staffing for e-advising. We will share what online students have told us in a survey about the kinds of advising they need and expect. Finally, we hope to provoke a discussion and sharing of best practices with the audience.

The expanding universe of online learning means an expansion in online needs for individual and personalized assistance. As LIS educators, we need a more holistic view of online education focused on student success not just in our courses, but throughout the entire program of study. We need to expand our discussion of best practices to include e-advising.

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Expanding LIS Education Abroad: Opportunities and Strategies for Developing Global Study Programs

Renate L. Chancellor

Catholic University of America

ABSTRACT

Increasingly, Library and Information Science (LIS) programs are offering study abroad opportunities for students to have broader global classroom experiences to gain knowledge, exposure and to think beyond the confines of geographic boundaries. While study abroad courses have long been a part of undergraduate and graduate education, few opportunities exist for students studying LIS. This paper argues for the development of study abroad courses in LIS. Why? Global study programs help students understand the interconnectedness and interdependence of the world (IFLA, 2012), they expose students to other practices in the information professions, and create opportunities for library science programs to tap into new markets for recruitment. A study abroad program will serve as a model to discuss these factors as well as pedagogy, strategies for student learning and cross-classroom collaboration.

TOPICS:

Education programs/schools; Pedagogy

INTRODUCTION

Assertions have been made that study abroad students accrue important knowledge and intercultural competency that enables them to succeed in an expanding global marketplace (Evans et al., 2008). It has also been argued that students choose to study abroad for personal development and to enhance friendships (Swinder, 2016). This is especially important for students who are online learners. Effective global study programs require intensive and sustained contact with students, instructor and individuals from different nations and cultures. Most models for study abroad programs provide opportunities for students to travel and live in different countries and experience the culture there. The intent is that students will return with a greater understanding of similarities and differences between cultures, an enhanced educational experience, and insight into future employment, new interpersonal networks, and personal growth.

Students who study abroad, develop enhanced cultural understanding and are motivated to engage in future international travel experiences (Bente & Janda, 2013). Targeting international students for short-term exchanges or study in the United States is also an opportunity to expand the LIS education universe. In 2012 it was estimated that international exchanges in all 50 states contributed $22.7 billion to the U.S. economy (Institute of International Education, 2012). Focusing on this group may provide opportunities for library science programs to make up for decreasing enrollments (Institute of International Education, 2012; Ludlum, Ice and Sheetz-Nguyen, 2013). Students would benefit not only from the acquisition of a language in a native environment, but also from enrichment provided by the total immersion in the culture of the

receiving country. Furthermore, by targeting more international students for short-term exchanges or short-term study in the U.S., the cultural diversity of the classroom will be enhanced academically, adding to the globalization of the classroom and the expansion of LIS education internationally.

Table 1. Percentages of students, by race/ethnicity, who were enrolled in U.S. universities and colleges compared to the percentages that studied abroad in the 2014/15 academic year.

Race/Ethnicity	% of All University and College Students	% of University and College Students Who Studied Abroad
White	58.3	72.9
Hispanic or Latino(a)	16.5	8.8
Asian or Pacific Islander	6.6	8.1
Black or African American	14.5	5.6
Multiracial	3.3	4.1
American Indian or Alaska Native	.8	.5

(National Center for Educational Statistics, 2015; Institute of International Education, 2016)

JUSTIFICATION FOR THE STUDY

Educating Urban Librarians Summit (2008) finds that information professionals who work in urban communities should possess specific cultural competencies, one of which is determined to be, "An understanding and appreciation of various cultures, a respect for diversity and a willingness to deliver library and information services to each patron" (Wayne State University, 2008, p. 5). Living, even for a short period of time in another country will provide opportunities for participants to gain first-hand knowledge of the social, economic, political, and religious climate of the host country that shape everyday life. Students will also gain ground zero perspectives of many of the critical issues facing information centers by making connections with users, library professionals, and in some cases, library students and LIS faculty from other programs.

Developing and leading a study abroad program will not only provide insight on how students respond to cultural immersion as a means of achieving cultural competency, it will also highlight how sustained connections, friendships, and alliances are formed with professionals in a host country can be utilized to enhance the cultural competency of LIS students. Furthermore, it provides opportunities for students interested in managing information centers or information systems with a global perspective.

Although several studies have explored the internationalization of LIS education (Abdullahi & Kajberg, 2004; Hirsh, Simmons, Christensen, Sellar, & Stenström, 2015; Pampel, 2013), very little research has been published on global study programs in LIS. A study by Carroll (1969) reports on the practicability of incorporating a year-long study abroad course. More recently, Luckert (2014) discusses how a LIS study-abroad class to St. Petersburg, Russia led to other opportunities between the University of Maryland Libraries and libraries and institutions in St. Petersburg. McElroy and Bridges (2017) as faculty librarians describe the process of developing a study abroad course and how their course strengthens information literacy skills.

METHODOLOGY

To determine how many LIS programs, offer a global study course, 60 LIS school websites in the United States and North America were reviewed. Only 22 schools offer a global study course. These schools are: University of Alabama, SUNY Albany, University of Alberta, Catholic University of America, East Carolina University, Emporia State University, University of Illinois at Urbana-Champagne, Kent State University, University of Kentucky, Long Island University, University of Maryland, University of North Carolina, Chapel Hill, University of North Carolina, Greensboro, North Carolina Central University, University of Pittsburgh, Pratt Institute, Simmons College, University of Southern Mississippi, St. John's University, Syracuse University, University of Washington, and the University of Wisconsin-Milwaukee.

A limitation of the study is that the review of LIS programs relied on data taken from each school's department's website. Therefore, schools who have recently created a global studies course or if a course has not been offered for some time, it is not reflected in these preliminary findings.

The global study course that I designed, Visions of Italy: Culture in the 21st Century Rome and Florence serves as a model for other study abroad courses. It highlights pedagogy, strategies for student learning and cross-classroom collaboration. Visions of Italy is a two-week course that introduces the management and operations of religious and other cultural archives, records, manuscripts, objects and collections. I have taught the course twice; summer 2015 and summer 2017.

PLANNING PROCESS

A global studies program requires a great deal of planning. The first step of the planning process is to do some research to identify people to speak with particularly from the study abroad office on your campus as well as the dean or chair of your program. Once you have a sense of the basic procedure, and have received institutional support to run your course, you'll need to establish a timetable. I recommend planning at least one year in advance. For the Visions of Italy course, I began preparation the summer prior. This allowed me ample time to market the program, recruit

students, and work with the global education office and individuals from the host country. Fortunately, Catholic University has a campus in Rome, so I had strong support with housing, and other administrative issues. Language was not a challenge for me largely because of the Rome staff. If you are planning on visiting a country where you are not fluent in the language, one option is to recruit a graduate assistant who may be familiar or fluent in the language to help with logistics of the course.

PEDAGOGY

When teaching a study abroad, it is important to use a variety of instructional methods and activities that include: lectures, discussions, site visits, presentations from professionals from the host country and well as collaborative learning opportunities. I found these strategies to be effective in Italy. McElroy and Bridges (2017) suggest the following questions when planning your course:

- What are your expectations for student behavior? What are their expectations for you? How will you build community in the classroom and outside?
- How will you accommodate unexpected developments? (For example, if a planned activity is canceled, a new topic of interest emerges.)
- How will you assess student learning, or the overall success of your program? What reporting is required by your institution?

STUDENT LEARNING OUTCOMES

The overarching outcome for student learning is for students to develop an international perspective to live and work effectively in an increasingly global society. Additional outcomes are:

- Students to contextually appreciate, analyze, and articulate global competence.
- Successfully live and thrive in a culture not the student's own and grow individually and personally from the experience.
- Incorporate an interest in international travel into the student's lifelong learning plan.
- Incorporate specific cultural, geopolitical, economic, and social knowledge into academic and personal contexts.
- Develop skills to appreciate visual, historical and experiential cultural products of cultures different from the student's own.

Computer-mediated communications allows students and teachers to work cooperatively with their peers around the world. One strategy for cross-classroom collaboration in a global study context can occur during the trip. For example, students who are not able to travel abroad with the class, can still participate in the class through Skype and other communication technologies. Another strategy, is continuing the conversation once everyone has returned from the host country. This was the case once when we returned from Italy. I organized space on social media to reflect on some of the issues that arose in Italy as well as how those issues intersect with emerging issues in the U.S. I found this to particularly effective since many of the students who participated in the course were from other LIS programs.

ASSESSMENT

Appropriate assessments that are embedded into a study abroad course will complement the learning goals of the program and provide course assessment data. Since students will be engaged in activities that simulate real-world experiences, these activities should allow for students and faculty to engage in dialogues that invoke students' critical thinking skills.

I have utilized the following types of assessment:

- Journals/Reflective essays: Journaling encourages students to reflect on their experiences as they are occurring and to look critically at their experience and their environment. Journaling assignments can also serve as an assessment function by asking students to describe what they have learned that they could not have learned in a campus-based course.
- Digital Essay: The digital essay allows students to demonstrate their technology skills as well as highlight what they've learned in the course using images.
- Instructional Feedback: Feedback was solicited at the mid-point phase of the course. Formal course evaluations and suggestions that students made about improving student learning outcomes were incorporated into the design of the next course and were able to see if the next group valued those changes.

CONCLUSION

There are few experiences that are as transformative to the development of a student as study abroad (McElroy & Bridges, 2017). As previously mentioned, there are tremendous benefits for students who participate in global education opportunities. A full immersion in another culture increases one's cultural sensitivities and expands minds to the complexity of the world. It further increases the competitiveness of students as they seek employment. Because of the interdisciplinary nature of LIS and the impending role of global education in libraries (Marcum, 2016), it is especially important for students to be globally engaged. When students study abroad, not only does it give them a perspective on how other cultures organize and manage their information, but it affords them the opportunity to obtain work in these venues and help shape the global information landscape.

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Expanding LIS Education in the U.S. Department of State's Diplomacy Lab Program: GIS and LGBTI Advocacy in Africa and Latin America

Bharat Mehra[a], Paul A. Lemieux III[b], Christie Burwell[c], Taylor Hixson[d],

Robert P. Partee II[e], Keri Stophel[f], and Nicole E. Wood[g]

[a]School of Information Sciences, University of Tennessee

[b] Earth Resources Technology, Inc., National Oceanic and Atmospheric Administration, Department of Commerce

[c]Williamsburg Regional Library

[d]The University of Chicago

[e]Earth Resources Technology, Inc., National Oceanic and Atmospheric Administration, Department of Commerce

[f]Congressional Research Service

[g]Trevecca Nazarene University

ABSTRACT

This paper focuses on two collaborative projects selected by the **Howard H. Baker Jr. Center for Public Policy at the University of Tennessee to partner in the** U.S. Department of State's **Diplomacy Lab** program that engages college students and faculty to study foreign policy challenges. The projects **allowed information science graduate students to learn applied research in the process of developing geographic information systems for** lesbian, gay, bisexual, transgender, and intersex **advocacy.** The paper identifies opportunities, challenges, and best practices in content delivery, resource development, and extended relationship-building while drawing upon teaching-research-advocacy intersections in library and information science education.

TOPICS:

Social justice; Specific populations; Information system design

INTRODUCTION

This paper focuses on two collaborative information science projects **that** were selected by the **Howard H. Baker Jr. Center for Public Policy at the University of Tennessee as partners in the** U.S. Department of State's **Diplomacy Lab**[1] program to harness the "knowledge of students and faculty at universities across the country to study issues of worldwide importance"[2]. The projects included:

- **Project 1: International Correction Reform and Human Rights Protections for Lesbian, Gay, Bisexual, Transgender and Intersex (LGBTI) Inmates in Africa and Latin America [**Global Survey of Protections for LGBTI Inmates] **(fall 2015). Project Product:** Development of the LGBTI Integrated Cartographic Information System 1 (LGBTI-ICIS1)[3].
- Project 2: Mapping "LGBTI" Cultural Representations of Difference in Historical Sub-Saharan Africa [LGBTI Issues: Analysis of Historic Participation of LGBTI Persons in African Culture] (spring 2016). Project Product: Development of the LGBTI Integrated Cartographic Information System 2 (LGBTI-ICIS2)[4].

Expanding on the role of library and information science (LIS) education, the two projects **involved volunteer collaboration of six graduate students who registered for an** independent study/graduate research participation **course with a faculty member to learn applied research in developing geographic information systems (GIS) for LGBTI advocacy, while partnering with federal agencies in pursuit of creative activity to shape foreign policy formulation.**

DEVELOPMENT OF THE LGBTI-ICIS1

This project identified baseline protections provided to LGBTI inmates in select countries of Africa and Latin America explicating areas with crimes against LGBTI prisoners, areas needing correction reform, and level of best practices employed (from none-to-acceptable) (Mehra, 2016). It led to the development of the LGBTI-ICIS1, a prototype solution that includes a global, non-traditional collection of interactive maps, visual information analysis, and application of severity scales to select area study regions in terms of: Conditions of the Law, Condition in the Prisons, and Human Rights Protections for LGBTI Inmates. Also included are details on critical events, highlighting individual stories and information on LGBTI organizations in each selected region. The work-in-progress resource is informing U.S. international correction reform to further human rights protections for LGBTI inmates and others in select countries, especially those that have laws that criminalize an already marginalized population (Mehra et al., 2016).

DEVELOPMENT OF THE LGBTI-ICIS2

This project mapped geospatial locations, events, places, people, and temporal data regarding instances of non-conforming LGBTI representations of difference that have challenged

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[1] https://www.state.gov/s/partnerships/ppp/diplab/.

[2] http://tntoday.utk.edu/2015/09/09/baker-center-diplomacy-lab-partner-department-state/.

[3] http://tiny.utk.edu/LGBTI-ICIS1-F2015.

[4] http://tiny.utk.edu/LGBTI-ICIS2-Sp2016.

contemporary perspectives on LGBTI lifestyles in Sub-Saharan Africa (Mehra, Stophel, and Lemieux III, 2016). The resource visualized evidence that LGBTI people/constructs were present and persistent part of African culture prior to colonialization. It led to the development of the LGBTI-ICIS2, a dynamic Web-based report (with literature review, metadata descriptions, online records, and interactive visualized database) delivered via GIS-based tool Google Tour Builder that includes: 1) Research-based evidence from popular press, scholarly literature, and select qualitative data collection; 2) Narrative discourse/content analysis of folktales and myths; 3) Fiction and non-fiction, song and theatre, and oral histories. This tool is getting used by contemporary scholars, foreign policy makers, and human rights activists who encounter a common argument against support of LGBTI people in Sub-Saharan Africa that homosexuality is a western construct that goes against their historical and cultural traditions (Hoad, 2007). Such arguments are often contrary to occurrences of LGBTI-related references, examples, symbolism, imagery, and people in the culture and history of the region. The LGBTI-ICIS2 resource showcases evidence to identify these "non-conforming" examples of Africans who have challenged "traditional" cultural lifestyles to give the Department of State leverage to further human rights advocacy on behalf of the LGBTI population.

POTENTIAL IMPACT

Department of State Liaison, Leonid Lantsman, in the Bureau of International Narcotics and Law Enforcement Affairs, identified Project 1 as an exemplar and invited the lead faculty author of this paper as project representative to a panel entitled "Collaborative International Criminal Justice Research: Successful Projects from the U.S. State Department's Diplomacy Lab" at the *2016 American Society of Criminology's 72nd Annual Meeting*, New Orleans on November 16-19, 2016[5]. As Todd Haskell, Deputy Assistant Secretary for Public Diplomacy, United States Department of State, Bureau of African Affairs, wrote in his letter of appreciation of Project 2: "I thank you for encouraging your graduate students this semester to research historical examples of African acceptance of LGBTI individuals or individuals who could be contemporarily characterized as LGBTI. This was the first time our Office of Public Diplomacy and Public Affairs undertook a Diplomacy Lab project, and your team's final project sets a high bar for future Diplomacy Lab ventures.

We plan to send the presentation and impressive website link to all 50 U.S. embassies and consulates in sub-Saharan Africa, as well as our colleagues in related bureaus, such as the Bureau of Democracy, Human Rights, and Labor, and the Secretary's Office of the Special Envoy for LGBTI Rights. The information provided can help our diplomats support tolerance and acceptance of Africa's LGBTI communities by demonstrating the communities have strong historical roots in many instances. We also anticipate the presentation and website could be of wider interest to the academic and activist community in the United States and encourage you to make it available to others for possible further research and refinement."[6]

DISCUSSION POINTS

A common strategy across the two Diplomacy Lab projects involved highlighting materials that visually integrated print/digital and multi-media audio-visual collections into

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[5] **https://tiny.utk.edu/dlp2016CrimConf.**

[6] https://tiny.utk.edu/DLPLetter.

dynamic interactive user-friendly GIS-based resources allowing for easier interpretation, analysis, and identification of policy actions emerging from the contained information (Bolstad, 2016; Pierkot, Zimanyi, Lin, and Libourel, 2011). The teams responded to an urgent responsibility of information agencies to connect "collections" to advocacy/human rights protections for marginalized populations like LGBTI people who are unfairly treated as criminals in many parts of the world owing to cultural taboos/political reasons (Mehra and Hernandez, 2016; Mehra and Rioux, 2016).

The Diplomacy Lab projects provided opportunities to students to work directly with an external government agency and showcase their information management and technology skills while developing professional networks and career growth possibilities in the process (Kazmer, 2005). Learning outcomes included the furtherance of GIS advocacy and associated technology knowledge (Duval-Diop, Curtis, and Clark, 2010), comprehension of the ways LIS education could be applied in the real world (Ball, 2008; Yontz and McCook, 2003), and experience in analyzing complex data and communicating in a way that was succinct while still being comprehensively useful (Garvey, 2014). Student involvement in the two projects played an important role for them to graduate successfully and find job opportunities in prestigious firms and work settings of their choice. All project students are listed as co-authors of this paper and their current professional affiliations reflect the wide range of relevance and applicability of their learning experience in diverse career roles such as metadata specialist, data management specialist/team lead, technical services professional, GIS resident librarian, law librarian, and adjunct instructor.

Students gained hands-on experience in applying information-related research to foreign policy development, a domain that has strong potential to expand integration of library and information professionals' contributions in future years (Lazar, 2014). The experiences went beyond what a traditional classroom usually offers because the learning was grounded in a real-time context of partnering with a government agency to have students develop a practical application of technology in the form of usable, tangible products (Lim and Bloomquist, 2015). Students were very passionate about the potential impact of their work towards affecting positive change for a marginalized population in a geographic region of the world where the need was most immediate and urgent. It made them excited to know that the Diplomacy Lab experience was preparing them as professionals to respond to challenges and opportunities provided in a changing and dynamic work environment that is resulting from a globally networked and interconnected information society (Castells, 2010). As Taylor Hixson, current GIS Resident Librarian at The University of Chicago (and paper co-author) who is starting in January 2018 as the Geospatial Services Librarian at the New York University Abu Dhabi, United Arab Emirates, said about her Diplomacy Lab experience: "I had other experiences in my library school education that were worthwhile like practicum, assistantships, and group projects, but this was the first project I worked on that really felt like it fell outside of library school's structured safety net. Getting outside of my comfort zone as far as information seeking and collaboration—while still working under a professor's guidance—prepared me more for the real world of librarianship than a cataloging class ever could."

IMPLICATIONS FOR LIS EDUCATION

LIS educators can implement similar efforts to partner external stakeholders (e.g., U.S. Department of State) with students in their classroom and develop information-related

deliverables that make a direct difference in people's lives. This section briefly highlights important considerations to inform the development of such experiential-learning practices within the LIS professions based on insights learnt in the two Diplomacy Lab projects.

Challenges. Building successful collaborations that are effective in serving collaborating agency's expectations as well enhancing students learning experience require intense planning, time-task management, and a creative "out-of-the-box" mindset and approach. In the two Diplomacy Lab projects, the "course" strategy of the independent study/graduate research participation **allowed the faculty member to develop each student's personalized learning objectives while collaborating with other students in the team in the context of the larger project's goal and purpose.**

Opportunities. To make such community-engaged learning a common phenomenon in LIS education requires faculty to critically analyze their course content and identify opportunities where stakeholder partnerships could enhance student experience and competence in the learning of varied information-related topics/subjects/tasks. This calls [possibly at the programmatic levels] for identifying and listing of different types of information agencies (e.g., government departments, multinational corporations, IT businesses, non-profits, etc.) who might be interested and willing to collaborate with students on the development of mutually identified products and outcomes requiring information-related skills and competences. Mapping to course content in the LIS curriculum would be an important step in the process [curriculum development].

CONCLUSION

This paper provided a glimpse of two innovative LIS projects that integrated collaborations with government stakeholders to apply student efforts towards foreign policy formulation within the scope of an academic course structure (e.g., semester time frame, individualized student objectives within bigger project goals, weekly meetings, work distribution, professional obligations demarcation and grades, etc.). Challenges and best practice solutions in visualized content delivery and resource development provided meaningful impact owing to teaching-research-advocacy intersections in LIS education. The Diplomacy Lab project experiences revealed important possible roles of information professionals in the enactment of government work. LIS educators and administrators must open their eyes to this potential as a strong career path for newly graduating students and provide opportunities and support towards making this a reality. Need for strategies to expand LIS education in partnering with other organizations across various sectors (e.g., government, corporations, local activist groups, etc.) to involve students in teaching-research activities applied towards advocacy is also an important take-away message.

ACKNOWLEDGEMENTS

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The Expanding LIS Education Universe: A Combined Degree Program for Translation and Information Science

Lynne Bowker, School of Information Studies and School of Translation and Interpretation, University of Ottawa

ABSTRACT

Library and information science (LIS) professionals from all sectors are increasingly likely to encounter situations where knowledge of a foreign language might be useful; however, at present, few LIS programs incorporate language courses. We propose the creation of a Combined Degree Program (CDP) that will allow students to receive a BA in Translation and a Master of Information Studies within a reduced time period by allowing a limited number of identified program credits to count towards both programs. While translation and LIS might not appear to have much in common, we demonstrate that these fields actually have considerable overlap and complementarity as regards research, teaching and practice, thus making a CDP an attractive proposition. Moreover, given the close relationship between translation and disciplines such as languages and linguistics, CDPs that combine degrees in these areas with an LIS degree are also viable.

TOPICS

Education programs; Curriculum

INTRODUCTION

In a recent paper, Ford et al. (2017) emphasize that library and information science (LIS) professionals are members of an international community who interact with colleagues around the globe, and also offer services locally to patrons who come from different countries and cultures and speak different languages. Indeed, Saunders and Wilkins Jordan (2012) note that in an international survey of reference librarians, the ability to speak a foreign language is presently ranked as the fourth-most important skill, and it is predicted to rise to third place within ten years. In North America, demographics are shifting, prompting the ALA's Young Adult Library Services Association to issue a call to action in their *Future of Library Services for and with Teens* report (Braun et al., 2014, p. 2), which notes that over 20% of US children are immigrants or children of immigrants and may face linguistic barriers. In addition, many universities in North America are welcoming increasing numbers of international students. According to the Institute of International Education (2016), in the 2015/2016 academic year, the number of international students in the United States topped one million and had increased by more than 7% over the previous year. Meanwhile, data released by Citizenship and Immigration Canada indicate that in the year 2015, there were 459,644 international students in Canada, up significantly from 239,899 in 2006. Information professionals from all sectors are thus likely to encounter situations where knowledge of a foreign language might be useful.

The focus of Ford et al.'s research (2017) is to investigate the role of foreign language study in LIS graduate programs which, to date, is a subject that is not well understood given that few LIS programs offer language courses. As general conclusions, Ford et al. (2017) suggest that

> … learning another language can be a valuable component of an LIS program—whether it is ultimately used to communicate with patrons, navigate databases, troubleshoot technology, connect with international colleagues, or simply expand our understanding of an increasingly interconnected world. Language classes are clearly appreciated by LIS students, and there is demand for such classes even when they are not a required component of a program. (p.89)

Offering elective language classes as part of an LIS program is one approach, but another possibility is to conceive a combined degree program (CDP) that integrates elements of language training with LIS education. In this paper, we introduce a CDP that is being developed at the University of Ottawa in Canada which will allow students to earn two degrees—an honours BA in Translation and a Master of Information Studies—within a reduced time period by allowing a limited number of identified program credits to count towards both programs.

On the surface, the jobs of translators and information professionals may not appear to have much in common. However, if we dig a little deeper, areas of overlap and complementarity begin to emerge (Bowker & Delsey, 2016). Before launching into the development of a CDP, we first sought to investigate whether there is sufficient accord between translation and LIS to warrant such an approach. This paper reports on our investigation to better understand the degree and nature of overlapping and complementary skills and knowledge found in these two disciplines by searching for areas of commonality in research, practice and education.

METHODS

As a first step, we surveyed the literature in both translation and LIS to see if related challenges are tackled by researchers in both fields. For each of the shared areas of interest that were identified, we noted whether the concepts originated in one discipline and were later adopted by or applied in the other, or whether it was a truly collaborative interdisciplinary research effort. The aim of the literature search was not be exhaustive but rather to discover whether there appeared to be areas of common interest to the two disciplines, so we limited the search to the period between 2006 and 2016.

Next, we turned to practice, collecting the skill sets, competencies or profiles that were identified by professional associations or major employers as being desirable for translators and for LIS professionals respectively. For translators, these included the skill sets desired by the Government of Canada's Translation Bureau, the Canadian Translators, Terminologists and Interpreters Council, the United Nations, and the European Parliament. For LIS professionals, we gathered the competencies listed by the American Library Association, the Canadian Association of Research Libraries, the Special Libraries Association, and the Association for Information Science and Technology. After examining these documents, we extracted a list of skills and then mapped these to all the associations or organizations that found them to be desirable. Lastly, for each skill, we calculated the percentage of associations that identified it as being important.

Finally, with regard to teaching, we examined the course syllabi for ten different courses taught as part of the BA in Translation, as well as syllabi for ten MIS courses. Our goal was to

identify content that was taught in both programs, although it may be presented through a disciplinary lens. As was the case with the literature survey described above, we did not seek to do a comprehensive analysis of the syllabi for the full range of courses taught on the two programs; rather, we simply wanted to establish whether there appeared to be elements that were common to both programs. For each common subject identified, we calculated the percentage of syllabi in each program in which it appeared. We also looked for gaps and possibilities; that is, content taught on one program that could potentially be relevant for or contribute to the other program, or content that could be compressed in a given course because it is covered elsewhere.

Finally, we had the opportunity to survey three graduates who had completed both the BA and MIS programs independently to learn about their experiences and hear their opinions about the complementarity of the two fields, in the context of both their education and the workplace.

FINDINGS AND DISCUSSION

With regard to research commonalities, the literature survey revealed ten research areas that span both disciplines. Three areas appear to be more strongly associated with translation/ linguistics but are also relevant to work in LIS: semantic relations, terminology extraction, and machine translation. Meanwhile, six research themes seem to be more closely associated with LIS, but are relevant for aspects of translation research also: facetted classification, information literacy and behaviour, metadata, informetrics, big data, and fuzzy matching. Finally, the area of cross-language information retrieval appears to represent an area with genuine collaborative efforts between these two fields. To give some concrete examples, some of the works that were retrieved as part of the literature search included an investigation into how translation tools handle metadata (Teixeira, 2014), the application of machine translation to digital collections (Smith, 2006), information literacy training for translators (Massey & Ehrensberger-Dow, 2011), the information seeking behavior both of professional translators (Domas White et al., 2008) and of translation trainees (Pinto & Sales, 2007), the use of terminology extraction tools for indexing (Nazarenko & Ait El Mekki, 2007), and multilingual information retrieval (Oard, 2009).

With regard to professional competencies, we extracted a list of over 20 skills and then mapped these to all the associations or organizations that found them to be desirable. In hindsight, we recognize that in the LIS domain, most of the organizations that were investigated had a strong library focus and it would have been desirable to include a greater number from the information management side also (e.g. ARMA, AIIM). Additionally, we acknowledge that a number of the skills identified in both translation and LIS are in fact quite generic or transferable (e.g. interpersonal skills, team player); however, since these appeared regularly, we included them in our list. Among the skills that were noted as being important for both professions we find: the ability to evaluate the quality and credibility of information sources, the ability to synthesize information, critical thinking and problem solving, adaptability, strong communication skills, curiosity and a commitment to lifelong learning.

The analysis of the ten syllabi from each program revealed 17 subjects that were taught on both programs to some degree. To determine the relative importance of these subjects, we calculated the percentage of syllabi in each field that addressed each topic. Of these 17 subjects, nine appeared to be strongly relevant to both LIS and translation as they appeared on more than one third of the syllabi in both fields (e.g. content management, resource evaluation, resource

development, tool evaluation, human-computer interaction, user experience). Meanwhile four subjects appeared to be more broadly significant for LIS, though still relevant to translation (e.g. indexing, concept analysis and representation, professional ethics), while three seemed to be more widely addressed in translation though still pertinent to LIS (e.g. user needs analysis, information life cycle, controlled language and standardization). Finally, the subject of abstracting seemed to be only minimally important to both LIS and translation. It is possible that additional areas of overlap, or differing strengths of interest, would be revealed through a comprehensive analysis of all the syllabi for all the courses taught on both programs. Nevertheless, the analysis of ten syllabi from each program revealed enough areas of commonality to suggest that translation and LIS students do learn some common skills, and that students following a compressed CDP would likely have time to acquire all the knowledge and skills required by the two professions, and indeed even to reinforce elements during the MIS component of the CDP that were first learned in the BA component.

Finally, three graduates who had completed both the University of Ottawa's BA in Translation and Master of Information Studies as separate consecutive programs were surveyed to learn more about their experience. All three graduates agreed that the two fields have significant areas of overlap or complementarity, citing terminology, concept analysis and representation, and information retrieval as examples. One graduate categorized her current job as falling more into the translation field, while the other two identified LIS as their main domain of employment. Nevertheless, all three felt that they applied skills from both programs in their daily work. Two students were enthusiastically supportive of the idea of a CDP, in large part because it would have reduced their student debt and allowed them to enter the job market sooner. The third student was more reserved in her support, noting that in her opinion, it would be important not to sacrifice the option of doing co-operative education or work-integrated learning—preferably with work placements in both disciplines—in a CDP model.

Another element emphasized by students and that must be taken into account is the question of program accreditation and eligibility for certification. The University of Ottawa's standalone MIS program is currently accredited by the American Library Association (ALA), so the CDP must be designed in way that ensures that it meets the ALA accreditation requirements. In contrast, the model in Canada for achieving professional recognition in translation is for individuals to seek certification (e.g. via national exams) following the completion of their degree. However, while the translation program itself is not accredited, graduates must be in possession of a degree with a minimum number of language transfer credits in order to be eligible to seek certification. Therefore, this minimum number must also be preserved in a CDP.

CONCLUDING REMARKS

The goal of this investigation was to determine whether there seems to be sufficient accord between the disciplines of translation and LIS to warrant the development of a CDP. The overall conclusion is that there is a significant degree of complementarity between the two fields with regard to research, practice and education, and that students who are interested in and skilled at translation are likely to find success in an LIS graduate program and would use skills from both elements of a CDP in their future career. As both the translation and LIS professions are strongly applied in nature, a co-operative education element that provides work experience in both fields

will be an important component of a successful CDP. It will also be crucial to ensure that professional accreditation or certification requirements are respected in the CDP program design.

The University of Ottawa's proposed CDP in translation and LIS is currently working its way through the university's internal quality assurance processes for program modifications, so the final version is not yet ready for release. In general terms, however, the program is planned so that students follow six semesters of undergraduate translation courses, followed by one semester of LIS courses that contain a strong content overlap with translation subjects (e.g. knowledge organization, information resource discovery, concept analysis and representation, and information representation and retrieval technologies), and finally, two semesters of more specialized and advanced LIS courses. In addition to the nine academic semesters, the plan is for four full-time four-month work placements – two with a translation focus and two with an LIS focus – to be interspersed between the academic semesters.

In closing, it is worth noting that the decision to investigate the potential overlap or complementarity between LIS and *translation*, rather than a somewhat broader and more commonly available program such as languages or linguistics, was done for very pragmatic reasons. Firstly, the presence of a professor with a cross-appointment between the School of Translation and Interpretation and the School of Information Science made it a logical starting point as this professor had a deep understanding of both programs and disciplines. Secondly, the title of certified translator is a reserved title in Canada (and many other regions). Therefore, professional translators' associations have been established and have drawn up and published sets of competencies and desired skills. This is not always the case for other language-related disciplines (e.g., language teaching, linguistics), which may be less regulated and therefore not have clearly articulated professional competencies. Selecting the translation profession meant that it was possible to include the comparative analysis of professional competencies as part of the methodology. Nevertheless, while translation was a logical and straightforward starting point for developing a CDP at the University of Ottawa, it is reasonable to surmise that a program combining an LIS degree with a degree in languages or linguistics would also be viable.

Because Canada is an officially bilingual country where English and French have equal status as official languages, translation has earned a special status and specialized translator training programs have been developed to respond to this country's need for professional translators. However, it is well known that translation is highly interdisciplinary and that it both draws on and contributes to fields such as language teaching, linguistics, comparative literature, cultural studies, and creative and technical writing, to name a few (e.g. Snell-Hornby et al., 1992; Gentzler, 2003; Gambier & van Doorslaer, 2016). Therefore, in a university where there is no translator training program, but where programs in languages or linguistics exist, a CDP is still likely to present an attractive and feasible option. In fact, programs in languages or linguistics may actually prove to be more flexible than a translation program because they are less likely to have to meet requirements imposed by an external professional association, for example. In addition, while a translation program typically offers a well-defined path to a career as a professional translator, a program in linguistics or languages may present students with fewer concrete or clear-cut career options. Therefore, a CDP that permits students to pursue a love of languages, while still preparing them for a professional career in LIS, may be highly attractive.

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The Expanding LIS Research in North America: A Reflection of the LIS Doctoral Co-authorship Network

Fei Shu, McGill University

ABSTRACT

This study presented an analysis of LIS doctoral co-authorship network since the 1970s, which showed a trend in collaboration with researchers affiliated with non-LIS institutes. The evolution of LIS doctoral co-authorship network reflects the expanding LIS research universe.

TOPICS:

Bibliometrics; Data visualization; Education; Scholarly communications; Students

INTRODUCTION

Library and Information Science (LIS) has been undergoing a radical change since the 1980s when some universities closed their traditional library schools (Wiggins & Sawyer, 2010) as the iSchool movement began (Shu & Mongeon, 2016). LIS is currently defined as an interdisciplinary field (Tang, 2004) ingesting the library science, information science, computer science and other fields (Bruce, 2011). As an original contribution to the advancement of knowledge (Johnson, 2009; O'Connor & Park, 2001), the doctoral research topics has been used to investigate the LIS disciplinary identify (Sugimoto, Li, Russell, Finlay, & Ding, 2011) and its interdisciplinary relations (Shu, Larivière, Mongeon, Julien, & Piper, 2016); but LIS doctoral research co-authorship network has never been investigated. The purpose of this study is to investigate the evolution of the network of LIS doctoral research collaboration, which reflects the expanding LIS research universe.

LITERATURE REVIEW

Scholars with shared research interests collaborate with each other and form communities (Girvan & Newman, 2002) that play important roles in knowledge creation (Lambiotte & Panzarasa, 2009). Co-authorship networks provide a copious and meticulously documented record of the social and professional networks of authors (Newman, 2004); they can therefore be used to understand the research landscape within or between disciplines (Biscaro, Giupponi, & Ouzounis, 2014).

An increase in the interdisciplinarity in LIS research is well documented.by Tang (2004) and Shu et al. (2016). Chang and Huang (2012) report an increase in collaborations between LIS doctoral students and researchers affiliated with non-LIS institutes, in which LIS PhDs could benefit from the collaborations and improve their publication productivity (Kamler, 2008; Lariviere, 2012). However, no study has investigated the evolution of the LIS doctoral co-authorship network.

METHODOLOGY

First, a manually validated list of doctoral students who graduated between 1960 and 2013 and their advisors was compiled using the MPACT database (MPACT, 2010), which stores all LIS doctoral graduates from 1930 to 2009. Second, LIS doctoral students who graduated on or after 2010 and their advisors were identified and added to the list by searching the ProQuest Thesis and Dissertation Database and corresponding university websites. This process produced a list of 3,561 LIS doctoral graduates and their 928 doctoral advisors.

The papers published by the identified graduates during their supervised doctoral studies, defined as between six years before and two years after graduation, were retrieved from the Web of Science (WoS). Based on the journals in which the papers were published, all publications were categorized into 144 disciplines (LIS is one of 114 disciplines) according to the NSF classification system, which assigns each journal to a single discipline. All authors and the affiliated institutions listed on the papers were identified. For the purpose of analyzing the collaboration network of LIS PhDs, based on their publications, all co-authors pairs were imported into the Gephi graph drawing application in order to generate a visual map of the LIS PhD co-authors network map where affiliated institutions are nodes drawn as colored circles and co-authorship between different universities form edges (i.e. lines) between two nodes. The size of a node corresponds to the sum of the co-authorship while the width of a line that represents the external collaboration between different institutions.

FINDINGS

From 1960 to 2013, 3,561 doctoral students graduated from 44 LIS programs. The number of LIS doctoral graduates has increased from 18 in 1960 to 114 in 2013, peaking at 116 in 2010. Excluding128 students whose advisors were not identified, 3,433 LIS doctoral students were supervised by 928 advisors. 469 advisors (50.5%) obtained a doctoral degree in LIS supervised 2,097 LIS doctoral students (61.1%), and the remaining 459 advisors (49.5%) graduated from non-LIS fields and supervised 1,336 students (38.9%).

Only 26.1% (930/3,561) of LIS doctoral graduates published at least one paper indexed by the WoS during their doctoral studies. The percentage of published students increased from 3.5% in the 1960s to 42.8% in the 2010s. These 930 LIS doctoral graduates contributed 1,804 papers of which 75.2% (1,357/1,804) are published in a LIS journal; they also published papers in journals in *Computers* (8.0%), *Law* (2.6%), *Management* (2.4%), *Communication* (2.1%) and 36 other disciplines. The percentage of papers published in LIS journals has been decreasing from 90.0% in the 1960s to 59.7% in the 2010s.

1,218 of these 1,804 papers are co-authored papers, including 616 papers showing collaborations within the same institution and 602 papers between different institutions. 593 of 984 (60%) external collaborators are affiliated with non-LIS institutes in co-authorship between different institutions. Wisconsin, Madison is the largest contributor in terms of the number of LIS collaborators while Penn State is the largest non-LIS contributor. A group of visual mapping (see Fig 1-5) presents the LIS doctoral co-authorship network from the 1970s to 2010s. The co-authorship network is shown as 9 separated small clusters in the 1970s while a big cluster and 5 other small clusters appear in the 1980s. The meaningful co-authorship network emerges in the 1990s; the number of collaborators from a LIS institution (red nodes) and from a non-LIS

institution (red nodes) are the same in the 1990s but the percentage of non-LIS collaborators increased from 50% in the 1990s to 66% in the 2010s.
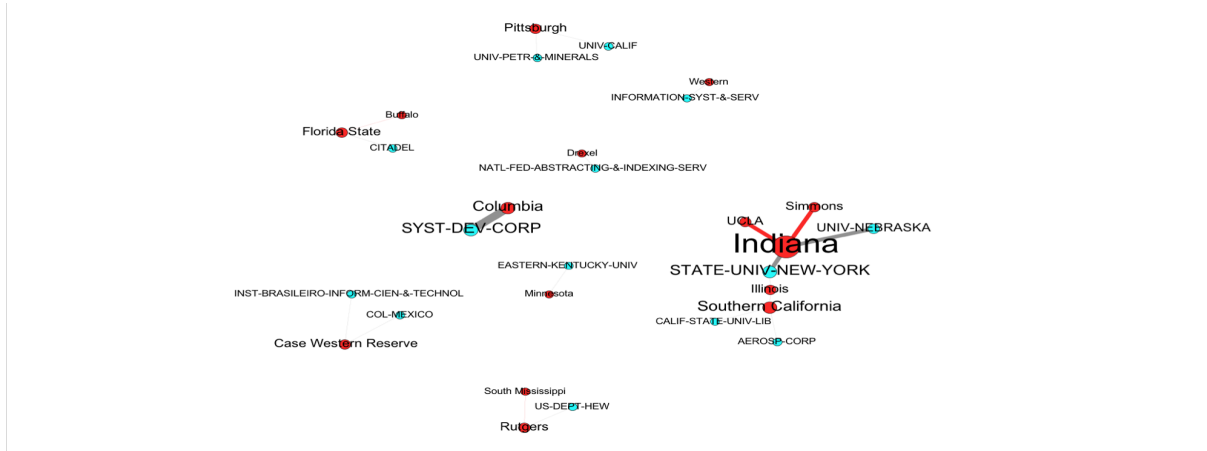

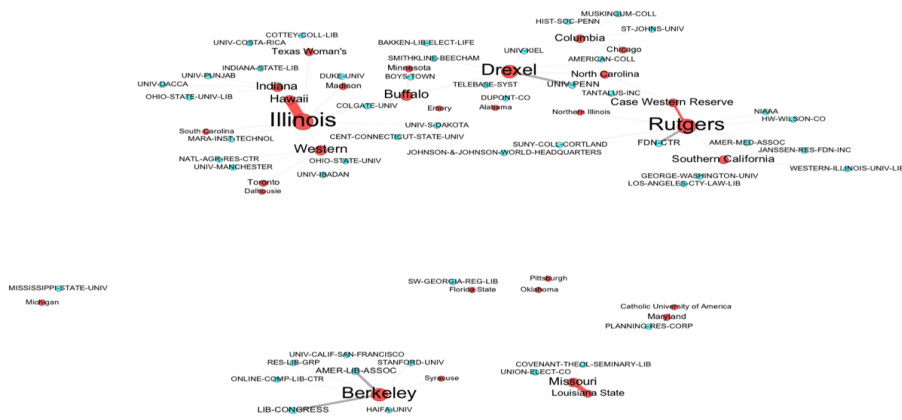**Figure 1 LIS Doctoral Research Co-authorship Network (1970s)**

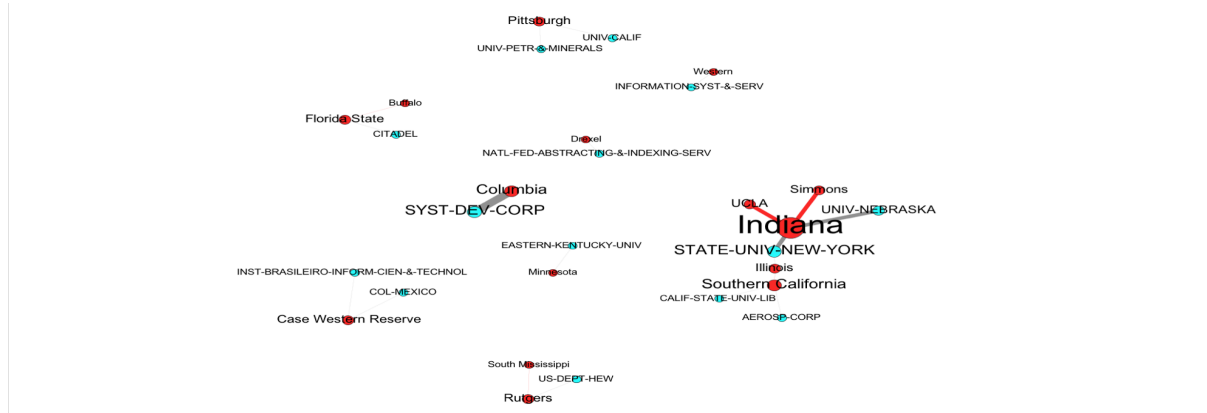**Figure 2 LIS Doctoral Research Co-authorship Network (1980s)**

Figure 3 LIS Doctoral Research Co-authorship Network (1990s)
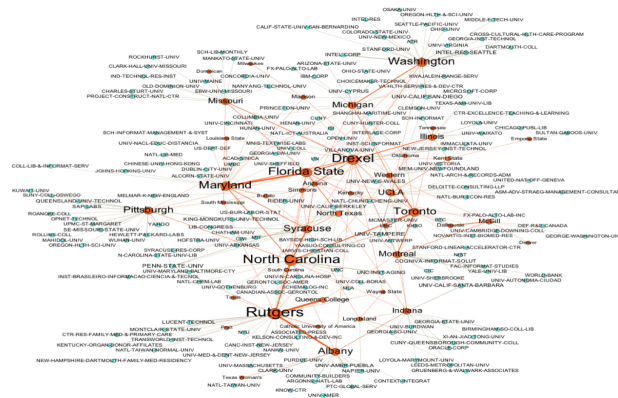
Figure 4 LIS Doctoral Research Co-authorship Network (2000s)
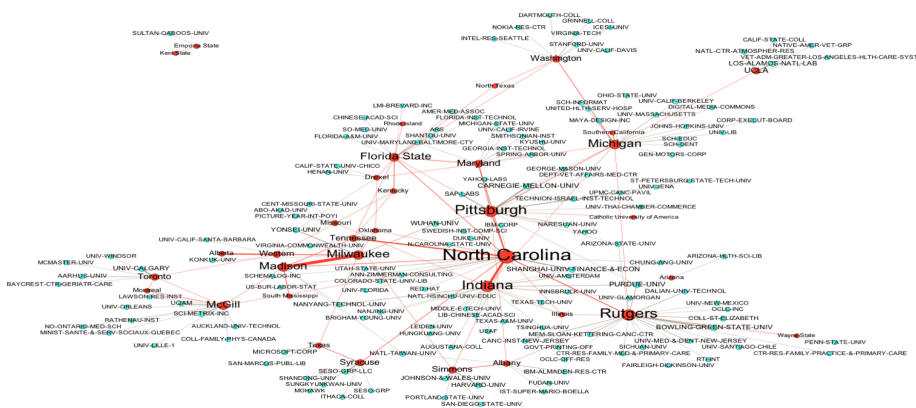
Figure 5 LIS Doctoral Research Co-authorship Network (2010s)

In addition, LIS doctoral students collaborated with more non-LIS collaborators (79%, 232 out of 294) when publishing the paper in non-LIS journals; but the ratio of non-LIS collaborators is only 52% (361 out of 690) when the co-authored papers were published in a LIS paper. The impact of advisors' disciplinary background on students' collaborators' background is not significant. LIS doctoral students supervised by non-LIS advisors collaborated with more non-LIS collaborators compared with those supervised by LIS advisors (LIS supervision: 59%; non-LIS supervision: 62%).

CONCLUSION

This study presented an analysis of LIS doctoral co-authorship network since the 1970s, which showed a trend in collaboration with researchers affiliated with non-LIS institutes. Both the journals in which their papers are published and the advisors' disciplinary background have impact on LIS students' collaborators' background. The evolution of LIS doctoral co-authorship network reflects the expansion of LIS research as more and more external collaboration with researchers from non-LIS institutions.

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Exploring Potential Barriers to LAM Synergies in the Academy: Institutional Locations and Publishing Outlets

Philip Hider, Mary Anne Kennan, Mary Carroll, and Jessie Lymn

Charles Sturt University

ABSTRACT

This paper explores two potential barriers to joint "LAM" programs of education and research: differences in the organizational locations of departments and schools of LIS and Museum Studies (MS), and differences in the publishing outlets used by LIS and MS academics. An environmental scan of LIS and MS programs was conducted to ascertain the extent to which the two sets of programs were based in different universities and disciplinary units in the United States, Canada, the United Kingdom, Australia and New Zealand. A bibliometric survey was also carried out to gauge the extent to which LIS and MS scholars based in Australia publish in common journals, conferences proceedings and books.

TOPICS:

Museums; Education programs/schools; Administration; Curriculum; Scholarly communications

BACKGROUND

In recent times, a range of "LAM" (or "GLAM") initiatives concerned with addressing various issues of importance to collecting institutions indicate a push towards greater collaboration between the library, archive and museum professions (Zorich, Waibel & Erway, 2008; Glam Peak, n. d.). These initiatives are set against a backdrop of "small government" budget squeezes and the challenge that all LAM institutions face of remaining visible in an increasingly online, and increasingly crowded, information environment. It appears that libraries, archives and museums (including art museums) find themselves with much in common, including the upholding of shared goals around equitable access to education and ideas, the development of inclusive narratives of culture and history, and the free flow of information (Hedstrom & King, 2006).

However, the closer working relationship between the LAM sectors does not appear to have translated to equivalent synergies in the educational sphere. For the most part, the education that supports the LAM professions continues to be conducted, at least at the university level, through separate programs and accredited or overseen by different professional bodies (Given & McTavish, 2010). While examples of programs covering both Library and Information Science (LIS) and Archival Science (AS) can be readily identified, with some being the product of the

'iSchools' movement (Cox & Larsen, 2008), examples of programs covering Library and Information Science (LIS) and Museum Studies (MS; we use the term here to include studies of art curation), such as at those offered at Kent State University and the Technological and Educational Institute of Athens, are rare, although they demonstrate that the implementation of a "LAM curriculum" is possible (Latham, 2015; Giannakopoulos, Kyriaki-Manessi & Zervos, 2012; Bastian, 2017), as does the mapping between MS, LIS and AS curricula recently carried out by Hider and Carroll (2018).

One major obstacle (among others) to further implementation of a "LAM" curriculum would be a lack of institutional correlation between existing schools and departments of LIS and MS. The authors' preliminary survey of MS programs in Australia confirmed the earlier observation by Howard, Partridge, Hughes and Oliver (2016) that "very few museum studies programmes were located in the same university as library and/or archives programmes." While the MS and LIS programs in Australia are similar in number, the former are offered by many of the older, more established Australian universities, whereas the latter are offered by a more heterogeneous group of institutions. This circumstance points to two quite distinct histories of LIS and MS professional education in Australia (Barrett, 2011; Wilson et al, 2012; Carroll, 2016). The question arises as to whether differences in the institutional locations of LIS and MS programs are also to be found in other countries, with different traditions of LIS and MS education, and of higher education more broadly. The paper addresses this question by reporting on an environmental scan of professional-entry LIS and MS programs offered by universities in five English-speaking countries.

Another possible barrier to greater collaboration between academics across the LAM fields might be different research and publishing traditions, including divergences in venues of scholarly communication. In this case, for practical purposes, the focus of the paper is on Australian LIS and MS. A pilot bibliometric study of the publishing outlets used by LIS and MS academics currently based in Australian universities is reported, together with an analysis of the overlap between the lists of journals identified as "LIS" and "MS" in the Australian Research Council's recent Excellence in Research for Australia exercise.

SURVEY OF LIS AND MS PROGRAM LOCATIONS

A systematic survey of the institutional, and also the intra-institutional, location of programs of LIS and MS in the United States, Canada, the United Kingdom, Australia and New Zealand, was carried out. Specifically, it compared the levels of institutional coordination (and discoordination) between the two fields in the five countries. At the intra-institutional level, analysis is provided on the extent to which LIS and MS programs are situated in schools and colleges which represent divergent disciplinary paradigms. The survey was carried out with reference to authoritative lists of LIS and MS programs providing professional-entry, postgraduate qualifications in the five countries. The institution offering each program was identified, as was its first-order administrative unit defined on a disciplinary basis (e.g. a faculty of arts), through the relevant information to be found on the Web. The disciplinary coverage of each administrative unit was classified according to the first-order fields of education set out in the *ISCED Fields of Education and Training 2013* (UNESCO, 2014).

Findings indicate a large variation in institutional overlap between LIS and MS postgraduate studies across the five countries, from Australia with no LIS and MS programs offered by the same

institution, to the UK with over 70% of LIS and MS programs sharing the same institution. Overall, the percentage of overlap was less than 50, with the US on 25%. This suggests that institutional discoordination might also be a potential barrier to educational collaboration between the LIS and MS fields beyond Australia, and needs to be considered in any broad implementation of a future LAM curriculum.

The intra-institutional analysis revealed a strong concentration of MS programs in units representing the "arts and humanities" (ASCED field of education 2), with some others in the social sciences, across all five countries. In contrast, the LIS programs are located in administrative units representing a more varied set of educational fields; there is also more variation in the fields across country. While the field most represented by the administrative units offering LIS programs overall was that of the "social sciences, journalism and information" (ASCED field of education 3), this was not the most prevalent in the UK, Australia or New Zealand. Conversely, while almost half of units offering LIS programs in the UK represented the arts and humanities, none did in the US. These results suggest that disciplinary differences between LIS and MS might be especially pronounced in North America, where MS is as seen as part of the arts and humanities, but where LIS is seen as a social science, coupled more with information and communication technology than with the arts.

ANALYSIS OF LIS AND MS ACADEMICS' PUBLISHING OUTLETS

A pilot bibliometric analysis of individual LIS and MS academics at Australian universities was conducted in order to gauge the extent to which the two groups publish in common journals and other research outlets, as a proxy for their use of common scholarly communication channels. The LIS and MS academics were identified as those currently engaged in teaching and supporting the programs listed in the institutional survey, as indicated on the relevant websites. For the pilot study, the Scopus database was used to identify the publishing outlets used by the academics, as it covers a broad range of sources (journals, conference proceedings and books). In addition, the two lists of journals used in the Australian Research Council's most recent Excellence in Research for Australia exercise to identify outputs in the "Library and Information Studies" field of research (coded 0807) and "Curatorial and Related Studies" (coded 2102) field of research, were compared. A lack of commonality would suggest that LIS and MS academics in Australia may wish to consider establishing more forums dedicated to sharing the results of research across the LAM fields, as a first step toward increasing interdisciplinary dialogue. Future replication of the bibliometric analysis for the US, Canada, the UK and New Zealand, would provide an indication of the extent to which the concept of "LAM", as a generic field, has thus far been operationalized in the English-speaking academy.

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"Give Me Some Slack": LINQing Inquiry and Practice for Librarian Professional Learning and Development

Vanessa Irvin [irvinv@hawaii.edu] and Wiebke Reile [wreile@hawaii.edu]

University of Hawaii - Manoa, United States of America

ABSTRACT

The Librarians' Inquiry Forum (LINQ) is a critical inquiry-based professional development program which uses technology (i.e. social media and collaborative workspace platforms) as the setting to implement a reflective community-of-practice to facilitate professional learning for pre-service librarians (LIS students) and for librarians on the front lines (LIS practitioners). LINQ has been employed to enact LIS practice-based and classroom-based outcomes via the collaborative online learning opportunities for learning and reflecting upon professional practices in librarianship. Implications include considerations for ways in which the LINQ model serves as an innovative approach for not just better learning, but also better teaching, in the LIS classroom and within LIS practitioner inquiry groups.

TOPICS:

Reading and reading practices; Online learning; Pedagogy; Critical librarianship

INTRODUCTION

The Librarians' Inquiry Forum (LINQ) is a professional development model that offers space and place specifically for public librarians to collaboratively juxtapose their professional practices as a means of professional learning. Inquiry-based and ethnographic in approach, the qualitative data from discourse within a community-of-practice connects librarians to decrease professional isolation of ideas and geography. LINQ also encourages the fostering of a wholistic professional identity that actively interweaves professional experience with a collaborative sharing of resources with other librarians for professional learning and development.

LINQ implements an innovative methodology known as 'practitioner inquiry' (Cochran-Smith & Lytle, 2009). Practitioner inquiry is a critical, reflective, collaborative ethnographic approach to professional development specifically for educators. School-based and community-based educators use practitioner inquiry to study and research their own professional practices to learn more about the impacts of their work (Lytle, 1996; Mehta, 2009; Dana & Yendol-Hoppey, 2014). Due to its social and community-oriented means of engagement, practitioner inquiry is a fitting professional development approach for public librarians serving diverse communities, and for pre-service librarians (LIS students) learning wholistic approaches to cultivating a critical, inquiry-based librarian identity that is collaboratively constructed. Practitioner inquiry creates data in the form or 'narrative' or as we say in Hawai'i, 'talk story', to elucidate practitioners' voices in response to questions and concerns that arise from work experiences.

METHODOLOGY & DESIGN

Methodology. Librarian professional practices involve intersectional discourses that nowadays, invariably requires mediation of a technological interface in some form or another. For librarianship, particularly in the public sphere, practitioners are most effective when they are consistently involved in professional learning opportunities that enable ongoing intellectual and technological growth. Yet the intensity of public library services with the daily synthesis of services to diverse populations alongside ever-emerging technological environments, occur and impact librarian identity and iterative professional practice (Cooke, 2012).

With this context in mind, to learn more about the ways in which public library services are enacted within the only statewide public library system in the U.S., the Hawai'i State Public Library System (50 branches across six islands), we performed a year-long pilot study in 2015 to situate ourselves within an insider/outsider stance as a LIS practitioner (principal investigator) and a library patron (co-investigator) at public libraries throughout Hawai'i. We visited 38 of the 50 libraries within the HSPLS system, across five islands of the state. Our site visits brought forth qualitative data that revealed an important finding: the reference interview seemed to be missing from public library services. Our finding was substantiated by field research assignments within an introductory reference course conducted by LIS students of the UHM LIS Program: some students, too, were not having successful experiences observing or experiencing the reference interview at the public library. Was the reference interview missing because patrons weren't asking reference questions? Was the practice missing due to misappropriation of staffing at the reference desk, or was it librarian apathy? These questions were shared with HSPLS, and in response, it was agreed that to address these questions, it was important to gather HSPLS librarians into a community-of-practice so that critical conversations could generate a personal learning network for professional development (Cooke, 2012).

LINQ Design. Seventeen branch managers were selected by the HSPLS to participate in the LINQ project; no one from LIS administration was involved. Given the geographic isolation of HSPLS locations across six islands, LINQ was structured such that participating librarians interacted via the collaborative workspace platform, *Slack* (http://www.slack.com). *Slack* was chosen because it is a cloud-based chat-driven social networking platform that focuses on enhancing workplace communications by integrating applications that allow for seamless collaboration (e.g. chat, email, video, audio, images, Google docs, documents from one's computer/phone/tablet, Facebook, Twitter) all in one interface across digital devices (i.e. desktop, laptop, tablet, cell phone) in real-time, while at work, for immediate professional learning and application (Locke, 2016).

The LINQ+HSPLS community-of-practice was launched on *Slack* on September 1, 2016, and ran for a total of ten months, ending on June 30, 2017. Privacy was important to create a safe space for sharing amongst the participating librarians, thus out of the 25 chat channels that were generated, only 1 channel was public. The public channel was called "#linq_general" where discussion about navigating *Slack* and announcements were posted. Of the 24 private channels, 12 channels were generated by the principal investigator/facilitator during the initial three months of the study, while another 12 channels were generated by librarian participants who led group discourse on a rotation basis during months 4-10, when the group entered its sustainable phase.

DATA OUTCOMES

Data collection. Preliminary data collected at site visits included: pictures (library buildings, layouts, collections), field notes, memos, and audiotaped semi-structured interviews with the participating LINQ+HSPLS librarians. Practitioner inquiry as LINQ's methodological approach, enacted participant data collection via a facilitator asking practice-based inquiry questions. Inquiry questions can be derived from participant interviews where practice-oriented concerns are often revealed, or if facilitation is decentralized with participants taking ownership of discourse, inquiry questions can be derived directly from librarian professional practice. LINQ is designed to promote conversations that question, problematize, and resolve practice-based concerns by involving the librarians working as a community-of-practice while collecting data about work, at work, then sharing and reflecting on that data, and thus, from a collaborative process of inquiry, implementing enhanced approaches to professional practice.

Slack was used to collect LINQ+HSPLS data in various ways: librarian participants used chat "channels" to ask and consider questions and experiences about daily work, to post links of articles, video, and audio to stay discuss LIS developments, and using the 'add files' feature to upload documents and images to share (e.g. calendar of events, programming log sheets, policy paperwork, room layouts, etc.) in order to learn and refine practices from one another.

Some examples of facilitator-meditated inquiry questions, generated from librarian interview data, included:

Channel Topic	Inquiry Question(s)
#bigidea	What is the "big idea" happening at your library this month?
#friendsgroups	How does the library define the role of the local Friends group? What is the relationship between your branch and your Friends group? What kinds of activities does your Friends group engage in? How does your group raise funds for the library?
#programming	In what ways do you learn the kinds of programs your community wants and/or needs?

During the sustainable phase, channel topics generated by LINQ+HSPLS participant librarians were based on their professional practice. Examples of those topics include:

Channel Topic	Inquiry Question(s)
#priorities	What do you remember from your early library experiences that made you want to become a librarian? How do you recreate those experiences for your patrons? What are your library priorities?
#staff-training	How do you train your staff? What kind of resources do you wish were provided to help you train your staff? Are there any in-house training materials that you've created and are willing to share?
#wishilearned	What do you wish you learned in library school? Did you learn it? Do you teach it to your staff? Still waiting for training?

LINQ+HSPLS librarians accessed *Slack* in various ways: on the web as a tab on their browser, and/or as an app on their desktop, laptop, tablet, or phone. The LINQ+HSPLS librarians shared work-related data in many formats: uploaded files (64); web-based resources (20); images (9); writings (2). There was a total of 1,215 messages generated, with 73% of those messages being posted in private channels (https://linqhspls.slack.com/admin/stats, accessed 10/14/2017).

Data analysis. As instructor for the introductory reference course within the UHM LIS Program, research data is sometimes shared (always anonymously) to give pre-service librarians (LIS students) a glimpse into real-world applications and implications for LIS professional practice. With LINQ+HSPLS, there are many outcomes that speak loudly to LIS learning, practice, identity formation, and professional development. However, there was one unexpected outcome from the study that directly offers insight into LIS learning and pedagogy.

During spring semester 2017, LINQ+HSPLS pilot study data was shared with students enrolled in the UHM LIS reference course. The data shared included images from libraries across the state (e.g. collections, signage, decorations) and descriptive vignettes of LINQ+HSPLS topics that revealed the importance of collaborative practice amongst librarians (e.g. homelessness, Friends Groups, programming) (Saldaña & Omasta, 2018). The students, in turn, asked that we, LINQ+HSPLS principal investigators, forward to LINQ+HSPLS an inquiry question from the class: "What advice do you have for new librarians?

At the time the question was posed to LINQ+HSPLS, the group was in its sustainable phase and being facilitated by a librarian participant. The librarian facilitator was contacted via email with the class's inquiry question. In response, the librarian facilitator created the private channel, #advice-new-libs, and posted the question thusly:

Channel Topic	Inquiry Question(s)
#advise-new-libs	What are two tips you would give to new librarians?"

Of the eight active participants at the time, five librarians posted professional stances, identity constructs, and practices in response to the question. Salient data points included:

1) Professional Stance
   a. *Librarian1:* Don't be afraid to fail! Try something new on a regular basis.
   b. *Librarian2:* Don't wait until all the details are just right until starting a new thing.
2) Identity Construct
   a. *Librarian1:* Learn and implement HSPLS Admin Rules, Policies & Procedures.
   b. *Librarian1:* [L]ook at the big picture that HSPLS is one system where staff action/decision may have an outcome affecting a branch, support or head office.
   c. *Librarian2:* Keep in touch with why you want to be a librarian but work within your organization's framework.
3) Professional Practice
   a. *Librarian1:* I saw a library that had a computer screen facing the patron also so they could see what the librarian was searching for them.
      i. *Librarian2 response:* I've worked at a library with the swivel screen so that patrons could see how you search. We got a lot fewer repeat questions, since

after watching the same steps a couple of times, many patrons learned how to complete simple searches themselves!

    ii. *Librarian3 response:* Yes, the more the patrons do themselves, the more they remember!

    iii. *Librarian4 response:* Teach a man to fish...

    iv. *Librarian5 response:* I also like the librarians that carried iPads for searching the stacks and researching a patron question without having to walk back to the ref desk.

(LINQ+HSPLS, *Slack channel #advice-new-libs,* 24 March 2017 – 18 April 2017)

There were 15 recommendations posted on the #advice-new-libs channel. Admittedly, one drawback from the LINQ facilitator also being the LIS instructor is that the opportunity to record such an unexpected development was missed. However, class response did reveal three themes that impressed the student group: 1) the need for *synthesis of librarian identity* with organizational vision, 3) the requisite of *staying current* to sustain cultural-professional relevance and, 3) *involving patrons during the reference interview*, which is an important data point that clarifies the earlier question: is the reference interview is still relevant to HSPLS practice? Indeed, it is.

DISCUSSION and CONCLUSION

How LINQ augments LIS learning and teaching. Given the success of the mutual professional learning opportunity that LINQ+HSPLS afforded between pre-service and veteran librarians, as an LIS instructor and as principal investigator for LINQ, I have been inspired to teaching online courses via *Slack.* Additionally, due to the "eloquent interface" (one student's description) enjoyed by students via actual online coursework during Summer 2017, additional UHM LIS faculty members are also beginning to explore teaching options using *Slack* to frame class structure and discourse. Case in point, at UHM LIS for the Fall 2017 semester, there were three online courses offered. Of those three, two of them were taught with *Slack,* while one on-campus course also used the platform for hybrid pedagogy.

Slack analytics and student course evaluation data from summer 2017 revealed an enhanced student experience. *Slack's* interoperability of social web applications that promote multimodal interactions that resemble the fluidity of face-to-face conversations, and also mimic interactions on popular social media such as Facebook and Twitter, was a win-win for UHM LIS students. Students also appreciated that on *Slack*, "channels" kept topics 'on point' and the contemporary interface gave users choice in *how* they could contribute to discussion; notifications kept members connected in real-time.

Coursework becomes more collaborative on *Slack,* creating a user-friendly space for group discourse without having to set up "group work". For some reason (not yet to be determined at to why), on *Slack,* instructor/facilitated questions seem more welcomed as sites of inquiry and reflection, and therefore, contributory to deeper learning that enacted epistemological change and identity formation for librarianship. We look forward to continued research with teaching and learning on *Slack,* as it helps us to employ LINQ's unique inquiry-based approach to convening LIS pre-service and full professionals together to ask practice-based questions in order to explore, resolve, and grow from them, together.

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Health Literacy and Physical Literacy: Public Library Practices, Challenges, and Opportunities

Noah Lenstra [a] [njlenstr@uncg.edu] and Ellen L. Rubenstein [b] [erubenstein@ou.edu]

[a] University of North Carolina-Greensboro Dept. of Library and Information

[b] University of Oklahoma, School of Library and Information

ABSTRACT

This paper describes recent research focused on understanding how public libraries support health literacy and physical literacy in the communities they serve. Three studies, one in Oklahoma, one in North Carolina, and another spanning the U.S. and Canada, found that health-related services are being implemented in libraries to varying degrees. This research looks at what public libraries are doing, what dilemmas they are encountering, and how they are strategizing to nurture healthy communities. This paper also introduces the concepts of health literacy and physical literacy, illustrating how they are intertwined in the practices of many public librarians and how they could be productively incorporated into LIS educational programs.

TOPICS:

Public libraries; Information literacy

INSTRUCTION

Throughout their history, public libraries have been involved in health-related activities such as disseminating pamphlets about public health issues in the early 1900s or developing movement programs in the early 2000s (Lenstra, 2017; Rubenstein, 2012). Consumers became more involved in addressing their health issues during the mid-19th century and as that interest grew, libraries became more responsive by offering trainings to employees to meet this need. Continuing the trend of consumers' involvement in their own health, more recently, various health activities such as exercise and yoga that at one time were primarily accessed in fee-for-service gyms or studios have become part of library programming (Lenstra, 2017). This paper discusses recent research focused on understanding how public libraries support health literacy and physical literacy in the communities they serve. Three studies, one in Oklahoma, one in North Carolina, and another spanning the U.S. and Canada, found that movement and other health-related activities and services are being implemented in libraries to varying degrees, although library personnel also report multiple challenges. This research looks at what public libraries are doing, what dilemmas they are encountering, and how they are strategizing to

nurture healthy communities. In addition, the research suggests educational opportunities for future librarians while obtaining their degrees, as well as post-degree options for acquiring the the skills and knowledge necessary to providing these services for their communities. Last, at a theoretical level, this paper will introduce and discuss the concepts of health literacy and physical literacy, illustrating how they are intertwined in the practices of many public librarians.

LITERATURE REVIEW

According to the Aspen Institute's Project Play initiative (n.d.), health literacy and physical literacy are distinct ideas. The Institute's Project Play defines physical literacy as "the ability, confidence, and desire to be physically active for life" (para. 1); however, other definitions expand on this, stating that physical literacy encompasses "the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life" (Whitehead, 2016, para. 3) and that "these skills enable individuals to make healthy, active choices that are both beneficial to and respectful of their whole self, others, and their environment" (Physical and Health Education Canada, 2017, para. 2). What unites these definitions, and what differentiates physical literacy from earlier conceptualizations of physical education, is the concept of active living across the life course. The focus of physical literacy is on understanding and supporting how to enable lifelong active living.

The most commonly used definition of health literacy describes it as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (U. S. Department of Health and Human Services, n.d., para. 1), whereas the World Health Organization (2017) also speaks to the environmental, political, and social aspects that play a role in health literacy. Nonetheless, most definitions of health literacy that are prevalent in the United States restrict it to informational processes. For example, the National Network of Libraries of Medicine (n.d.) discusses a range of different definitions of health literacy, but focuses primarily on the ability to understand and act on health information, particularly in patient-centered contexts. Thus, although the ideas of physical literacy and health literacy have seemingly different emphases, with the former focusing more on healthy physical activity and the latter focusing more on using information to inform health decision-making, particularly in the context of interactions with the formal healthcare system, our work indicates that their overlapping elements are being enacted through the work of public librarians as they provide opportunities that contribute to public health and wellness.

Despite some evidence that public libraries contribute to health in multiple ways (WebJunction, 2016), health is not yet framed as being a core priority of public libraries. For instance, the Public Library Association's (2017) Project Outcome defines "seven key library service areas" that the project seeks to measure and assess, and provides librarians with tools needed to integrate evidence-based practices into the management of them. The seven areas include: Civic/Community Engagement, Early Childhood Literacy, Education/Lifelong Learning, Summer Reading, Digital Learning, Economic Development, and Job Skills. Incorporating health and wellness into measurement-based tools such as this one requires better understanding of how public libraries already impact public health, as well as educational initiatives to better prepare future generations of librarians to impact health and wellness in their future careers.

Finally, some evidence supports the conclusion that public librarians are developing the tools they need to support healthy communities. For instance, two public librarians in Kansas developed and then presented a booklet on how to support healthy communities through library partnerships and collaborations. They advocate for libraries engaging in strategic planning to develop consumer health information resources and engage in partnerships to develop things like free yoga classes and circulating collections of physical fitness kits (Staley & Geiger-Wolfe, 2016).

METHODS AND RESULTS

To explore how health and physical literacy are supported by public library practices, we first describe the three studies. The first study (Rubenstein, 2016) examined the practices of 38 public library staff in 18 libraries in Oklahoma. The goal of the study was to understand staff experiences and perceptions about providing health information and how doing so intersected with health literacy. Based on interviews with 17 managers, 16 librarians, and five library assistants, the results indicated that many staff were unsure of the overall health needs of their communities, and found fielding health information questions to be challenging, including issues related to understanding questions, providing online resources, and the need for more training. The study also found that many strides were being made throughout the state, with the support of several partner organizations interested in promoting health in one of the unhealthiest states in the nation.

The second study (Lenstra, accepted) involved interviews with 39 public library staff in North Carolina who have experience developing and implementing movement-based programs that contribute to increasing physical literacy (e.g. yoga and tai chi classes, StoryWalk® initiatives, Music and Movement Storytimes). Interviewees were asked to discuss the development and evolution of these programs, and their roles in these processes. The results indicated that public library staff support regular physical activity in diverse ways, often based on their personal interests. These programs also tended to emerge as a result of partnerships, particularly with entities like public health and parks & recreation departments, but also with community groups like yoga or tai chi clubs. Common challenges reported by staff involved with these programs related to space and the identity of the library. Some staff reported struggling to justify this type of programming to their directors; others reported struggling with spaces that were not created with physical activity in mind; and still others reported struggling with concerns about liability in case of injuries sustained during programs.

The third study used a convenience sampling methodology to survey 1622 public library staff from throughout North America who completed all or part of a survey about movement-based programming in their libraries (Lenstra, 2017). Results show that, at a minimum, 1574 public libraries in the United States of America and Canada have offered movement-based programs, or intend to do so in the future. In addition, the results suggest that these types of programs are being offered for all ages: respondents reported approximately as many movement-based programs for adults as for youth in their libraries. Nearly all (95%) of those libraries that had offered movement-based programs in the past indicated that they intended to offer movement-based programs in the future, a fact that illustrates the degree to which these types of programs have become integrated into North American public libraries.

DISCUSSION

These studies highlighted differences and overlaps between physical literacy and health literacy, indicating that while there are distinctions and some scholars have adamantly insisted that they are not related, it may be important to stress that the commonalities are perhaps more important to focus on. For example, physical literacy, according to Whitehead (2016), includes being able to know enough to become responsible for participating in physical activities. In understanding this, an individual has made inroads into aspects of health literacy that encompass being able to navigate health information in that one has to comprehend to some extent the health benefits of physical activity in order for there to (possibly) be motivation to engage in it. Similarly, some of the broader conceptualizations of health literacy, such as those promulgated by the WHO, appear to include within them things like movement-based programs. For instance, the WHO (2017) writes that health literacy and health education "in this more comprehensive understanding … encourages individual and collective actions which may lead to a modification of these determinants [of health]." The WHO goes on to note that, "Health education is achieved … through methods that go beyond information diffusion and entail interaction, participation and critical analysis. Such health education leads to health literacy (para. 2)." In other words, seeing health literacy in this broad way would make room for library initiatives that are not focused only on information provision and access, but which also include collective actions like yoga programs and StoryWalks®. Enabling these synergies between health literacy and physical literacy to flourish in LIS education and practice require acknowledging the informational components of physical literacy and the non-informational components of health literacy.

Last, there are gaps in LIS education that do not speak to health literacy, physical literacy, or the understanding of how these literacies might affect library users (Rubenstein, 2017). Although many libraries are incorporating movement and health programs, there is little indication that doing so is the result of some sort of strategic plan. However, to include such programs in strategic plans, it is essential that library staff have the knowledge and awareness to do so, with the goal towards increasing the health of communities. In some cases, public libraries are already doing this type of work (Staley & Geiger, 2016), but in other places more educational resources and support may be needed. The authors suggest that targeted classes on health and wellness be available to students while they are in LIS school, as well as units within other classes that will heighten awareness of how students might think about these topics as they apply to their own libraries. As a WebJunction (2016) initiative from a few years ago noted, "Health Happens in Libraries," but ensuring that this process proceeds in the most efficient and effective way involves providing our students with the educational experiences needed to plan for how to support health and wellness in their communities.

CONCLUSION

The results from these three studies show that in many places public library staff, in collaboration with partners, are creating opportunities for members of their communities both to learn more about and to enact healthy, active lives. The practices of public library staff impact both health literacy and physical literacy. By better understanding how these processes work, this ongoing research will better enable library and information science educators to prepare future

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public librarians (as well as partners in health science and medical libraries, e.g. Engeszer et al., 2016) to support community health.

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Integrating Virtual Computing Lab (VCL) in Distance Education for LIS Programs

Emad Khazraee

Kent State University and Berkman-Klein Center for Internet & Society

Harvard University

ABSTRACT

The LIS universe is transforming by two trends. First, LIS programs are increasingly moving to the online teaching and learning environments. Second, big data, cloud computing, and data analytics are growing areas for information profession. Moving to a dominantly online learning environment makes it challenging to equip LIS students with data analysis and cloud-computing skills. In particular, the methods for providing in-lab experience requires rethinking. This study experimented with a prototype Virtual Computing Lab (VCL). This prototype project illustrated that VCL has immense potential in improving both the teaching and learning experience of LIS distance education.

TOPICS:

Online learning; Big Data; Cloud computing; Education programs/schools

INTRODUCTION

We are experiencing an intensive period of innovation, we need to keep our students in mind and prepare them with competencies needed for their future job market. In recent years, we have heard many buzz words such as Big Data, Data Science, and Cloud Computing in academia. The common denominator of all of them is the great enthusiasm and the need for data analytics skills in the next generation of college graduates. The pervasive nature of big data and cloud technologies is not limited to computer science or informatics, it touches upon many disciplines. The McKinsey Global Institute (Manyika et al., 2011) has predicted that by 2018 the U.S. could face a shortage of between 140,000 to 190,000 people with deep analytical skills, and a shortage of 1.5 million managers and analysts who know how to leverage data analysis to make effective decisions. The demand for such skills has been on a steady rise and in most predications about the job market, such skills are expected to be the most valuable and well-paid in the future. Therefore, this is a promising area for expanding the LIS education universe.

Effective teaching of both data analytics and cloud-computing requires intensive hands-on lab experience. "Research has shown that hands-on experiences in the science laboratory play a central role (arguably the central role) in scientific education" (Brinson, 2015, p. 218). In a data analytics hands-on lab, students learn how to methodically deploy data collection tools to collect large data sets and how to use computational tools to extract meaningful patterns from collected data.

By 2011, nearly 3 million students were enrolled in fully online programs (Enduventures, 2012). More than 70% of academic leaders now see online learning as the critical strategic component of higher education (Allen & Seaman, 2015). LIS programs are also increasingly moving to the online teaching and learning environments. For example, the School of Information at Kent State University, now offers almost all its courses in an online format. Moving to a dominantly online learning environment makes it challenging to equip our students with data analysis and cloud-computing skills. In particular, the methods for providing in-lab experience requires rethinking, because, as Brinson (2015) observes, "Computer-based and remote data acquisition, virtual simulations, and automated processes have all challenged and altered the methods and practices of what have traditionally been considered 'hands-on' labs" (p. 219). Recently, systematic reviews of data from more than 120 studies in the past ten years find equal or greater outcome achievements in virtual/remote labs as in traditional hands-on labs (Brinson, 2015). However, the success of such labs requires novel and creative approaches in teaching. For example, one of the challenges of hands-on lab is how to assess the learning outcomes beyond using quizzes as the major assessment method, or how we can design and assess proper assignment for deploying cloud technologies?

To summarize, to prepare competitive LIS graduates for the job market, we face a challenge in educating our students in the areas of data analytics and cloud technologies.

STUDY

Experiment. To address the above research question, this study conducted a feasibility study of a Virtual Computing Lab (VCL). VCL is an integrated environment for distance experimenting, learning and testing, without the fear of breaking the system. In other words, it is a place for fearless experimentation in data analytics and cloud technologies. It makes it possible for the students in the online courses to remotely connect to the lab and work with different environments crafted for them to learn a variety of skills and to experiment with a wide range of computational tools. VCL can be conceptualized as a Lab-as-a-Service (LaaS) platform that can be integrated in many courses. It is a new form of lab which replaces the brick and mortar lab in the era of cloud-computing and allows our students to walk into a virtual lab in a distance learning context and directly interact with the cloud-computing environment and work with tools required for learning data analytics skills.

Findings. Currently, there are different technologies available to create a VCL for distance education. This study compared three of the main existing options including *VMware remote desktop*, *Amazon Workspaces*, and *Apache VCL*. For this purpose, the author designed a teaching scenario for the Social Media Analytics workshop to use a prototype VCL. The experiment showed the pros and cons of each solutions for integrating VCL in online LIS education.

VMware remote desktop is one of the leaders in the virtual desktop market which can provide non-persistent remote desktops. Non-persistent option is very important because if during the experiments students break the system, in the next restart the system will boot from the base image and provide a fresh desktop installation. While VMware provides a very good and smooth remote desktop environment, its downside is a high upfront investment cost and licensing fees. In contrast, the recent hourly billing solution offered by Amazon Web Services (AWS) as Amazon Workspaces, does not require upfront investment. A standard workspace (2 vCPU cores, 4GB

RAM, 50GB storage) will cost $42.25 for a period of three months and total of 50 hours of use. However, the Amazon instances are persistent; this means that if a student changes the configurations of the system, the system will not restart fresh the next time it is accessed. The third solution, Apache VCL[1], is developed through NSF support and has been used in many universities across the country. Apache VCL is an open source solution which can provide non-persistent remote desktops like VMware. Apache VCL requires a pool of cloud-computing to provide the remote desktops such as OpenStack, Open Nebula, VMWare vCenter, or any virtualization system.

Future Plans. We plan to conduct an in-depth comparison and assessment of the existing technologies for VCL in practice by conducting user experience evaluations on three different technologies including Apache VCL, Amazon Workspaces, and VMware remote desktops and a control group using personal desktops. The result of such measurement and evaluations will provide empirical evidence to further integrate VCL into LIS education.

CONCLUSION

VCL is a very efficient way to improve the distance learning experience of the students. It reduces the amount of time instructors spend on troubleshooting trivial issues such as software installation and application setting. In many hands-on courses, faculty become frustrated because they must provide remote tech support to the online students on how to install applications or resolve issues which take a huge amount of time over chains of email. VCL is also an ideal option to provide a uniform experience for the learners. However, these all comes at a price. VCL requires computing infrastructure and support. A more extensive pilot project will help us to identify the best technological solution in terms of efficiency, cost, performance, and user experience. Current project proved that LIS programs which lack the computing infrastructure and expertise in this area cannot use the benefit of such growing trend. If LIS programs plan to provide cutting edge distance education, they need to pay attention and invest in their computing infrastructure for cloud computing and more importantly the expertise needed in this regard.

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Learning by Doing: Using Field Experience to Promote Online Students' Diversity Engagement and Professional Development

Denice Adkins, Jenny Bossaller, Beth Brendler, Sarah Buchanan,

and Heather Moulaison Sandy

iSchool at the University of Missouri

ABSTRACT

This paper describes our response to two challenges of online education: professional socialization and diversity engagement. We discuss efforts to increase student engagement through experiential learning, active learning, and concrete experience with diverse populations as a way to inlay them with professional concerns in libraries and archives. The paper focuses on interactive projects that can be accomplished by students at separate locations and projects that students undertake in their own communities. We conclude by discussing the strengths and weaknesses of the projects.

TOPICS:

Pedagogy; Social justice; Curriculum; Specific populations; Community engagement

INTRODUCTION

One of the challenges we face as educators in a program producing librarians, archivists, and information professionals, is to socialize students effectively into the profession. Generally speaking, online education can be completed in a personal bubble with little professional socialization and exposure to people outside of a student's previous social circles. One way to overcome this challenge is through experiential learning using assignments and opportunities that are challenging, interactive, and directly related to diversity. In this paper, we briefly review the literature on experiential learning, professional socialization, and diversity. We then describe some specific examples of experiential projects. We summarize by discussing the strengths and weaknesses of our programmatic approach for professional socialization, and also the continued challenges for immersion in diversity.

EXPERIENTIAL LEARNING THEORY

Experiential learning requires students to engage in a concrete experience and then reflect on that experience. Kolb (1984) explains that experiential learning focuses on the process of learning, wherein "each act of understanding is the result of a process of continuous construction and invention" (p. 26). Kolb notes that experiential learning places "emphasis on the process of adaption and learning as opposed to content or outcomes" (p. 38), focusing on the process of

knowledge creation rather than the process of information acquisition. Rainey and Kolb (1994) discussed the application of experiential learning to learning about diversity. They maintain that experiential learning provides not only content but also a process and framework for supporting learning about diversity, allowing students to learn about an emotionally-charged topic within a psychologically safe environment.

Graduate student socialization factors include acquiring profession-specific knowledge, becoming invested in being a member of the profession, and becoming involved in professional issues (Weidman, Twale, & Stein, 2001). LIS education is hardly unique; Holley and Taylor (2009) found a deep sense of isolation in online nursing students, with interaction linked to specific tasks and assignments and limited engagement in even interactive tasks. Those who were employed often relied on workmates and co-located classmates for socialization. Croxton (2015) concludes that prior work experience helps some students build a sense of professional identity before they enter the LIS program, but experiences of group project work and connectedness with peers and faculty may also help build a sense of professional identity. Black and Leysen (2002), though, suggest that there is not enough time in the general LIS education program to fully socialize new librarians into the profession.

INTERVENTION

The debate about the quality of online education has long since passed, but there is one specific aspect of face-to-face learning that is not easily replicated in the online classroom: co-presence with people outside of the student's close social group. Students in online classrooms can be as isolated as they wish to be. In asynchronous classes, students may interact only through text; in synchronous classes without activities, they may be in listen-only mode, and in synchronous classes with activities, they may not have a working microphone or webcam. Minority students might feel especially isolated in an online program, because they might not have access to on-campus support centers, such as ethnic, identity, and multicultural centers.

Instructors can reduce isolation by creating opportunities with local agencies and information institutions that are designed to build diversity and professional socialization into the curriculum. At the University of Missouri, many of our students participate in online classes, meaning they might be situated at a physical distance from their instructors and fellow classmates. Although most of our students are located throughout the state of Missouri and neighboring Nebraska, we currently have students joining us from states as geographically diverse as Alaska and Texas. The projects that we describe involve processing collections at an African-American archive, building a digital library for a local research center focused on issues relevant to Midwestern Latinos, and engaging in service learning in students' own communities. Each project broadened students' exposure to people they will work with as professionals, as well as their sense of being a professional. We also conclude our discussion of the specific projects by reflecting on achievements and goals.

Project at Black Archives of Mid-America. A large donation of materials to the Black Archives of Mid-America in Kansas City, MO, that arrived in the summer of 2016 prompted one such curricular intervention. Following communication between the archivist and lead program representatives, faculty and students from across the state of Missouri in our Diversity, Leadership, and Libraries course organized work with the archivist over the span of a weekend in mid-October

that resulted in successfully inventorying over 1900 items and adding them to the Archive's collection database. We continued collaborating during the subsequent semester's Spring Break week, in offering a one-credit Archives in Context service-learning course that gave students extended hands-on time with collections onsite. Intentionally, the course facilitated collaborative learning among students new to archives but eager to apply the principles that faculty had introduced in an intense half-day face-to-face session, toward the task of rehousing three collections. In addition to curricular expansion, the spring course experience enhanced two LIS student organizations' already in-progress event programming and grew interest across the program in pursuing similar collaborations in the near future.

Project in Support of the Cambio Center. In Digital Libraries in the spring of 2016, students completed a digital library project with the Cambio Center, a University of Missouri-supported organization dedicated to demographic scholarship and community support for Latinos. The Cambio Center, with no budget, wanted to create a digital library of proceedings to its regional conference that had taken place annually over the previous 10+ years. Columbia, Missouri-based students worked most closely with the local organizers at the Cambio Center and, based on the class's decision, with the LIS professionals in the university's digital repository. Both on- and off-campus students worked on addressing questions of usability and addressing user needs, relevant to Latino studies scholars. They provided metadata to this effect, and made sure marketing materials for the DL ultimately met user needs. Their decision to host the content in the university's institutional repository (IR) reflected the budget they had been given and partnerships they were able to forge, but they also worked to promote access for scholars by recommending changes to the Cambio Center's website to accommodate remote access to the organized collection in the university's IR.

Service at a Local Nonprofit. Students in our Community Leadership course were required to identify a local nonprofit or governmental agency for service experience in their own city or town. Students have, thus far, been in the Midwest. This assignment was created in order to get students out of the library, to identify information needs exhibited in spaces not affiliated with the library, and to help students identify novel methods of community outreach. Students have been placed in Women, Infants, and Children (WIC) Offices, community gardens, citizenship centers, and clothing distribution centers, for example. These locations are local to the students, which means they are dispersed throughout the Midwest. Because the students are placed in a wide range of service organizations, it is sometimes difficult to create a coherent academic experience in the classroom; it can feel chaotic as students figure out where their organization fits in. However, the experience has been overwhelmingly positive in the end, as students have expressed new knowledge about their community, and how the library fits in. Students also gain experience working directly with professionals, learning how to present themselves and how to build networks with non-library community partnerships.

Reflection. In examining each of these curricular field experiences, we acknowledge that students have responded positively to the separate experiences and appreciate the structured community engagement we facilitate. Student and partner input has also provided us with specific directions to pursue when we carry out similar activities in upcoming semesters, perhaps in non-elective, required courses. It is challenging to create immersive educational experiences for students who do not have the luxury to come to campus for curated classes, or who do not live in

the same area or even type of area. Students live in urban, suburban, and rural settings, as well as homogenous and ethnically or socioeconomically diverse areas. These present vastly different opportunities and challenges for experiential learning.

CONCLUSION

While we believe that we are making progress, measuring the impact of our activities is difficult and we have not come to a consensus regarding the best method for tackling diversity and professional immersion issues. An ongoing struggle that we still face is unsatisfactory recruitment and representation of underrepresented identity groups in our incoming student cohorts. Despite continued discussion and efforts to diversify, the field of librarianship is still monopolized by white women (American Library Association, 2017). LIS programs in the geographically large expanse of the Midwest must work to counteract these challenges through concerted recruitment efforts, especially by targeting HBCUs.

Each of the topics: experiential learning, social justice, and student immersion into the profession, are worthy of their own papers in themselves. Project-based learning has plusses and minuses; the projects engage students with diversity throughout the curriculum, but students do not dive deep into surrounding structural or systemic issues. Experiential learning has not been integrated into required courses, so students can graduate with little exposure to these methods. Projects-based learning is not something that can be replicated from one semester to the next, because they are based on real-world rather than hypothetical scenarios. Classes that utilize these methods require much more creativity and ongoing effort on the part of the faculty members, who might experience burnout when job demands increase. Teaching, after all, receives little accolades in comparison with course buyouts for grant recipients.

Finally, the justification or support for connecting students with busy LIS professionals is still limited, outside of a semester-long practicum project and smaller projects, such as interviewing librarians about their work. We are currently investigating how to measure the program's effectiveness on professional immersion.

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Leveraging Internal and External Grants to Promote Curriculum Development Through Collaboration and Experimentation

Andrew J. M. Smith, Mirah J. Dow, and James H. Walther

Emporia State University

ABSTRACT

Grants are an essential support for faculty research but grant-funded work can also be a major catalyst for curriculum change, and can have a profound effect on teaching practice and curriculum development and program direction. This paper discusses curriculum and course developments produced as a direct result of internal and external grants and the lessons learned from each experiment or course.

TOPICS:

Curriculum; Pedagogy; Teaching faculty; Education programs/schools

INTRODUCTION

Grants are often regarded as revenue generators for faculty and institutions and are seen as an essential support for faculty research. However, grant-funded work can also be a major catalyst for curriculum change, either directly or indirectly, depending on the grant, and can have a profound effect on teaching practice and curriculum development and program direction.

This paper looks at the experience of three faculty members teaching at the School of Library and Information Management (SLIM) at Emporia State University and the ways in which their grant-funded work has influenced the MLS curriculum. The internal grants were directly related to curriculum development and have given rise to experimentation with teaching concepts of leadership and ethics across three different courses within the MLS curriculum, while the external grant was focused on STEM education and information literacy, and provides insights into the general MLS curriculum and the ways in which it must develop to prepare librarians who are ready to meet the challenges of new teaching environments.

EXTERNAL GRANT FUNDING

The first faculty member is the Project Director on a three-year grant funded by the Institute of Museum and Library Studies (IMLS). The major focus of the grant is establishing a certificate in

Information, Technology, and Scientific Literacy, which is taught by both science faculty from the College of Liberal Arts and Sciences and faculty from SLIM. Participants are evenly divided between school librarians and content area educators at both the elementary and secondary levels, and both pre- and in-service teachers and librarians have participated in the program. A major goal and intended purpose of the grant is to increase Science, Technology, Mathematics, and Engineering (STEM) content knowledge and skills of the librarians and the information literacy knowledge and skills of the science teachers by educating them together, so that they develop not only the scientific and information literacy skills, but that they understand cross-disciplinary viewpoints of the professionals with whom they will be working, and can therefore develop stronger professional relationships based on a mutual understanding of the cognitive strengths of each profession. Four new courses were developed specifically for the certificate program. However, through the development and co-teaching of these four courses several things have come to light that highlight the limits of current MLS curriculum and also indicate the ways in which our curriculum must advance in order to prepare all librarians for work not only in STEM-related fields, but in libraries in general.

IMLS funding for the Laura Bush 21st Century Library Program is provided to "develop a diverse workforce of librarians to better meet the changing learning and information needs of the American public: by enhancing the training and professional development of librarians, developing faculty and library leaders, and recruiting and education the next generation of librarians" (IMLS, 2017, para. 1). To fulfill this purpose, we explicitly followed our funding proposal creating four new, three-credit hour courses. As a direct result of the grant, new curriculum was developed including new course titles, descriptions, and learning outcomes that incorporate the language of scientific argument. Our new course titles "provide a four-part outline that comprehensively captures library, information, and technology literacy learning outcomes that are specifically running through all core content area standards" (Dow & Thompson, 2017, p. 17). These four courses were approved in two degree programs, one in the University's department of physical sciences and the other in the School of Library and Information Management, Master of Library science degree program.

"Co-teaching has become an innovative strategy for achievement of new goals and purposes for education and has been studied in various settings" (Thompson and Dow, 2017, p. 37). In teaching our new courses, two university professors developed a new theoretical way to think about co-teaching and demonstrated and taught co-teaching principles that can be practiced in today's PreK-12 schools and observed, measured, evaluated, and continuously improved. Lessons learned and limits of curriculum from this external grant-funded, innovative approach to training and professional development can be categorized in three parts: university requirements; instructional realism; and expanding librarianship.

First, we learned that while co-teaching by University professions in two different areas is uncommon, co-teaching can be done with extraordinary success when there is advanced planning and careful execution of details. Over the course of the history of higher education and still today, university policy and practices for academic degree programs typically reflect a rigid structure of academic knowledge on university campuses wherein each disciplinary area has its

own faculty and departmental governance and procedures. This structure was intended to serve a specific group of students who agree to learn content in one specific, single academic area. For cross-disciplinary, co-teaching between two (or more) university faculty and students to occur, there must be a somewhat flexible university structure and a university culture of collaboration that is open to making departmental changes and accommodations related to cross-listing courses, faculty teaching assignments, scheduling and delivery of classes, and awarding certificates to students in more than one academic degree program.

The reality is that pedagogy taught in schools of education has traditionally focused pre-service teachers on teaching one content area at a time resulting in what is today sometimes referred to by educators as *staying in your own silo*. Our new information, technology, and scientific literacy curriculum brings about a new instructional realism involving two or more educations working "together to build maximum intellectual strength in themselves that can be measured by their students' achievement of identified learning outcomes" (Dow & Thompson, 2017, p. 17). We learned that when educators learn and accept co-teaching as a new instructional realism, the educational experience of students can be ideally situated for inquiry-based learning (Kuhlthau, Maniotes, & Caspari, 2012; Maniotes, Harrington, & Lambusta, 2016). Librarians are no longer on the outside looking in, but major players in planning, implementing and delivery of instruction that takes students beyond the content of one teacher and one textbook to increased intellectual influence of combining the expertise of two teachers and use of multiple authoritative sources that convey and inform substantive content and evidence-based research.

Lastly, in light of the growing number of career opportunities in the information professions and the need to redefine the LIS terrain in the 21st century, we have learned through actual co-teaching across academic disciplines that there is need to reconsider and perhaps revise existing core competencies of librarianship. Until then, LIS faculty involved in curriculum review may learn about some aspects of the new LIS terrain from our new curriculum and three year experience. LIS faculty may learn about how to create new course content that recognizes information science as the content area of librarianship and integrates information science within the context of multiple disciplinary areas. We believe that professional librarians are likely to have the mindset and desire to lead in advancing into all of education, including schools and librarians, this new way of thinking, as well as the unique abilities to take action based on new co-teaching theory and principles learned through our grant funded program.

INTERNAL GRANT FUNDING

Management. The first Koch grants were deployed in the introductory management course and were designed to increase student understanding of ethics within the context of library management. Grant activity centered on an exploration of ethical behaviors of library leaders, and factors affecting the development of a personal commitment to ethical thinking and responsibility. The focus was to demonstrate student knowledge of basic principles of information ethics and to develop the ability to apply a model for ethical decision-making. An additional outcome of this project was to develop a vision of professional service and

demonstrate adaptability and openness to new ideas. Each activity worked to show future librarians how ethical behavior is at the core of library service.

The project focused on students examining examples of codes of ethics of other professions; researching news on poor ethical decision-making; interviewing a library professional about the librarian's focus on ethics in library and lastly, participating in group discussions and facilitated lectures. Walther (2016) found the following abilities at the end of the project:

1. Increasing awareness of the library profession's Code of Ethics (ALA Core Values)

2. Developing the ability to self-examine and examine others' ethical awareness in libraries

3. Researching the ethical displays of others

4. Developing a commitment to new tools and strategies for ethical responsibility

Collection Development. Collection Development and Management was the focus of the third SLIM Koch grant. The professor had previously noted a lack of maturity and understanding in the complexity of the selection/censorship debate, and also that students did not recognize the importance of policy in ensuring the development of balanced collections. Accordingly, this project focused on both the free/controlled decision making, as well as the Ethics and Leadership sections of the grant proposal (Koch Center for Leadership and Ethics, 2017). The class was taught in a blended format, with two intensive class weekends taught face-to-face, with additional instruction and support provided through a content management system. For the grant project, an extensive exercise was developed that unfolded in several parts over the first class weekend. Different teams of students had the opportunity to make selection decisions in light of three different collection development policies, with varying degrees of rigor and compliance with the American Library Association's (ALA) freedom to read statement (2004). The materials presented came from a variety of sources including resources on frequently challenged materials (ALA, 2017), best-seller lists, and actual patron requests from a public library.

An essential part of this long exercise was a thorough debriefing, which also took part in stages, with students completing personal reflections, discussions within their groups and finally across the whole class, where the results on collection decisions of the different policies became extremely apparent. Student reaction to the exercise was extremely positive, both in the evaluation at the end of the class weekend and in the end of course evaluation. Students also rated themselves more highly in the final evaluation on the Course Learning Outcomes related to collection policies and ethical collection development.

Global Experiences. The Global Experiences classes provide an opportunity for students to study libraries and archives outside the United States and consist of a semester-long class with a ten-day field trip. Students have the opportunity to tour libraries and archives, to meet professional library colleagues, and to spend social time with librarians, with students of library science and others. An essential focus of any Global Experience course is the debriefing process, where students reflect on what occurred during the field trip, assess their learning both from the

library and from the cultural perspective, and come to understand the changes that have occurred in themselves. Debriefing international experiences can be a tricky process, with the students often becoming too involved in comparisons rather than focusing on their actual learning, both professional and personal.

The focus of the fourth Koch grant was on adapting the debriefing process for a Global Experience course to Serbia. In the past ten years, SLIM has sent more than 250 students on 25 Global Experience courses to nine countries on four continents. In the recent past, debriefing had become increasingly detailed in an effort to help the students think more deeply about their experiences, but at the same time had become more focused on places and events, rather than individual reflection and learning. This project spurred a reassessment of the debriefing process and students were therefore encouraged to look at their Serbian learning experiences through a leadership lens, as a way of giving a particular focus to their inter-cultural experience, and putting their learning in a context beyond that of simply being different. As part of the course preparations, students were provided with readings on the adaptive leadership model of Heifetz, Grashow, and Linsky (2009), and were also provided with materials from the Kansas Leadership Center (KLC), based on this work, and designed to remind students of the basic principles of adaptive leadership.

At the time of writing this course is still in progress, although the field-trip has concluded. Early indications are that the leadership focus caused students to be more thoughtful in their observations and to be more aware of motivations or consequences of action that they witnessed. A final analysis of the students reflective journals will be required to gauge the full effect of the leadership lens as a tool for debriefing, and whether the end result differs from previous courses.

CONCLUSION

This paper discussed curriculum and course developments that were produced as a direct result of a variety of internal and external grants and the lessons learned from each experiment or course. The wider lesson is that in light of the changing nature of the library world and the necessity of preparing librarians able to provide high-quality information services in a wide variety of situations, we must continually examine not just the content of our program or individual courses, but the ways in which we help our students learn and develop into information professionals. Grants are one way to stimulate reevaluation and help us discover new ways of teaching and learning.

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Librarians as Participants in Technology Governance: The Role of Librarians in Educational Technology Selection

Jenna Kammer, University of Central Missouri

ABSTRACT

Librarians use educational technology for teaching, learning and outreach for library services. As faculty, librarians should also participate in shared governance for selecting which educational technology will be adopted for use on campus. This paper presents the results of a qualitative research study which indicates librarians were rarely active participants in the selection process for choosing a learning management system at several land-grant universities. This paper discusses the role of educational technology (particularly the learning management system) in academic librarianship, and if librarians should be more involved in educational technology selection.

TOPICS

Information governance; education; Critical librarianship; Academic libraries

INTRODUCTION

Academic librarians have steadily increased their use of educational technology through the years. However, the role of librarians in choosing technology for their schools may be limited as decision-making goes to technology departments and/or faculty. The concept for this paper originates from Kammer's (2017) dissertation research that examined the learning management system (LMS) selection process at seven land-grant university campuses. This research found that these universities created committees for choosing a new LMS using shared governance models that may or may not include librarians. This paper addresses two questions: what role do librarians play in choosing educational technologies for their schools, and should librarians be more involved?

ROLE OF LIBRARIANS IN EDUCATIONAL TECHNOLOGY SELECTION

Technology selection is traditionally done by technology departments in universities, though in recent years, administrators have advocated for using shared governance as a model for choosing technologies that affect the teaching and learning community (Cavanaugh, 2014). Cavanaugh describes how committees of faculty, administrators (and sometimes students and staff), are formed to lead the campus through a selection process for choosing a new LMS. As a tool that is the primary technology for executing teaching and learning, the LMS integrates with many systems on campus and affects almost all of those responsible for teaching and learning at the university.

Librarians have a vested interest in educational technology, like the LMS. Many library tools, like LibGuides and e-reserves, now have LTI integrations with the LMS (such as Blackboard, Canvas, Moodle or Brightspace) that allow students to access library resources from their course. In addition, librarians are increasingly involved in instructional design that requires knowledge of the LMS (Shell, Crawford & Harris, 2013). Librarians are also able to offer their own instruction within an LMS. Many librarians use the LMS for delivering one-shot instruction sessions, training students to use library materials or assessing library instruction (Heinrich and Attebury, 2012).

Some technology administrators recommend that librarians (in addition to faculty and students) be included on the selection committee for choosing an LMS to ensure representation of all stakeholders. Wright, et al (2014) recognized that there are several library related questions that campuses need to consider when choosing an LMS: 1.) Can data/files be imported and/or exported to existing or future administrative systems (including library systems), and 2.) How does the LMS provide library systems with the authentication faculty and students require in order to access restricted library resources? It may also be in the library's interest to participate in the selection of an LMS because not all LMS's allow for integration with library systems. Farkas (2015) also noted that only some LMS's allow linking to library materials at the course or institutional level.

RESEARCH METHODS

Within the last ten years, many universities have begun to examine their current LMS to determine if it meets the needs for their campus learning community. Cavanaugh (2014) describes how the University of Central Florida was one of many universities to use a "central communications hub" to build trust with the stakeholders during the process of selecting a new LMS. To learn more about these practices, a critical discourse analysis was conducted to examine the data shared on the "central communication hubs" (a.k.a websites) for seven LMS reviews at various land-grant universities. These websites provided data about the purpose, process and timeline for the LMS review, as well as lists of committee members, and other data collected during the review process (such as: minutes, transcripts, recordings, survey results and final reports).

This study examines the language in the discourse for evidence of social practices at these universities. Using Fairclough's method of critical discourse analysis (2010), the data from the LMS review was analyzed for evidence of librarian participation in the LMS selection process. A three-dimensional analysis was conducted that examined the discourse for: 1.) written language, 2.) discourse analysis, and 3.) sociocultural practice with each university, then compared between universities. This particular paper examines the number of occurrences that librarians were referenced in the discourse, and identifies themes between the discourse as related to these references. Findings were verified through a member-checking process, and analyzed for intertextuality between documents.

SUMMARY OF FINDINGS

Findings indicate that librarians were only members on two out of seven (29%) LMS selection committees. The librarians on these committees were not active in meetings (as

indicated by the minutes). Other LMS selection processes did not include librarians on the committees, but considered the library to be a stakeholder, and often included library services in surveys and needs criteria. Very little evidence was present within the discourse about the role of the library in the LMS review so only one theme (connectivity) was discovered. The theme of "connectivity" can be described as the LMS selection committee's desire to find an LMS that could also connect with library services, like reserves.

DISCUSSION

This paper is prepared for presentation and is not intended to share the full details of the findings of this research. Instead, it is meant to start a discussion about the role of the library in educational technology governance. The findings indicate that there is little library presence in an LMS review, and that library needs may be limited to integration with library systems. Library systems may not even be fully represented in the reviews as findings indicated that the only system the LMS review committees were interested in was e-reserves. One may wonder if this is because the library has yet to discover the potential of the LMS in library services, or if the LMS committee simply did not thoroughly investigate library needs and uses of the LMS.

Librarians often have to use educational technology already selected by the campus. Participating in educational technology governance may allow librarians to have more of a say in what technology is selected. Shared governance in a university is one strategy for balancing power between faculty and administrators in a university. Librarians, who are often considered faculty because of their engagement in teaching and research, fall into shared governance models. However, literature indicates that librarians often play a minimal role in shared governance on campus (Mix, 2013; White-Turner, 2004). For librarians, the benefits of participating in shared governance on campus include: relationship building, developing mutual understanding with other departments on campus, and increasing the degree of control that librarians have in the functioning of the university (Mix, 2013).

The question related to this paper is: is this enough? Should librarians be more involved in selecting technology for the campus? Do these results reflect library participation in other technology decisions on campus as well? How important is it to collaborate with other campus stakeholders on technology selection?

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The Place of Reference Courses in LIS Curriculum in North American ALA Accredited Programs

Monica Colon-Aguirre [colonaguirrem17@ecu.edu]

East Carolina University

ABSTRACT

This study seeks to answer the question: What is the place of the reference course in the current LIS education landscape? The focus of this analysis will be on the required nature of the reference course employing content analysis with constant comparative method in order to analyze the course titles, descriptions and available syllabi and uncover patters that will help inform how reference courses are currently conducted. Preliminary results show that what is generally referred to as a 'reference' course is rarely named "Reference" and still most ALA accredited programs in North America require such a course as part of their graduation requirements for students.

TOPICS:

Curriculum, Pedagogy, Standards

LITERATURE REVIEW

In the landscape of professions, Library and Information Science (LIS) stands out as a service profession and the reference course is a central part of most LIS programs. The courses offerings started at the end of the 20th century with the first recorded course taught under Melvil Dewey's own supervision. In fact, in 1883 Dewey believed offering courses in what was then referred to as "bibliography" was an essential part of the LIS curriculum. These courses aimed at providing instruction in the "…knowledge of what reference books there are, their comparative merits in respect to given subjects, and how to use them to the best advantage." (Genz, 1998). The creation of these courses responded to a broader need identified by LIS professionals which was centered on helping the user of the library and also as a way to encourage the use of the collection by making the library more welcoming to patrons (Genz, 1998).

Although, historically, the reference course was always one that was meant to prepare librarians in order to serve their patrons in a more effective manner, the focus of reference courses for many years was on the reference collection. One important aspect to affect the reference collection in libraries is the change in their nature, formats and types throughout the years. In the days before electronic databases and search engines, the main way to help patrons was to find answers in print reference materials, and reference librarians were those specialized in finding these answers (Katz, 2004). However, as the information landscape has changed and locating information in order to answer everyday questions is easier, faster and more intuitive every day, the nature of reference services in libraries has also changed. Nowadays, there are

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many calls to acknowledge the complexity of the transactions with which librarians deal as part of their work with the public including their pedagogical nature (Elmborg, 2002).

This evolution in the nature of reference services, has also mandated a change on how the course is approached. From a focus on resources and locating information to one that is more social in nature (Sproles, Johnson and Farison, 2008). This new approach to preparing future information professionals focuses more on the interactions with the patron, understanding the way in which people search for information, and the evaluation of information. The importance of information sources is still there, but the new focus of reference is in the social aspect. According to Chandler (2001) reference courses nowadays "…must prepare graduates to provide information with a combination of technological competence, traditional knowledge of information sources, and re-calibrated (but traditional information) services with a client centered perspective." (p.260). This stems from the position that service is still a fundamental aspect of reference work, and to LIS professionals as a group.

The emergence and adaptation of digital technologies has had a strong impact into how these services are delivered and even on the services themselves, but not on primordial function service provision has for LIS education, which remains predominantly user-centered. This, even as technology's influence on telecommunications has pushed the boundaries of the library and the classroom beyond the library's and the university's walls. Following all of these changes and the evolution of reference work, reference education is still important in general LIS education. Chandler (2001) reported that as of 2000, 45 ALA (American Library Association) accredited schools still required courses covering the knowledge base as well as the skills associated with reference services. The changes in curriculum that responded to those in the culture of reference service included issues such as: the philosophy of reference service -which allows curriculum to stay relevant as the culture of information keeps evolving- the role of librarians or information professionals as information intermediaries in need of honing their communication skills, interpersonal relationships and the developing educational skills in order to provide valuable instruction to patrons.

When questions regarding what constitutes "core" knowledge in LIS arise, many turn to those aspects defined by professional associations, most notable among them International Federation of Library Associations (IFLA) (Chandler, 2001; Raju, 2003) and Reference and User Services Association (RUSA). According to these associations the topics germane to reference education and reference work are those that deal with assessment of information needs, research analysis and interpretation of information.

The question of what to teach in reference courses is also one that is present in many researchers' mind; with many pointing out the difficulties of teaching the course in a world that is trending more and more towards the electronic and the varying nature of the reference services provided throughout different information organizations, which today expand beyond traditional libraries (Agosto et al., 2010; Bossaller and Adkins, 2011). In recent explorations of the role of reference courses in LIS, the centrality of the "reference" course, was reinforced when many

professional librarians mentioned this course as the main way in which they encountered topics of customer service (Colón-Aguirre, 2017). As a service profession this aspect shouldn't be neglected. But LIS education also needs to accommodate for ways of working of different fields in which students might find themselves employed. That is, in an ever-expanding education universe full of interdisciplinary collaborations and also one in which LIS education has expanded and enriched itself with knowledge from fields beyond itself and the social sciences, what place does reference courses have?

RESEARCH METHODS

This study analyzes the reference course offerings in 45 ALA accredited LIS programs, specifically those designated as MLS (Master of Library Science). This analysis focuses on the required nature of the reference course the course's title, description and the activities and readings required in the available syllabi as units of analysis. This project employed a content analysis with constant comparative method (Glaser, 1965) in order to analyze the titles, descriptions and the syllabi, as well as to uncover the patters that will help inform how reference courses currently exist and are conducted in the field. This method allows the researcher to consider all of the units of analysis in comparison with each other, and was fundamental in the creation of the codes which were then clustered together in order to form a larger pattern.

The course titles, course descriptions and syllabi were all collected from information freely available online. The list of programs to be analyzed was created based on ALA's directory of accredited programs in North America. Of the original 59 programs listed on ALA's official directory, one was eliminated due to its web site being in French, two were eliminated due to their websites not allowing straightforward identification of core courses and/or course descriptions and one was eliminated due to their website being out of order. Seventeen (17) Syllabi were selected for this study, which included readings and assignments for the courses.

FINDINGS

Reference courses are still offered in a majority of MLS programs in North America, and it is required (or considered a "Core") course for 45 out of the 55 programs analyzed. Table 1. provides a brief overview of the terms commonly used in course titles and descriptions. Despite their prevalence what is generally referred to as a 'reference' course is rarely named "Reference" with the most common term in both the description and the titles being "Information." This can be somewhat expected in a field which now self-identifies as "library and information science" (LIS).

Further analysis of the course descriptions focusing on the concepts around "information" mentioned in each one of them provided further points that demonstrate the position reference courses occupy in the LIS curriculum. The pattern identified consist of two levels. The first level was made of the most common concepts mentioned, namely: information sources, information needs and information services. These concepts basically identify what can be described as the "trope" of reference: creating and providing *services* that connect people to information *sources*

in order to satisfy their information *needs*. The second level of this pattern consisted of concepts dealing with information in terms of: behavior, use, literacy, and access. These concepts directly reflected those identified in RUSA's definition of *Reference Transactions*. Although similar to the concepts in Level 1, the concepts in Level 2 are more specific to the day to day performance and execution of reference work; they are more concrete to reference practice, whereas the concepts presented on Level 1 are more abstract and general.

Table 1. Reference Course Names and use of Important Terms Used in the Titles and Descriptions of Required Reference Courses

Required Reference Course or Core Course			
45 of 55 (82%) Programs require a reference course as part of their MLS curriculum			
Common Terms in Title		**Common Terms in Course Description**	
Users	8	Users	23
Reference	9	Reference	24
Services	27	Services	37
Information	39	Information	40

One aspect gathered from the analysis of the syllabi, course readings, mirrors those principles related to course descriptions in terms of emphasis on service provided to patrons employing information sources. However, the most commonly listed text books were those that explicitly mention "reference" in their title. Including the two most predominant titles both called *Reference and User Services: An Introduction* one by Kay Cassell and Uma Hiremath the other by Linda Smith and Melissa Wong. The importance of technology and information seeking employing electronic platforms was an aspect reflected in the required text books as well, with Suzanne Bell's book *-Librarians Guide to Online Searching-* as another predominant text book required in the courses.

The balance among Level 1 concepts of users, services and sources of information is further reflected in the nature of the most common assignments. Among these the Reference Question Set, in which students search for answers to a specific set of reference questions. Another predominant assignment was the creation of a pathfinder for a specific topic, and a third one was the evaluation of a reference transaction, in which students ask questions as a patron either to a classmate or to a professional librarian and then evaluate the overall transaction. In most syllabi analyzed, these assignments represented the bulk of the evaluation criteria. With the reference question set required in all of the syllabi gathered.

CONCLUSIONS

This study set out to determine the place that reference courses have on LIS education, a field that has been deeply influenced by related fields, and which draws from these in order to define itself. As seen here, the reference course, which can be seen as a heavy influencer in the service roots of the LIS profession, is still required or considered a "Core" course throughout the

majority of ALA's accredited programs. This despite the fact that the course title and descriptions are more likely to contain the term "information" in them, and the use of the word "reference" is rather rare.

Upon closer analysis the term "information" is mostly employed in course descriptions as a concept, most of those used in the descriptions are congruent with those related to Reference Transactions put forward by RUSA. This aspect is not surprising, as this is the organization that serves as an authority in the field. However, the field's preference for more abstract concepts around "information" in order to name and describe the courses that are, at their core, related to reference is one that has implications for course design. The prevalence of the use of these concepts points to a trend in which the field favors terms that afford more flexibility in a fast-changing, heterogenous field of study, but as LIS educators we should not overlook the importance of how we define ourselves and our work.

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(Re)Discovering LIS Education Identity, Image, and Purpose in Engaged Scholarship

Laurie J. Bonnici[a] [lbonnici@ua.edu] and Jinxuan Ma[b] [jma4@emporia.edu]

[a]University of Alabama

[b]Emporia State University

ABSTRACT

A growing body of higher education institutions has redesigned learning, discovery, and outreach missions to deepen their engagement with communities. Engaged scholarship promotes partnerships of faculty, students and communities putting knowledge and skills to work on critical challenges. Engaged scholarship speaks to the heart of LIS education with concerns for community information provision, preservation of cultural heritage, and social justice. This paper addresses: 1. findings from an ongoing study of public library participation in two community public health projects (Blue Zones) and 2. qualitative feedback from the research team on engaged scholarship approach to conducting the research with community leaders.

TOPICS:

Community engagement; Public libraries; Information services; Community-led services

INTRODUCTION

We [LIS education] are challenged by the "increasing difficulty in maintaining coherence of identity, image, and purpose". (Cronin, 2002, p. 9). This is reflected in past, present, and future changes to the discipline. Information scientists finding academic home in library education programs in post-WWII higher education marked the beginning of LIS education and promised ensuing changes (Burnett & Bonnici, 2006). Advent of the Internet in the late 20th century ignited a LIS education rebranding movement. Ubiquitous access to information through computers posited the unsettling question regarding relevance and needs for traditional libraries. In response, many LIS schools abandoned the 'L' opting for labels of information science reflecting modernized information access and subsequent student recruitment beyond interests in librarianship. Y2k ushered in the iSchools movement inviting interdisciplinary faculty, diversified curricula, and increased focus on funding for faculty research (Bonnici et al., 2009). More recently, LIS schools promote niche programs to the likes of big data, archival studies, and social justice. Changes remain centered upon preparing LIS professionals for meaningful practice. Standards for accreditation of Master's programs in LIS continually ensure responsibility to prepare practitioners while straining meaningfulness of LIS Education within the academy entrenched in goals of research, teaching, and service (Burnett & Bonnici, 2006). Ubiquitous pressures that drive change rekindle Cronin's insight haunting, taunting, and provoking LIS education to find its "coherence of identity, image, and purpose" (Cronin, 2002, p. 9). The dawning of 2018 marks a major LIS education conference theme beckoning LIS educators and practitioners to reflect and act upon 'The Expanding LIS Education Universe.'

FINDING COHERENCE—ENGAGED SCHOLARSHIP

A recent movement among a growing body of higher education institutions is the notion of engaged scholarship (ESC, 2017, para. 1). These universities have redesigned their learning, discovery, and outreach missions to deepen their engagement with communities. An engaged institution is responsive to ongoing and growing student needs. Student experience is enriched by curricular inclusion in faculty research while offering practical world experience. In sum, engaged scholarship involves partnerships of faculty, students and communities to put knowledge and skills to work on today's most critical challenges (NASULGC, 1999). Engaged scholarship, with its focus on university-community partnership, was borne out of the community engagement movement of the late 1990s. Community engagement is the process whereby a community benefits from organizations and individuals building permanent relationships that apply a collective vision for the benefit of said community (ATSDR, 2015). For LIS practice, community engagement is exemplified by library-community collaborations to promote progress. In turn, LIS engaged scholarship involves faculty, students, and community partnerships to improve communities. Engaged LIS scholarship is the foundation for preparing graduates for community engagement.

BUILDING COMMUNITY—TO EXPAND THE LIS EDUCATION UNIVERSE

An umbrella unit within the academy, engaged scholarship offers legitimization, fit, social and potential financial support to academic disciplines choosing to engage in their communities. No other academic discipline has seemingly embodied this notion at its core, sans labeling with these fashionable statements, than LIS education. Libraries have been entrenched in communities for more than 5, 000 years starting in Asia (Murray, 2012). LIS educators working with community institutions under the auspices of the engaged scholarship movement find legitimacy and support through broader university connections, potential cross-disciplinary collaboration, seed funding for pilot projects, and publication venues for research findings.

This proposal demonstrates the potential of engaged scholarship in a two-part process:

1. continued research of the public library's role in a planned community health initiative;
2. faculty, student, and community intentional reflection on the engaged scholarship process.

Part 1: Is the public library in the Blue Zone (Part II) …NOT! A 2016 study of public library involvement in the Blue Zones (BZ) movement presented at ALISE 2017, and subsequently under peer review in *The Library Quarterly*, is an example of engaged scholarship. The primary research question from the initial study was: What is the role of the public library in planned community health initiatives? A major finding was that the libraries in two established BZ communities was not involved in the planned program. The two library administrators remain puzzled and concerned that their institutions are absent from planning and engagement in a community wellness initiative. Although the administrators admit they did not exercise inquiry to engage, they ponder why their community leaders have not regarded them as viable players in the BZ movement.

The researchers turn the scope of inquiry upon community leaders to understand the lack of public library inclusion in a tax-funded, community-wide movement. Interviews with community

leaders including mayors, city and county lead administrators, BZ community partners, and BZ project directors in each of the two BZ community cases address the following RQs:

- What is the perspective of community leaders on the role of the library in community health initiatives?
- How do budgets impact library engagement in special community projects?
- How does the division between city and county administration impact library community engagement in planned community [health] initiatives?

In a unique approach, the researchers invited the administrators of the two BZ community public libraries to collaborate on developing guiding interview questions for the subsequent study (Summer 2017). The strategy will inform public library administrators' communication strategies with community leaders for strategic inclusion in planned community [health] initiatives.

Part 2: Engaged scholarship process. The project is designed around engaged scholarship philosophy. Student experience is enriched by curricular inclusion in faculty research offering practical experience in the world they will enter upon matriculation. The two faculty researchers are joined by two LIS students forming a team with the two public library administrators interviewed in the first study. The team will develop research instruments, interview community leaders, and analyze findings to garner a broader perspective of the information provision phenomenon prevalent in the BZ movement (Summer/Fall 2017). Team meetings will be recorded and analyzed by the team (reflexive inquiry) to determine the impact of LIS engaged scholarship on research, learning, and community building. Three additional team meetings (Fall 2017) will focus on the learning process garnering faculty, student, and LIS practitioner perspectives on library community engagement strategies for growing and strengthening communities. Findings will fuel discussions probing opportunities for LIS education in the engaged scholarship paradigm.

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The Role of LIS Schools in Ongoing Professional Development

Mary H. Moen[Mary_moen@uri.edu], Valerie Karno [vkarno@uri.edu],

and Lauren H. Mandel[Lauren_mandel@uri.edu]

University of Rhode Island

ABSTRACT

Continuing education is critical for library professionals to keep relevant. Challenges for the LIS community are to identify key areas to increase professional knowledge and skills, and to determine the best delivery format. This study explores ways to broaden the impact of Media Smart Libraries, an IMLS grant program, that focused on advancing the digital and media literacy skills of practicing youth librarians. This qualitative study engages library professionals to identify competencies, delivery methods, and ways a regional LIS school can broaden its support professional learning.

TOPICS:

Continuing education, Education programs/schools

INTRODUCTION

In this age of libraries transforming, continuing education is a necessity for library professionals to keep relevant. Ongoing challenges for the Library and Information Science community are to identify key areas to increase professional knowledge and skills and to determine the best ways to deliver professional learning. One of the goals of the Media Smart Libraries (MSL) grant, funded in part by the Institute of Museum and Library Services and awarded to the Graduate School of Library and Information Studies (GSLIS) at the University of Rhode Island, was to increase the digital and media literacy skills of practicing school and public youth librarians. Through a partnership with the Rhode Island Office of Library and Information Services and the Providence Children's Film Festival, the grant project provided two years of continuing education workshops on digital and media literacy competencies for librarians serving children and teens. An evaluation of the program indicated that practicing librarians are motivated to continue their learning in topics they consider important in servicing today's user needs and behaviors.

LITERATURE REVIEW

Continuous professional learning is the acquisition of professional skills and knowledge beyond those required for initial qualification and learned in formal programs of education (Rafiz, Jabeen, & Arif, 2017). Librarians in all phases of their careers have reasons to continue their education. A librarian freshly graduated from a LIS program may want or need additional education for their first professional job. Professional learning can facilitate a mid-career librarian's chance for promotion. For senior staff, continuing education may be needed to stay up to date in the field from a multitude of angles (Chapelle & Wark, 2014). According to Cromer and Testi's (1994) study, within 10-12 years of receiving formal education, most information

professionals are about half as competent to meet the demands of the profession as they were at graduation. With the rapid technological advances of the past 20 years, the amount of time an information professional's knowledge and skills get out of date is likely much quicker, accentuating the need for continuing education.

Workforce training benefits both the library employee and employer. Training increases skills, enhances professional and personal knowledge, supports career growth, and helps develop professional social networks to share ideas (Hamid & Soroya, 2015). A library organization's success is indirectly related to training of their staff because their increased knowledge and skills can reduce inefficient use of time and money (Hamid & Soroya, 2015), and result in services that better meet user needs, ultimately demonstrating the library's value in the community. Moreover, Hall-Ellis and Grealy (2013) argue the need for a professional development system starting with LIS programs and continuing throughout careers. LIS programs move students from novice to advanced beginner. Once in the field, the responsibility to move professionals from advanced beginner to competent and beyond should then be a joint effort of the employee, employer, professional organizations, and LIS schools.

Ongoing challenges for the Library and Information Science community are to identify key areas to increase professional knowledge and skills and to determine the best ways to deliver professional learning (Harhai & Krueger, 2016). The MSL grant was an IMLS National Leadership grant with the goal of providing continuing education in response to a needs assessment of youth and school librarians and their self-reported lack of digital and media literacy knowledge and skills (Hobbs, 2014). During a two-year period, 50 workshops were planned and delivered, with approximately 300 unique librarians attending with many attending more than one. Participant evaluations were completed at the end of each workshop and on a scale of 1 – 4, with 1 being strongly disagree, 2, disagree, 3, agree, and 4 strongly agree. The average rating for the category *workshop delivery*, was 3.62 (Gracia, 2016). *Workshop delivery* included items such as the workshop topic were interesting and important, the facilitators background/expertise enhanced the quality of workshop, and the workshop climate showed respect for participants' ideas and contributions. These findings suggest the potential for LIS schools to offer relevant and quality continuing education opportunities.

RESEARCH DESIGN

In order to explore methods to continue and broaden the impact of the MSL grant program, the grant team is conducting a qualitative study with library professionals from all six New England states to investigate 1) What competencies do library staff see as important for practicing professionals? 2) How do practicing librarians prefer delivery of professional learning? And 3) What role should a regional LIS school play in supporting continuous professional learning?

So far, this research study has included 27 library staff members who volunteered to participate after attending a continuing education workshop on Stop Motion Animation in September 2017. Informed consent was obtained from all participants. The data collection was completed by the research team who also facilitated the preceding workshop. The workshops were held at centrally located facilities in Vermont, New Hampshire, and Connecticut. At the time of this paper's submission, data collection was in progress. Additional data is planned to be collected

in Maine, Massachusetts, Rhode Island and at the New England Library Association Conference in October, 2017. Preliminary findings are reported here based on data collected to date.

This qualitative research study used the focus group interview method. Data was gathered during one hour sessions in which participants engaged in several hands-on activities; a gallery walk, a brainstorm session, and participation in a consensogram. The gallery walk was used to collect participants' written ideas on necessary knowledge and skills of different types of library staff. Large posters were hung on the walls, each depicting one of four different library positions, a) Children's/Teen Librarian, b) Adult Services/Reference Librarian, c) Library Staff, and d) Library Director. Participants were split into four groups and assigned a position to start. The researchers gave every participant post-it notes and a pen. Participants were instructed to take two minutes to write down what they thought were necessary knowledge and skills for the position. Participants could individually post an idea, but if they agreed with someone else's idea, they were instructed to put a star on it to give it a second vote of support. After a timed two-minute interval, groups moved to the next position and the process was repeated until they had cycled back to their starting position. Participants were then given two minutes to review what others had posted and arrange them by common theme. Participants then took turns reporting out their findings.

A consensogram and worksheet were used to gather participants' preferred learning formats. There were eight learning formats (not mutually exclusive), with the option for participants to add their own ideas. The learning formats were: a) one shot workshop, b) series of workshop over several weeks, c) face to face, d) combination of face to face and virtual sessions, e) webinar, f) face to face university course, g) online university course, and h) post-graduate 12 credit certificate. Ten minutes were allotted for participants to discuss with a partner the pros and cons of each learning format and record them on a worksheet. Next, each participant was given six circle stickers and instructed to use the stickers to "vote" for their preferred learning format. The participants voted by placing the stickers in the learning format category indicated on a large poster attached to a wall. Participants were instructed to use all six of their stickers and had the option to place as many stickers as they wanted into any category.

PRELIMINARY FINDINGS

Data from the gallery walk was analyzed using the inductive content analysis method. Data was organized by common theme. So far, six themes have emerged amongst the four library roles: a) personal traits, b) inter-personal skills, c) understanding patron/community needs, d) core library services, e) library management, and f) technology competencies. See Table 1 for alignment of library roles to knowledge and skill sets needed.

Table 1. Common Themes in Knowledge and Skill Sets for Library Staff Positions

| Knowledge and skill sets	Library staff positions			
	Children's/Teen Librarian	Adult Services / Reference Librarian	Library Staff	Library Director
Personal Traits	✓		✓	✓
Inter-personal Skills	✓	✓	✓	✓

Understanding Patron/Comm	✓	✓		✓
Core Library Services	✓	✓	✓	
Library Management		✓		✓
Technology Competencies	✓	✓	✓	

A content data analysis of the gallery walk post-it notes was done using the inductive approach. Knowledge and skills clustered around four to five distinct roles for each library position. Table 2 shows details of the characteristics that made up two of the roles of a Children's/ Teen Librarian.

Table 2. Example of Knowledge and Skill Set Needs of Children's/Teen Librarians

Broad Category	Specific Role	Examples
Core Library Services	Reading/Literacy Coach	Early literacy skills Juvenile/YA and Adult literature Collection Development Knowledge of appropriate resources Programming
Understanding Patrons	Child/Teen Development Expert	Growth mindset Brain development Child/Teen development Emotional intelligence

Learning format preferences were collected through the consensogram activity. The number of stickers applied to each category provided quantitative data and the preliminary results are illustrated in Figure 1 below.

Figure 1. Preferred Learning Formats
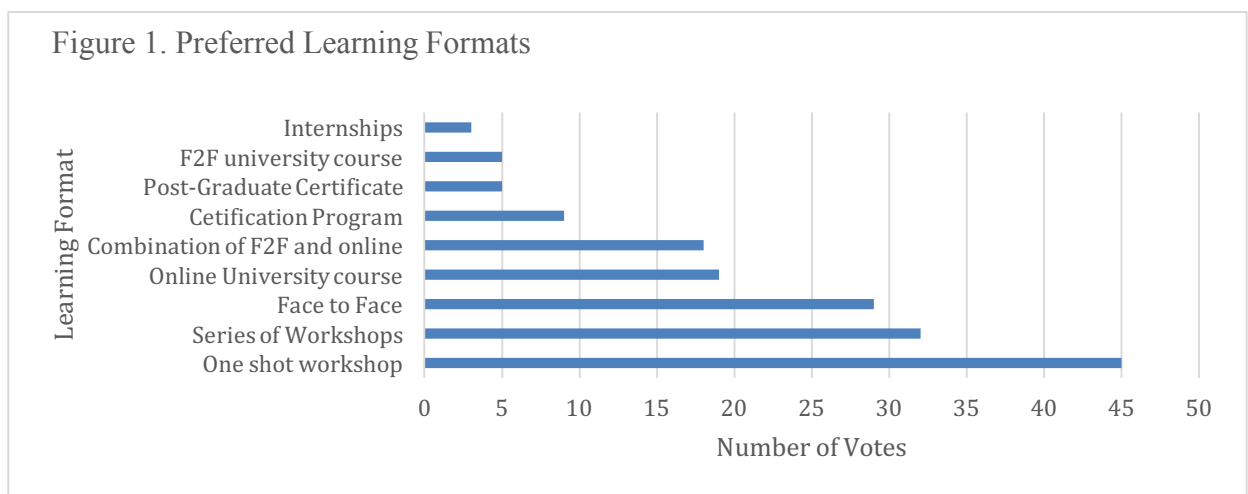
In groups of two or three, participants brainstormed the pros and cons of each learning format. The inductive content data analysis method was used to create meaningful clusters of ideas. Figure 2 shows an example of the pros and cons of the one shot workshop format, the most popular format reported so far.

Figure 2. Pros and cons of a one shot workshop
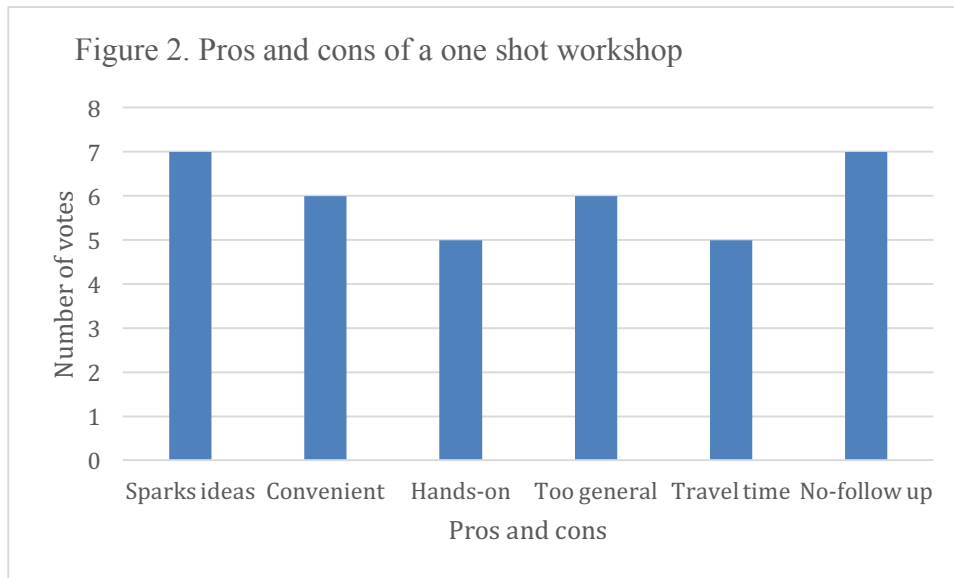
NEXT STEPS

This research study is a work in progress. Additional data will be collected at the New England Library Association Conference and at additional workshops held in New England during the fall of 2017. Once the data collection phase is over, a more detailed data analysis and discussion of the results will be completed. The potential significance of this study is that it will inform how a regional ALA-accredited LIS school can work with library professionals and organizations to develop and support continuous professional learning. Possible impacts of this study are twofold. First, it may provide evidence to drive curriculum changes for a regional LIS school to better prepare students for success in the job market. Second, it may strengthen partnerships among library organizations to support the LIS community's basic need for continuing professional learning.

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So Far Away: Expanding the Boundaries of LIS Education to Include Rural Students

Sue Kimmel, Elizabeth Burns, and Jeffrey DiScala

Old Dominion University

ABSTRACT

While online education has expanded the reach of LIS education to rural areas, we need to expand the boundaries of library education beyond a "metropolitan-centric" curriculum. Rural libraries represent geographic and economic diversity and an under-served need for access to 21st century library resources and professionals. We share findings about the perspectives of rural students educated in an online cohort to become school librarians. Some distances were overcome through relationships developed in the cohort and by harnessing social media and other technologies. Closer to home, family and community relationships were also powerful resources to be leveraged in our LIS programs.

TOPICS:

Online learning; School libraries; Community engagement

INTRODUCTION

The rural landscape often includes expansive views of farmland, woods, and open spaces. Murray (2016) describes rural life as offering decided advantages for connection and a space where community might rally together, for example, to build a new library. But this geography is also often seen as a barrier to access for professional development (Kendrick, Leaver, & Tritt, 2013; Little, 2017) and graduate education (Kymes & Ray, 2012; Mellon & Kester, 2004) in the library field. Rural librarianship is fraught with challenges of isolation, small size, and distance (Freeman, n.d.).

Distance education expands the opportunities of rural residents with the promise of access to online webinars, courses, and graduate programs (Kymes & Ray, 2012; Little, 2017; Mellon & Kester, 2004). In turn, LIS education should also expand the boundaries of our programs away from a "metropolitan-centric" curriculum (Roberts, 2017) to be more inclusive of the rural perspective on librarianship and library education.

Rural school libraries represent a particular kind of geographic and economic diversity and have an under-served need for access to 21st century library resources and school library professionals. K-12 students in rural areas are less likely to have a school librarian with a master's degree than those in urban or suburban regions (National Center for Education Statistics, 2006). In Virginia, many rural counties face poverty levels well above the state average of 11.3 percent, with the county's highest poverty level at 26.8 percent (Index Mundi, 2017). Strange (2011) notes the inequities of federal Title One funding to rural schools, citing

Virginia's Lee County Public Schools particularly (p. 15). K-12 students from schools of poverty also have fewer school library resources including staffing, new materials, and access to school libraries (Pribesh, Gavigan, & Dickinson, 2011). Teachers in these areas also face lower professional salaries and geographic and professional isolation (Mollenkopf, 2009).

Purpose and Methodology

While online education has expanded the reach of our programs to rural and remote areas, it is necessary to expand the boundaries of our thinking about librarianship and library education and explore the unique challenges of school library professionals in rural areas. Through an IMLS grant [#RE-01-13-0008-13], NextGen, coupled with an online program, Old Dominion University was able to provide financial, academic, and mentoring support to a cohort of 11 school library candidates drawn from rural, western regions of Virginia. These students, who were classroom teachers, were educated as a cohort to fill positions as school librarians and as leaders in their communities and the profession. In this case study, we seek to understand their perceptions of distance education, particularly as rural students, and the features of an online program that promoted professional connections. The following research questions guided the study:

- What are the perceptions of these participants about the experience of engaging in the activities of an online cohort, including coursework, fieldwork, and opportunities to participate in state and national conferences?

- What do participants report regarding outcomes of the online experience, including changes in employment, leadership, and professional engagement?

Participants in this study included the 11 NextGen students and the two practicing school librarians assigned to work with them as mentors. The data sources for this study were interviews with the 11 students who completed the program and the two mentors. Interviews were conducted online through Adobe Connect and transcribed. Transcriptions were analyzed using a qualitative process of coding and developing themes across the participant responses. The three researchers independently coded each transcript and then met to discuss discrepancies and develop a final coding scheme. Our preliminary themes are discussed below.

Findings

So Far Away Distance from the university and each other was an ever-present concern for the participants. Students discussed challenges trying to connect with each other and with their mentors, as well as limited opportunities to get together face-to-face with faculty. Even the distance to travel to regional conferences that were designed to be closer to participants was viewed as prohibitive. While students were assigned mentors in their region, they were unlikely to meet these mentors in-person. This led to weak mentor relationships and furthered feelings of isolation.

Rooted in This Place Students expressed deep connections to the communities where they lived. More than half of the students have yet to find employment as school librarians because

they are unwilling to move away from their communities. Advertised positions are further away than students are willing or able to travel. Community was also mentioned relative to course assignments; many students spoke about those assignments that required them to learn about and work within their communities as particularly meaningful. Additionally, due to the distance from other classmates, faculty, and mentors, students often fell back on their local librarian for assistance.

Building Bridges Despite distances, the support structures built into the program and learning community that was fostered created a means of engagement for the students. Students frequently mentioned class assignments that required them to work with each other and the design of the cohort model as powerful mechanisms that strengthened relationships. These relationships have continued to endure after the students' graduation as both friendships and professional support. Distances have been overcome through phone calls, texting, Facebook, and Twitter.

Implications

This cohort of students provides a unique perspective regarding the opportunities and challenges found in the preparation of 21st century librarians for rural areas. Their experiences and perceptions remind us of the importance of geography. Some distances can be overcome through relationships developed in a cohort and by harnessing social media and other technologies. Closer to home, family and community relationships are also powerful resources to be leveraged in our graduate courses and LIS programs. The findings of this case study help LIS programs explore practices best implemented to engage and connect with a diverse set of students, particularly those in outlying rural areas.

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STEMming the Tide:
Trends in Librarians' Educational Backgrounds

Rachel Ivy Clarke, Syracuse University School of Information Studies

ABSTRACT

Discussions of diversity in American librarianship usually focus on gender or ethnicity, but historical studies also show a lack of diversity in educational and disciplinary backgrounds. Librarians traditionally hail from the humanities, especially English and history. But as current educational attention shifts to science, technology, engineering and math (STEM) fields, are librarians reflecting this change? This paper explores the educational and disciplinary backgrounds of contemporary librarians. Anonymized data from ALA-accredited graduate programs from the last five years was collected, coded, and classified to determine librarians' educational and disciplinary backgrounds and what ways, if any, they differ from the past and from the contemporary general population.

TOPICS

Education of information professionals; Sociocultural perspectives

INTRODUCTION

In recent years, increased attention has been paid to diversity in librarianship, or discussions of the lack thereof. While many of these discussions have focused on gender or ethnicity, other factors such as educational and disciplinary background, also contribute to diverse perspectives. This is especially true in places where the master's degree serves as the professional criteria for the field, presuming previous undergraduate education in a specific area of study.

Historical background

Early studies found English to be a predominate focus of librarians' undergraduate educations (Bryan 1950; Douglass 1957). White and Macklin (1970) found "the large majority [of library students] are from liberal arts backgrounds, with English and history being the two largest concentrations." Denis (1970) reported similar findings for Canadian public and academic librarians at the time, with no significant differences between the two types of librarians: "the educational background of the vast majority of respondents is in the humanities and to a lesser extent the social sciences." Subsequent studies showed that librarians across the board came from predominately liberal arts educational backgrounds (Brown 1988). Studies began to focus on narrower slices of librarianship, such as one's role or position in the library, or librarians in subject-based libraries, but little changed in librarians' educational backgrounds (Reynolds 1982; Karr 1983; Mech 1985). Cain found the fact that nearly 60% of undergraduate degrees are in the

hard sciences: "they indicate that we have a fairly narrow educational perspective from which to examine issues or approach problems" (Cain 1988).

Of these small numbers of librarians with STEM backgrounds, many appear to choose specialized positions in science-related settings (Thomas 1988; Sandy, Lembo and Manasco 1998; Winston 2001; Ortega and Brown 2005). Winston acknowledges the overall propensity toward humanities backgrounds in librarianship and how science librarians buck this trend: "In a profession in which English and history majors are the most predominant, the academic science and engineering specialty includes more science majors, as well as those with more traditional backgrounds." However, Winston still notes a lack of diversity within STEM backgrounds—specifically the lack of engineering education. Additionally, if the already limited numbers of librarians with STEM backgrounds go into specialized positions, it removes them from the larger pool of librarians serving broad communities, leaving that pool more homogenous.

RESEARCH PROBLEM AND QUESTION

This historical examination clearly shows librarians skewing heavily toward backgrounds in English, the humanities, and social sciences. But contemporary librarianship needs to represent and reflect the diversity of today's patron bases. An increased focused on science, technology, engineering and math (STEM) fields is underway, with employment in these fields growing significantly faster (24.4%) than non-STEM jobs (4.0%) (U.S. Department of Commerce 2017). To support such changes, we need a more educationally diverse library profession. What are the educational and disciplinary backgrounds of contemporary librarians? In what ways, if any, do the educational and disciplinary backgrounds of contemporary librarians differ from those of the past, or from the contemporary general population?

METHODS AND APPROACH

To answer this question, this paper will explore the educational and disciplinary backgrounds of contemporary students enrolled in master's level library education programs. Although students are not yet librarians, they represent a picture of the near-future of the profession. Anonymous de-identified data about matriculated students' year of enrollment, previous undergraduate and graduate degrees, and the areas of study for those degrees from the last five years was solicited from 60 ALA-accredited master's programs in the United States, Canada, and Puerto Rico. The collected data was coded and classified based on both broad disciplines (e.g., humanities, social sciences, STEM) and specific degree subject, using both an inductive coding scheme as well as the U.S. Department of Education's Classification of Instructional Programs (National Center for Education Statistics 2010). The presentation of this paper will offer a descriptive picture of the educational and disciplinary backgrounds of contemporary librarians as well as any notable differences from past profiles and the contemporary population at large. Implications of these findings will also be presented. Beyond simply identifying librarians' knowledge backgrounds, this project ultimately aims to identify specific underrepresented areas of study to be targeted for outreach and recruitment to the profession.

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Teaching the ACRL *Framework*: Reflections from the Field

Melissa Gross[a], Don Latham[a], and Heidi Julien[b]

[a]Florida State University
[b]University at Buffalo

ABSTRACT

This paper relates to expanding the LIS Education Universe through exploration of the experiences and perceptions of academic librarians as they work to incorporate the *Framework* into information literacy instruction. This presentation will offer a brief summary of the salient findings from a 2016 survey of instructional librarians and semi-structured interviews with 15 academic librarians to explore their experiences and perceptions as they work to incorporate the *Framework* into their instructional practice. Discussion includes implications for LIS educators who are preparing students to work in academic libraries, and research needs related to the *Framework* and how it is taught.

TOPICS

Education; Information literacy; Academic libraries; Students

INTRODUCTION

This paper presentation relates to the conference theme of expanding the LIS Education Universe through exploration of the experiences and perceptions of academic librarians as they work to incorporate the *Framework* into information literacy instruction.

BACKGROUND

The recent adoption of the new Association of College and Research Libraries' (ACRL) *Framework for Information Literacy for Higher Education* (ACRL, 2016) is a paradigmatic change in thinking about how information literacy instruction should be approached at the college and university level. The *Framework* moves away from a "competency" approach to teaching and assessing information literacy skills and promotes a view of information literacy as an exploration of six threshold concepts and the practices and dispositions they evoke. These threshold concepts are (ACRL, 2016):

- Authority is constructed and contextual
- Information creation is a process
- Information has value
- Research as inquiry
- Scholarship as conversation
- Searching as strategic exploration

While the development of the new *Framework* was several years in the making, it does not address how to implement the *Framework* or how to assess students' assimilation of the central concepts and related practices and dispositions. Rather, the *Framework* leaves these issues in the hands of librarians and other campus stakeholders (ACRL, 2016). To fill this gap, articles by researchers and librarians are beginning to appear in the LIS literature (see Bauder & Rod, 2016; Carncross, 2015; Franzen & Bannon, 2016; Hosier, 2017; Jacobson & Gibson, 2015; Scott, 2016, 2017a, 2017b). However, there is much to be known about how academic librarians are incorporating the *Framework* into instruction, the efficacy of the *Framework* to information literacy instruction and learning outcomes, and how LIS educators can best incorporate the *Framework* into the professional preparation of academic librarians.

A 2016 survey administered to academic librarians in the United States gathered data about current information literacy programs, pedagogical strategies, and instructional challenges (Julien, Gross, & Latham, in press). The survey was distributed online via the ILI-L listserv, and 622 librarians with instructional responsibilities in an academic library context participated. Among the findings, respondents indicated that information literacy instruction is only partly informed by the *Framework* and 41% reported that the *Framework* has had no, or only a minor, influence on their practice. Thirty-one percent indicated that the *Framework* has had significant influence on their practice. Some respondents reported now including topics such as social media, open access publishing, images and fair use, and citation metrics in their instruction. The vast majority of respondents see connections between the concepts presented in the *Framework* and their responsibility to raise the level of information literacy among students. However, most instruction remains skills-based and, though increasingly integrating information technology, has yet to incorporate the threshold concepts articulated in the *Framework*. The survey data provides a snapshot of current information literacy practices in higher education in the U.S., but also raises additional questions.

In response, hour-long semi-structured interviews were conducted with 15 academic librarians to explore their experiences and perceptions as they work to incorporate the *Framework* into their instructional practice.

RESEARCH QUESTIONS

The study seeks to address the following research questions:

1. What pedagogical strategies are being used by academic librarians in implementing the ACRL *Framework*?
2. What do academic librarians perceive to be the most successful strategies for implementation of the ACRL *Framework*?
3. What do academic librarians perceive to be the greatest challenges in implementing the ACRL *Framework*?
4. How are academic librarians approaching the evaluation of student learning when implementing the ACRL *Framework*?

The products of this study will include examples of strategies for implementation, a list of challenges in adopting the *Framework*, examples of best practices in integrating the *Framework* into teaching, and examples of how librarians are evaluating student learning regarding the threshold concepts.

SIGNIFICANCE

As the instructional role continues to be emphasized in professional librarians' work in academic libraries (Gold & Grotti, 2013), so it remains important to properly prepare professionals for that role and to understand the practices of instructional librarians. Previous evidence suggests room for improvement in both instructional practices and in the preparation of librarians for instruction (Cooke & Hensley, 2013; Ishimura & Bartlett, 2010; Julien, 2005; Julien, Tan, & Merillat, 2013; Sproles, Johnson, & Ferison, 2008).

The transition from a skills-based approach to a focus on teaching the threshold concepts promoted in the new *Framework* has left many open questions about how to design instruction and evaluate student learning. Understanding how professional practice transitions to this new paradigm will inform library administrators, instructional librarians, and library and information science educators. Ultimately, information literacy instruction is meant to prepare students to navigate and contribute to life in our information rich society. The long-term effects of effective information literacy instruction support our democracy, quality of life, and students' self-identity as life-long learners.

CONCLUSION

This paper will offer a brief summary of the salient findings from the 2016 survey and will focus on reporting findings from the interviews in relation to the research questions. It will conclude by discussing implications for preparing students for work in academic libraries and will discuss research needs related to the adoption of the *Framework* and how it is taught.

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Teaching through Activism: Service Learning, Community Archives, and Digital Repository Building in MLIS Classrooms

Travis L. Wagner and Elise Lewis

The University of South Carolina

ABSTRACT

This paper reflects upon a set of Service Learning (SL) courses taught in the University of South Carolina's Library and Information Science (LIS) program. The classes discussed helped community archives build digital repositories and provided LIS students skills demanded by potential employers, while affording students chances to experiment with technologies and information organization practices in low-risk, innovative ways. While SL is not pedagogically new to LIS instruction, this paper expands discussion on how SL courses translate between undergraduate and graduate students and within in-person and online variants. The paper concludes with an exploration of the ethical challenges of teaching a course that worked with a community archive possessing express feminist politics, necessitating discussions of accessibility, organization and classroom engagement divergent from student's previous experiences.

TOPICS

Pedagogy; Students; Archives; Social justice; Information ethics

INTRODUCTION

Library and Information Sciences (LIS) programs place a heightened emphasis on the attainment of best practices methodologies rooted within idealized versions of future job environments. While laudable for setting noteworthy standards for what the work of an information professional should look like, students rarely experience direct engagement with best practices unless they take on internships, many unpaid. Wrought with ethical questions around the potential of financial exploitation, the unpaid internship nonetheless stands in as a supreme model of student skill-building both inside and outside of LIS programs (Malik, 2014) Further, when placed within internships (often at larger, university libraries and archives), students face systems of information building, sharing, and organizing set within previous administrative standards and cannot test the theories promoted within their archival education, if such education is even available (Cox et al., 2001). Ironically, few archives truly foster perfect best practices and rarely challenge interns to try new and innovative methods to attain such standards, instead setting specific practices internally. This inconsistency grows exponentially as media types expand and archives consist less and less of paper-only collections (Parker, et al., 2016). Simply, traditional cultural institutions retain proprietary practices unique to the respective institution and students find themselves learning to do things in a singular way that is difficult to replicate

outside of their specific internship. As a result, the expected skills of digital repository building, digital asset management, and robust documentation remain outside of the skill set of the recently LIS graduates. Rarely in a current system are notions of best practices complicated. Rarer still are frank discussions around how situational, contradictory, and objectively oriented such best practices are within individual institutions.

Coincidentally, community archives face similar challenges. Dealing with understaffing, outdated proprietary technology, self-taught archivists such spaces approach digital presence challenges through scalable alternatives. This 'by-any-means-necessary' approach runs oppositional to the best practices archival traditions (Caswell et al., 2017). Rhetorically this results in community archives becoming 'lesser archives' given their inability to achieve such standards. Thus, community archives remain spaces deemed non-valid within archival standardization and potentially become undesirable sites of learning for students desperately seeking out spaces of skill building alongside their degrees. More directly, students want a chance to apply in-class theories of archival praxis in new and radical ways and community archives desire methods with which to grow their collections digitally, while employing "radical user orientation" newly conceptualizing access within archival discussions (Huvila, 2008). As such, a space to explore new ways of understanding and building digital archives stands at this intersection and the manner in which the LIS classroom might serve such encounters remains critically underutilized.

METHODS

To address this challenge, Master's students at the University of South Carolina's School of Library and Information Sciences (Hereafter SLI) helped to build a digital repository for a burgeoning community archive within a graduate course. Currently known as Archiving South Carolina Women, the project aims to account for and make available digitally a history of the work of women's activism in South Carolina and, more broadly, The United States. Through reimagining a class that traditionally focused on design and management of digital images exclusively through theories for digital asset management, this undertaking reimagined how such a course looked from a Service Learning (SL) angle. SL, in its structure, focuses on allowing students to learn through praxis, with the classroom becoming a space where students are paired with community partners to help deal with a respective critical need, while, learning skills in the process. Programs commonly built with SL components tend to be those with clear ties to community engagement such as: public health, social work, and international studies. Since many students desire employment in public information sectors, SL easily mapped onto our SLIS courses, providing a chance to illuminate the often underappreciated role of community service within archival practice. Furthermore, as others have shown this pedagogical approach allowed us to navigate complex topics both concerning library praxis while accounting for the ethics of working with diverse communities a well (Wittbooi, 2004; Roy, 2009). The aforementioned Archiving South Carolina Women initiative was a community archive in desperate need of digital expansion and SLIS possessed students within a course that were hungry for hands on skills. The connection was incredibly easy to facilitate. In no small way, SL offered an opening for a new way to think about how LIS programs could aid community archives in a reciprocal manner.

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FINDINGS

Both failures and successes were present from the initial planning on through the implementation of the digital repository. Since most of our students were previously grounded in best practices oriented approaches to digital repository building a redefinition of best practices occurred as they moved towards building a repository from scratch that was scalable, easily operable, and transferrable not only to the community partner (Archiving South Carolina Women) but to future students and volunteers as well. A general, qualitative analysis of student experiences suggest that students found the SL approach rewarding and information far more meaningful that their other course work, a sentiment echoed in both undergraduate and graduate participants. During the course students also came to have a deeper understanding of the technological side of the project management, noting how the long-term operability of the project, meant focusing on more open source approaches to repository building, which resulted in critical, and necessary, discussions about all levels of practice within cultural institutions. Student (and instructor) debates within the various courses included: ethics of cataloging standards, digital preservation standards, copyright, workflow management, and project documentation. Both the students and instructors found the initial topics to be deceptively easy, only to discover that each was riddled with nuance and complexity, especially when issues of funding and labor emerged. These challenges were amplified further by the express feminist nature of the project. Our community partner liaison made her ideas of what the collection should represent clear from the onset and the resulting product had to adhere to such philosophies, meaning that the students were also learning about a historically underrepresented group of people within South Carolina (and digital repositories) by working with activist women in Columbia, South Carolina. At multiple times throughout the semester, the group found itself engaging in conversations about diversity hiring within cultural institutions, the role of privileged narratives within archival history, and an incredibly illuminating discussion about web accessibility as it relates to digital repositories. While both instructors incorporated these ideas into their non-SL courses, it was the first time such discussions grew organically out of the direct work of students, not via pre-assigned discussion topics. In the end, students moved towards an approach to repository building that was transparent, while advocating for the highest degree of mutual beneficence possible. This expanded to include not only their community partner, but their classmates, the collection, and the collection's users as well. Furthermore, the project continues to grow within a SL environment and is currently being offered via an online course, which provides new and challenging discussions around the efficacy of teaching about the materiality of archival labor when faced with a digital barrier and the ability engage in complex political discussions when not looking at students in a face-to-face setting.

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Teaching User Experience (UX) in LIS Programs and iSchools in North America: Challenges and Innovations

Jean Thrift and Rong Tang

School of Library and Information Science, Simmons College

ABSTRACT

This research study examines UX education in LIS curriculum. Out of 67 program websites inspected, 66% offered UX courses. Twenty-six respondents of an online survey reported 37 UX courses that they teach. Syllabi analysis of 42 UX courses provided insights into learning outcomes, session topics, projects, and more. Although instructors believed in the importance of UX in LIS, they saw the value of UX being significantly less appreciated by their schools/programs. Participants' responses regarding final projects, the presence of a usability lab, and the teaching of UX online versus face-to-face, highlighted challenges and innovations in LIS UX pedagogy.

TOPICS

Curriculum; Education programs/schools; Online learning; Pedagogy; Teaching faculty

INTRODUCTION

Background. This study investigates the current state of user experience (UX) education in ALA-accredited library and information science (LIS) schools and North American iSchools. UX is a rapidly growing professional field, yet limited research has examined how UX is taught and positioned in LIS curriculum. This research study provides insight into what and how UX curriculum has been offered as a key segment of information science. Moreover, many LIS schools are shifting toward online learning and beginning to offer degrees earned either partially or completely online. As traditional usability testing is performed in a physical laboratory with an in-person participant and research team, teaching usability and UX research online might present particular challenges. This research study provides further insight into the online UX teaching methods being employed and their effectiveness.

For the purpose of understanding how UX is taught in LIS and iSchools, the researchers of the present study examined school websites to identify UX courses and contacted the instructors requesting that they complete an online survey about their school's UX coursework and submit a copy of their syllabus. Analysis was performed on the course syllabi and survey responses collected.

Literature review. Previous research about teaching UX in LIS schools has been rather limited. Among the few countable published works in the area of UX teaching, three research

studies appear to focus on different aspects of UX teaching with varying groups of participants. Back in 2011, Ameen and Erdelez discovered that despite the growing practice of usability evaluation (UE) in libraries, the LIS literature did not address learning competencies for this topic, and it appears not much has changed in the years since their study. Through a content analysis on UE course descriptions available on 47 U.S.-based ALA-accredited LIS school websites, Ameen and Erdelez (2011) found that 55% of the schools did not have usability as a part of their curriculum. At the time of their study, only 9% of the schools offered a full 3-credit hour course on usability: two were specific to libraries (Florida State University and University of North Carolina at Greensboro), and two were generic to information systems (University of Missouri and Simmons College). The researchers concluded that LIS schools had not yet fully accepted UE as a standard course.

A year later, Bias, Marty, and Douglas (2012) conducted an investigation into the impact/usefulness of usability coursework on LIS graduates' professional experiences. Former LIS master's students from the University of Texas at Austin and Florida State University who had taken a graduate course in usability and were currently employed in the information profession were invited to participate in a survey, and analysis was performed on 84 responses. Bias et al. (2012) concluded that the results reinforced the value of usability for all LIS students and argued for the inclusion of usability/user-centered design as a core course in LIS curriculum, despite the fact that usability analysis is not considered to be one of the core competencies of librarianship (ALA, 2009). They suggested that for usability to transition from an elective to a required course, it would be important to refine content to make it more applicable for all LIS students, with greater emphasis on breadth of application and less on specific methods.

Meanwhile, Jameson (2013) outlined some methods for teaching usability testing in business communication courses. The author suggests that it is easy to teach usability via distance courses now that students can use their personal computers and smartphones to record audio/video of usability tests using the think-aloud protocol method, so are no longer dependent on laboratories with special recording equipment, and they can share results with classmates via online platforms such as Blackboard and YouTube. Jameson (2013) suggests that the closer methods are to professional practice, the more appropriate it is to encourage students to share their findings with the creators of the product tested.

Research questions. Building on previous findings, and in attempt to obtain an updated understanding of teaching UX in LIS programs, this present research attempts to answer the following questions:

RQ1. What is the current state of UX education in LIS programs/schools?

RQ2. What final project requirements do UX courses have?

RQ3. To what extent is the importance of UX as perceived by instructors consistent with their view of how UX has been positioned in the LIS curriculum?

RQ4. To what extent does the presence of a usability lab impact teaching UX in LIS?

RQ5. What do UX instructors perceive as future trends of UX in LIS?

METHODOLOGY

Empirical approach. This research study employed a mixed methods research approach. Quantitative statistics were collected from both the survey and the syllabi content analysis, while qualitative data including course learning outcomes, assignments and projects, and so on, were gathered and analyzed from course syllabi, and the survey included open-ended questions about teaching challenges, opinions on future directions, and more.

Sources of data. Multiple sources of data were included in this study for the purpose of obtaining a comprehensive understanding of the answers to the five RQs for the study.

Review of school websites. Sixty-seven program/school websites were examined, including 58 ALA-accredited LIS programs and nine iSchools in North America. Course catalogs and schedules were searched for UX-related courses.

Survey. Thirty-two respondents participated in an online survey. Of these, 26 indicated that they teach 37 UX-related courses in their schools and their responses were used as valid data.

Syllabi content analysis. Content analysis was performed on syllabi for 42 courses taught by 34 instructors from 24 programs/schools.

RESULTS

State of UX education in LIS. Out of 67 program/school websites examined, 66% (n=44) offered at least one course including UX content. This is an increase from the 45% found by Ameen and Erdelez (2011) six years prior. An average of 1.48 UX courses were offered per school. Syllabi analysis showed that 81% (n=34) were introductory UX courses and 19% (n=8) advanced. Based on survey responses, 38% (n=14) were a requirement of a concentration or degree, and 30% (n=11) were part of a larger series. A majority of the UX courses (73%, n=27) were delivered face-to-face only, whereas 16% (n=6) were both face-to-face and online, and 11% (n=4) were online only.

Meanwhile, the results of the survey indicated that required UX courses had statistically significant higher enrollments (U=74.00, p=.006) and frequency of offering (U=83.00, p=.008) than elective UX courses. Moreover, those UX courses that were part of a larger series had statistically significant higher frequency of course offering (U=87.00, p=.044) than those that were stand-alone UX courses.

Course learning outcomes, session topics, and requirements. Syllabi analysis revealed that the top most frequently appearing terms in *course learning outcomes* include: user experience, information architecture, user-centered, user interface/s, human-computer interaction, user-centered design, interaction design, and usability/user testing. The top most frequently occurring terms in *session topics* include user experience, usability/user testing, user experience design, human-computer interaction, iterative design, heuristic evaluation, data analysis, and universal design. A Wilcoxon Signed-Ranks test indicated that session topics had higher relative frequency in most frequently occurring terms than learning outcomes (z=2.26, p=.02).

With regard to the course requirements, over 70% of courses completed the final project with a team, and close to 30% of the final projects were completed individually. Over half of courses required conducting a UX research study/usability evaluation, and the remaining

required designing an interface or website. One third of the final projects involved working with a live real-world system, another one third involved designing a hypothetical system or product, and more than 15% involved working with a real client. Among the 12 final projects that involved working with a live system, most of them involved conducting user research, yet a quarter involved proposing redesigns, and one final project involved both. All hypothetical systems were design-based projects. Of the final projects that involved working with a real client, these were evenly split between design and research projects. Table 1 provides a summary of the characteristics of UX final projects. Three courses did not have a description of their final projects, so the total number of final projects analyzed was 39.

Table 1. Final UX Project Requirements (n=39)

	Team | Individual	Research Study | Design System	Live System | Hypothetical System | Real Client	Involve practical, hands-on activities
Final Project	72% | 28%	51% | 46%	30% | 27% | 17%	100%

Importance of UX education in LIS. On a seven-point scale with 7 being extremely important, respondents gave an average of 6.42 for their view of the importance of UX for LIS students. An average of 4.65 was given representing their perceived schools' positions of UX courses. Wilcoxon Signed-Ranks tests revealed that respondents' self-perceived importance was significantly higher than their views of their schools' positions of UX courses (z=3.96, p=.00, r=.78). There were significant correlations (Spearman's rho) between school-perceived importance and self-perceived importance (r=.58, p=.00), years of course offering (r=.61, p=.00), frequency of course offering (r=.37, p=.02), and course enrollment (r=.38, p=.02).

Impact of usability lab. Near 30% (29%, n=7) of the institutions had a usability lab or other facility to support coursework. Of the 9 instructors whose institution had a usability lab, five (56%) taught UX face-to-face only, and the remaining four (44%) also taught UX online, but indicated that they did not incorporate use of the lab into the online course.

Mann-Whitney U Tests of the survey data revealed that schools that had a usability lab had a significantly longer history offering of UX courses (U=91.50, p=.04), more UX courses (U=90.00, p=.02), and higher perceived importance by instructors (U=99.50, p=.04) than schools that did not have a lab.

Future UX educational trends. Many respondents acknowledged that they see an increasing demand for online delivery options. However, many also said that personally they prefer face-to-face delivery for this subject matter. Two respondents elaborated on the reasons behind this. One pointed out that, "It would be best to offer it face-to-face because there is a lot of group discussion and idea generation with activities such as drawing, using card sorting, etc." The second participant indicated, "Students do benefit from having some classroom instruction

through which they can interact with physical artifacts created by themselves and their peers and to perform methods face-to-face (e.g., while online usability evaluations are great and good for students to learn, they need to learn to perform face-to-face tests as well, and that is hard to do in an online environment)."

Many respondents foresaw further integration of UX with other areas of LIS education, noting that it is a natural fit with the user-centered nature of LIS. As commented by a respondent, "The UX field should be a good fit for LIS education, since we prepare professionals who will connect information, technology, and people." Another participant claimed that, "LIS education ought to create a synergy between courses that focus on users, their needs, information seeking behavior, information systems products and their design, with that of usability/UX courses."

CONCLUSIONS

As one of the first empirical studies investigating the inner structure of UX in LIS curriculum, findings of this study concerning UX course configurations, the significant impact of a usability lab, and the discussion on the future of UX in our field provided useful insights into the current state of UX education in LIS. There are gaps between UX instructors' views of UX and what they saw as their programs/schools' position of the value of UX. In designing final projects, UX instructors attempted to mirror professional practice for class learning. Further research is needed to assess how successful instructors are in using their UX courses to bridge research and practice. Furthermore, having established a usability lab may have facilitated much richer offers of UX classes, with a large majority of the UX courses delivered on the ground. Nevertheless, UX instructors saw teaching UX online as inevitable. They might, at this point, be unable to fully operationalize what has been taught in a physical, experiential learning environment to a purely online teaching and learning process.

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Team Science: Development of an Immersive Curriculum for Information Professionals to Play an Expanding Role in Scientific Collaboration

Suzie Allard and Danielle Pollock

University of Tennessee, Knoxville

ABSTRACT

Team science addresses scientific challenges through collaboration among scientists from varied domains and expertise. This kind of collaboration presents challenges related to team communication and data sharing. This paper presents the Team Science initiative that focused on preparing information professionals to function efficiently in the team science environment. It provides the framework for the curriculum, the lessons learned from the experiential learning approach to student engagement, and discusses the outcomes from the first cohort of students. The paper also offers lessons learned which can be used as a road map by other schools to develop a team science curriculum.

TOPICS:

Data curation; Curriculum; Specific populations

INTRODUCTION

Team science has been defined as "a collaborative effort to address a scientific challenge that leverages the strengths and expertise of professionals trained in different fields" (NCI, 2012). From the development of the atomic bomb, to the mapping of the human genome, to dealing with complex issues related to climate change and sustainable development, cross-disciplinary scientific teams have applied multiple perspectives and areas of expertise to solving complex problems and addressing scientific challenges (Fiore, 2008; Ledford, 2015).

The conduct of successful team science research has challenges, many of those related to team collaboration and sharing of scientific information (NRC, 2015). Researchers from diverse disciplinary backgrounds often have different vocabularies, research methods, and ways of conceptualizing a scientific problem (Edwards et al., 2011; Ledford, 2015; Stokols et al., 2008). Teams that are not co-located may struggle to share data and information across geographic boundaries (NRC, 2015; Stokols et al., 2008). Further, team science research involves the creation and integration of diverse scientific data sets, often on a very large scale. While good management of this data is essential for successful team science collaboration, scientists' actual data management practices are often inadequate, particularly for the sharing of data across

disciplinary boundaries (Edwards et al., 2011; NRC, 2015; Wolkovich, Regetz, & O'Connor, 2012).

Information professionals naturally fit into many roles in supporting cross-disciplinary, data-driven science and are beginning to be seen as valuable "embedded" members of scientific teams (Federer, 2016; García-Milian et al., 2013; Janke & Rush, 2014; Lyon, 2016). One of these roles is data management and curation. The information professional's unique skills allow her to provide valuable assistance in answering questions such as: how can we assure that new findings are effectively shared, stored, and preserved, particularly among researchers who are facing geographical, subject discipline, and even linguistic boundaries? Who should be in charge of managing information and data resources? How can we ensure that our role in the management of scientific data is recognized and accepted by the research community?

Multiple factors can negatively impact scientific teams, including domain scientists' habits, preconceptions, and lack of familiarity with information scientists' skillsets, and in many cases, information professionals' lack of domain subject knowledge and lack of experience with cross-disciplinary teamwork, scientific workflows, and work environments (García-Milian et al., 2013; Lorenzetti & Rutherford, 2012; Lyon, 2016; Shumaker, 2012). Ultimately, there is still a tendency for librarians and other information professionals to be perceived not as integral team players in scientific research, but as passive observers offering only remote support to data-driven science (Lyon, 2009).

TEAM SCIENCE

Team Science (Data Specialists Enabling Team Science), an information science curriculum initiative, was designed to educate students to become integral members of research teams and to anticipate the data and information needs of researchers, expanding the traditional role of responding to requests for data and information services. The University of Tennessee (UT) was uniquely positioned to lead this effort for two reasons: (1) involvement in the NSF-funded DataONE project (www.dataone.org), a large-scale effort to ensure the preservation, access, use, and reuse of multi-scale, multi-discipline, and multi-national science data, and (2) relationships with a variety of science-intensive agencies such as Oak Ridge National Laboratory. The first cohort of students was admitted to UT in August 2014.

The strong relationships between UT's communication and information disciplines was essential in helping students acquire the skills necessary to negotiate diverse, distributed teams and the expertise to manage the entire research and data lifecycles, from planning through preservation to analysis, and to effectively work with interdisciplinary teams of researchers. The goals of the Team Science program are to provide students with the skills they need so they can:

- Become integral members of research teams throughout projects

- Anticipate the data, information and communication needs of researchers

- Play active roles in research teams

- Transcend traditional approach of waiting to respond to requests for data and information services

- Work as information professionals on large-scale scientific teams

Recruitment. The first Team Science cohort consisted of six IMLS-funded students, three women and three men. These students were chosen to represent the diversity of paradigms one might find on a science team including a computer scientist, a microbiologist, a marine biologist, a geographer, a chemist, and a philosopher. These students represented both disciplinary diversity and diversity in the traditional sense in terms of gender and socioeconomic status (SES). In addition, the cohort had peer mentors of an advanced master's student (chemistry) and a doctoral student.

Lessons learned: While a tight April-July recruitment timeframe may have limited the success of outreach to underserved populations, we were successful in recruiting a diverse cohort and the cohort benefitted from this diversity. Having a humanities scholar with an interest in science and a range of sciences enriched participants' experience since they often learned from the different perspectives of their colleagues.

Curriculum. The Team Science curriculum focused on three core aspects of information professionals' roles. Each of these was a unique area of expertise which was essential for being successful in the team science environment.

(1) **Data management and curation**: Students learned how to preserve data, and also how to advise and assist researchers on data management issues during research planning, data gathering, and dissemination (Foster et al., 2010).

(2) **Communication**: García-Milian et al. (2013) identified five main skills required of information professionals as they engage in cross-disciplinary, multi-institutional team projects: Strong communication skills, willingness to adapt, perseverance in overcoming obstacles, leadership, and inclusive thinking.

(3) **Situational knowledge**: Situational knowledge is knowledge gained from experience. It is often summarized as "We discover what we know from our world." For Team Science, situational knowledge refers to understanding how scientists use information and communicate with one another as well as domain-specific knowledge.

Courses in the Team Science curriculum emphasized skills in all three areas of expertise. (See Table 1.) The program of study included two communication courses outside of the School of Information Sciences (SIS): Organizational & Team Communication and Mindfulness. Courses in bold were required of all students. The rest of the students' schedules were tailored to each individual to help them achieve their own professional goals.

Lessons learned: Designing for flexibility allows for adjustments to externalities (such as a course not being offered in a particular semester) as well as adjustments to best meet individual student needs and learning styles. Preparation for being a team science-enabling professional may or may not focus on data. Requiring courses across disciplines can be challenging, but rewarding.

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Table 1. Courses in the Team Science Curriculum

AREA OF EXPERTISE	SKILLS	COURSES
Data Management and Curation	• Data lifecycle knowledge • Information/Data consulting • Information/Data leadership • Metadata knowledge • Ability to work with range of data types • Confidence as information expert (knowledge of information seeking behaviors; ability to provide information support)	• **Environmental Informatics** • Digital Curation • Information Network Applications • Information Architecture • Geographic Information • Geospatial Technologies • Human Computer Interaction • Collection Development
Communication	• Speak with experts • Write for experts • Learn from experts • Understand organizational context	• **STEM Communication and Information** • **Organizational & Team Communication** • **Mindfulness** • Scientific and Technical Communication • Social Media, Technology and Society
Situational Knowledge	• Observe environmental context • Interact in unfamiliar environment • Manage ambiguity • Express creativity • Provide information delivery and management	• Federal Libraries and Info Centers • Sources and Services for Science & Engineering • Academic Libraries • Sources and Services for the Humanities • ePublication • Management of Information Organizations • Web Development • Research Methods

Immersive education and research opportunities. Student preparation included an immersive experience in an information intensive science environment including these organizations: Oak Ridge National Laboratory (ORNL), which is the Department of Energy (DOE)'s largest science and energy laboratory; the Office of Scientific and Technical Information (OSTI), which leads the DOE's e-government initiatives for disseminating R&D information; and the United States Geological Survey (USGS), a federal science organization that provides information on ecosystems and the environment. In addition, the students traveled to New Mexico to visit the Los Alamos National Laboratory (LANL), Sandia National

Laboratories, the Santa Fe Institute, the University of New Mexico Libraries, a leader in eScience initiatives, and the DataONE offices, where they spoke with over 40 scientists, librarians and other professionals engaged in team science.

Additionally, students regularly met as a cohort and worked together as a team on two professional presentations and on a project developing a proof of concept for a tool that would enable the UT Office of Research and Engagement (ORE) to identify team members for interdisciplinary STEM (science, technology, engineering and mathematics) projects. These experiences expanded the team science curriculum from providing an opportunity to study interdisciplinary teams to providing the experience of being *in* an interdisciplinary team and working together to achieve common goals.

Lessons learned. While these activities required substantial planning, they also provided value to the program that made them worth the effort, including the ability to directly interact and learn from practicing professionals and researchers in multiple fields.

CONCLUSION

All students in the initial cohort successfully completed the program and graduated with a Master's degree in Information Science. Most have since been successfully placed in positions that will allow them to work as members of research teams. Development of the team science curriculum continues at UT and plans are underway to introduce a team science pathway to the SIS program. The success of the Team Science program was a result of many factors including successful recruitment of a diverse cohort of students, the development of a flexible, interdisciplinary curriculum that enabled students to build core skills essential for data management and for working as members of cross-disciplinary teams, and the ability to forge and leverage relationships with other departments and other organizations in order to provide students with a fully immersive experience that enabled them to work as an interdisciplinary team, to participate in research projects, and to learn from and be mentored by professionals working in team science. Schools interested in developing a team science program of their own should consider how they might leverage their own resources to provide an immersive, interdisciplinary experience for information science students.

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Training Knowledge Creation Facilitators: The Alignment of Organizational Needs with LIS Expertise and Curriculum

Darin Freeburg [darinf@mailbox.sc.edu], University of South Carolina

ABSTRACT

This paper outlines three core elements of a curriculum aimed at preparing students to fill the need organizations have for knowledge creation facilitators, arguing that the LIS field is uniquely situated to offer this training. It outlines things LIS students should understand, as well as examples of things they can do to show mastery of this understanding. It centers on recognition of complexity and its value to innovation, the role of conversation in creating the optimal information environment for knowledge creation, and the barriers that must be overcome for information and knowledge to have any real value.

TOPICS:

Curriculum; Knowledge Management; Information Use; Community and civic organizations

INTRODUCTION

The organizations that survive in an environment of continuous and unpredictable change are those that recognize the importance of knowledge creation. They recognize that it is not sufficient to rely on existing information in the form of past solutions and best practices to solve problems, make decisions, and maintain forward momentum. Rather than choose an existing solution from the canon of best practices, organizations need to create *noncanonical* solutions that go beyond what is already codified in manuals and white papers: "A communal understanding . . . that is wholly unavailable from the canonical documents" (Brown & Duguid, 1991, p. 44). This is just as true for large corporations as it is for community organizations.

Yet, there is arguably a lack of graduates ready to take on this facilitation of knowledge creation in complex environment. The focus on developing skills of rational analytic decision-making and planning in business schools has them "sending graduates into an increasingly complex and turbulent business environment without adequately developing their skills to adapt" (Glen, Suciu, & Baughn, 2014, p. 653). The LIS field is uniquely situated to provide research and insight into the best ways for organizations to create knowledge, and its curriculum should reflect that if it is to take advantage of this gap and place students into organizations for the benefit of both students and the economy. This represents an exciting opportunity within the expanding universe of LIS education.

This paper outlines three core elements of a curriculum aimed at preparing students to enter organizations as knowledge facilitators. It outlines things LIS students should understand, as well as examples of things they can do to show mastery of this understanding.

CURRICULAR ELEMENTS

Complexity. The first element is the very awareness of the inevitability of complexity and unpredictability. Students must understand that innovation happens only in the midst of complexity, near the edge of chaos. As living systems, human organizations are in a constant state of flux (von Bertalanffy, 1968). The interaction of agents within the system is too fluid to pin down (Snowden, 2002). And as the environment around them changes, organizations must be able to adapt using self-emergent rules. Ignoring this reality, organizations often get caught in a *vicious cycle* (Stacey, 1996) of continually searching for best practices that will ensure success, despite the inevitable lack of foresight.

Mastery of this understanding comes as students learn how to guide these systems into a confrontation with this complex reality. Using Stacey's (1996) *Control Parameters*, students turn up the rate of information flowing into and throughout the organization, the rate of diversity of agents within the system, and the richness of connections among these agents. These are clearly information and knowledge tasks. And as each is turned up, the organization is nearly flooded with complexity, putting them in a position to innovate.

Conversation. Essential to engagement with these system parameters is conversation. Conversation is where information is introduced and distributed, where the value of diversity is realized, and where the richness of connectivity is required. It was only through conversation that Xerox technicians developed noncanonical solutions for printer problems that went beyond the established and formal solutions manual (Brown & Duguid, 1991). Poor policies continue to be implemented, often, as a result of poor communication that lacks honest and open questioning (Argyris, 1977). Conversation opens up channels to challenge the status quo and coordinate action (Habermas, 1987). Students must understand that, "being in the knowledge business, we are in the conversation business" (Lankes, 2011, p. 63).

One example of showing mastery of this understanding comes as students are taught how to initiate and facilitate Communities of Practice (COPs) (Wenger, 1998). They develop a guidebook for effective CoPs that a) helps these groups decide what they want to be about, b) lays out the ground rules for relationship and effective communication, and c) ties conversation to a practice they want to improve. In these groups, individuals share specialized language from their diverse domains of expertise—what Pask (1975) termed L1 language. Done in the context of a shared conversation, this language is more easily synthesized. As a result, the organization becomes—not simply a place to acquire an existing discourse or identity kit (Gee, 1989)—but a place to create new discourses.

Barriers. Finally, students must be equipped with an understanding of the barriers to information, knowledge, and knowing. Information and knowledge are not nearly as powerful—or valuable—as typically advertised.

First, although the provision of access to information is essential, the barriers to meaningful integration takes much of the power away from information. It is no match for strongly held beliefs (Batson, 1975), pervasive organizational narcissism (Stein, 2003), social norms (Chatman, 1999) or intentional irrationality (Caplan, 2001). These barriers "reduce the value of perceived new information" (Akgun, Lynn, & Byrne, 2007, p. 795).

Second, once integrated as knowledge, it is of little value to innovation unless it inspires action: "We must see knowledge as a tool at the service of knowing not as something that, once possessed, is all that is needed to enable action or practice" (Cook & Brown, 1999, p. 388). And additional barriers to action—or knowing—prove this knowledge to be similarly limited in its power. It is no match for a lack of self-efficacy (Bandura,1982), a belief that there is nothing to be gained from an action (Ajzen, 1985), or a culture unsupportive of a certain behavior (Lewin, 1947).

Mastery of this understanding of barriers comes as students develop strategies to overcome them. They will learn how to present information in such a way as to inspire meaningful integration. For instance, increasing the cost of being wrong about something should increase one's rational search for and integration of information (Caplan, 2001). They will also learn how to manipulate the environment in such a way as to inspire actionable knowing. Several models in public health, for instance, show how to account for variables like self-efficacy to ensure that information about a health condition leads to actual changed behavior to prevent that condition (Witte, 1994; Rosenstock, 1974)

CONCLUSION

Each of these elements is focused on information and knowledge, putting them squarely in the realm of LIS. A new curricular core including these elements will ensure that graduates of LIS schools are well positioned to lead organizations toward innovation. This paper provides a cornerstone upon which curriculum restructuring can take place—one that recognizes this new role for the information professional.

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Understanding Physical Activity in Public Libraries

Noah Lenstra [njlenstr@uncg.edu], University of North Carolina-Greensboro Dept. of Library and Information Studies

ABSTRACT

This paper discusses findings from recent studies of movement-based programming in public libraries in terms of the implications of this emerging area for LIS education. To understand how and why public libraries foster physical activity, public librarians in North Carolina participated in open-ended interviews about their experiences developing and implementing movement-based programs. To extend this analysis, in Spring 2017 public librarians from throughout North America completed a survey about movement-based programming in their libraries. The paper concludes by articulating key topics that will need attention in LIS education to understand and expand this emerging area.

TOPICS:

Public libraries; Administration; Community engagement; Community-led services

INTRODUCTION

By themselves and in collaboration with other groups and individiduals, public libraries throughout North America offer ongoing programs that encourage and enable physical activity among different ages and abilities. These programs include, among others (Lenstra, 2017a; Lenstra, 2017b): 1) Fitness classes such as yoga, tai chi, and zumba; 2) StoryWalks®, Music and Movement, Yoga Storytimes, and related programs offered as part of early literacy initiatives; 3) Active play-based programs, such as Nerf wars, geocaching, and letterboxing; 4) Programs focused on outdoor activities, such as walking and running groups, community gardens, and checking out bicycles and other equipment (e.g. hiking backpacks and sports equipment), and 5) Special programs focused on supporting individuals interested in starting and sustaining more active lifestyles (e.g. New Year, New You). As this programming area continues to develop and expand, public librarians experiment with a diverse array of program types and models. For instance, as part of its computer classes, every Thursday afternoon the Detroit Public Library's (2017) main branch offers a free chair yoga session for job seekers.

LITERATURE REVIEW

Surveys conducted during the last decade find that movement-based programs have been offered in many public libraries throughout the United States. A randomized survey of gaming programs in public libraries found that "physical games," games that require moving the body, were the fourth most common type of gaming program offered in public libraries (Nicholson, 2009, p. 206). More recently, two surveys conducted in 2014 attest to the presence of yoga and

other fitness classes among the programs of public libraries. The 2014 *Digital Inclusion Survey* found that approximately 22.7% of U.S. public libraries had offered some sort of fitness class (Bertot, Real, Lee, McDermott, & Jaeger, 2015, p. 62), with these types of programs most common in suburban libraries (33.9%) and least common in rural libraries (12.6%). The *Library Journal Programming Survey* also found that 33% of public libraries had offered yoga programs during the preceeding twelve months (Library Journal, 2014).

There is a large literature about how public librarians support health literacy through the provision of consumer health information (e.g. Gillaspy, 2005; Morgan et al., 2016; Rubenstein 2016). Less understood, however, is how public librarians directly contribute to increasing physical activity through programs and services. The few studies that do exist are case studies of experimental programs in particular places, including Alberta (Weekes & Longair, 2016), Connecticut (Quatrella & Blosveren, 1994), Louisiana (Woodson, Timm & Jones 2011), Missouri (Engeszer et al. 2016), North Carolina (Flaherty & Miller 2016), and Ontario (Ryder, Faloon, Lévesque & McDonald, 2009). Previous scholarship has not focused on how public libraries in general contribute to physical activity.

New frameworks for supporting physical activity. In response to societal challenges related to the sedentary lifestyles of many in the world today, scholars and policy makers have developed new frameworks and agendas focused on encouraging and supporting more active lifestyles. These new frameworks include the concept of *active communities*: "communities designed to support physical activity" (Centers for Disease Control and Prevention, 2017, n.p.). The National Physical Activity Plan (2016) also recommends that "communities should develop new, and enhance existing … programs that provide and promote healthy physical activity opportunities for diverse users across the lifespan" (n.p.). A goal of these active communities is multiple pathways to active lifestyles, so that individuals of all abilities and ages can be physically active.

As part of supporting active communities, policy makers have encouraged institutions not traditionally associated with physical education to play a larger role in fostering physical activity. One example of this trend appears in the U.S. Institute of Museum and Library Services *Let's Move! Museums & Gardens* initiative, which from 2011 to 2015 supported the growth of physical activity programming in museums of all types (Obama, 2011). The results from this initiative suggest that with support museums are indeed able to make a difference in terms of Americans' physical activity levels (Brown, 2013).

The importance of lifelong physical activity has emerged in the context of increasing consensus within the field of public health that our world suffers from what a widely-cited article in *The Lancet* – one of the most high-profile peer-reviewed medical journals on the planet – calls "the pandemic of physical inactivity" (Kohl et al., 2012). This pandemic is a global public health priority because the benefits of regular physical activity are myriad, and include reduced risk of cancer and disease, strengthened bones and muscles, weight control, and improved mental health and mood (CDC, 2017). In addition, some scholars argue that increasing physical activity could contribute to efforts to curb global warming (Kohl et al., 2012), as physically active people are more likely to utilize and to support active transportation and outdoor public spaces. The roles of public libraries within this policy agenda have yet to be studied and understood.

METHODS

To better understand how and why public libraries foster movement and physical activity, in Winter 2016 a purposive sample of 39 public library staff from throughout North Carolina participated in open-ended interviews about their experiences developing and implementing these programs (Lenstra, accepted). To extend this analysis, in Spring 2017, a convenience sample of 1622 public librarians from throughout North America completed all or part of a survey about movement-based programming in their libraries (Lenstra, 2017c). This dataset was integrated with data from the IMLS Public Libraries Survey Data (FY2014) to sort respondends into the categories of urban, suburban, town, and rural.

RESULTS

The survey found that more urban public libraries offer slightly more movement-based programs, but these types of programs are also commonly offered in more rural libraries. Furthermore, more urban libraries tend to provide more indoor programs at set times, often led by individuals paid by the library (e.g. fitness classes). More rural libraries tend to provide more outdoor programs without set times, more often led by volunteers or self-led (e.g. StoryWalk®). Librarians themselves are equally likely to lead these programs in urban and rural libraries. Furthermore, across the sample, librarians reported approximately as many movement-based programs for adults as for youth, suggesting that this programming area is being developed without a particular age group in mind.

Results from the interview-based study in North Carolina further show that these programs tend to emerge when public librarians are themselves very interested in exercise and physical activity. Public library staff reported learning new skills and working closely with local institutions as they developed their programs. For instance, some library staff reported that their libraries pay for staff to learn things like yoga or tai chi so that the libraries can then offer these types of programs on a more regular basis. Other librarians gave different reasons for offering these programs. One said "it is stimulating to get up and move." Another said "we like to offer our patrons something new to keep them coming back for more!" A third said that "offering fitness programming … allows your community to start seeing the library's role differently." A fourth said they "wanted to address the idea that the library is for the mind and the body." And one simply said "for fun!"

Regardless of why libraries encourage movement, the data show these programs work. Nearly 90% of public libraries said their movement-based programs had brought new users into their libraries, and 80% said the programs contributed to community building. By portraying the library in a new way, movement-based programs bring new people into libraries. A sizable percentage of respondents also said their movement-based programs contribute to literacy, suggesting that learning to move the body and learning to read are inter-connected in the thinking of many libraries, particularly as it relates to programs and services for Pre-K children (Kaplan, 2014).

DISCUSSION

The growth of movement-based programs in public libraries should lead to changes in the professional and continuing education of both public librarians and their partners (e.g. medical

librarians (Engeszer et al. 2016)]. Courses on public libraries could include experiential learning modules (Rubenstein, 2017), in which students are asked to do community needs assessments to understand what free opportunities already exist in one's community to learn about and to practice regular physical activity. This needs assessment could also look at particular age groups: Are their, for instance, ample free fitness classes for adults, but perhaps not enough for senior citizens? Students could also be asked to investigate to what extent their local libraries are connected to public health institutions in their communities. Does regular communication take place, for instance, among public libraries, public health departments, parks and recreation units, YMCA's, private gyms/instructors, and others who may also focus on this topic. Finally, students could investigate how accessible their libraries are, in terms of how easy it is to walk or bike to the library.

A second assignment could focus on understanding legal and liability issues associated with these types of programs and services. Many libraries consult with county or municipal lawyers to ensure that the library is protected in the case of accidental injuries that could arise during participation in these programs. Examples of these waivers of liability are available online (Lenstra, 2017b), and could be used as examples of the types of documentation librarians creating these types of programs should seek to develop.

Understanding physical activity in public libraries could also be used to teach evaluation. Here is an emerging programming area that does not fit within conventional understandings of the impacts of public libraries (e.g. Public Library Association, 2017). Talking with students about these types of programs could spark productive dialogue about how innovations are assessed and evaluated on an ongoing basis within the practice of public librarianship.

A fourth avenue for incorporating physical activity into the LIS curriculum is to focus on health and wellness among library staff. The North Carolina study (Lenstra, accepted) showed that public library staff that are particularly interested in physical activity tend to be the staff that develop these programs. This finding suggests that educating students about the importance of taking care of oneself by learning to be active (e.g. Boyd & Cramer, 2013) could in turn lead to the development of public library programs that impact physical activity.

This type of teaching can also be done online. The results from the survey were shared with participants in an online webinar in June 2017, which has been followed by a quarterly series of free webinars on how to do movement-based programs in public libraries (Lenstra, 2017b). The success of these webinars illustrate that educating about movement-based programs can be done at a distance.

CONCLUSION

Although the rationale for physical activity in library programs targeted at very young children is clear and well developed (e.g. Kaplan 2014), the theoretical foundations of physical activity in public library programs and services for other age groups is less developed. Through both professional and continuing education, LIS scholars can productively incorporate the body into LIS pedagogy so that future generations of public librarians feel comfortable and capable developing programs and services focused on fostering lifelong, healthy physical activity.

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What Doctoral Student Motivation Tells Us about the Future of LIS Education

Africa S. Hands, Queensland University of Technology
and San Jose State University

ABSTRACT

This study identifies factors motivating individuals to earn a doctoral degree in library and information science. Data about doctoral student motivation was collected from first-year students through a survey, semi-structured interviews, and personal admission statements. Investigating student motivation not only informs program administrators and prospective doctoral students, findings shed light on the future of graduate level education, addresses concerns in the literature about faculty supply, and offer recommendations for improving the pipeline from graduate study to doctoral study to the academy.

TOPICS

Education programs/schools; Students; Curriculum

INTRODUCTION

In the field of library and information science (LIS) the usefulness and general nature of the doctoral degree has been in question for decades. Some of the literature presents concern about the future of graduate LIS education because employment outcomes for doctoral recipients have not lived up to expectations as graduates pursue opportunities outside the academy (White & Momemee, 1978; Futas & Zipkowitz, 1991; Seavey, 2005). A review of the LIS doctoral education landscape from 1930-2007 revealed that 78% of doctoral graduates were not in faculty positions (Sugimoto, Russell & Grant, 2009). Despite concerns, research has mostly focused on program characteristics, student demographics, publication activity of doctoral degree recipients, and dissertation topics and trends with few studies capturing the perspective of current LIS doctoral students.

Literature calls for more research on the LIS doctorate (Sugimoto, Li, Russell, Finlay & Ding, 2011). An obvious gap in the literature exists as it relates to the student point of view, and a bigger gap in LIS doctoral education research exists regarding students' interest in obtaining the doctoral degree. The researcher concurs with Moreno and Kollanus (2013) who state that identifying initial motivational influences "constitutes the groundwork for a further investigation [of] doctoral students' pathways and performance." (p. 7). Additionally, such information may address earlier mentioned concerns.

This study contributes to existing literature in several ways. It advances anecdotal discussions begun by Achterman, Kasman Valenza, and Woolls (2007) and Bruce (2009) on why

individuals pursue the LIS doctoral degree. This work contributes to the literature on doctoral student motivation with the introduction of a new academic discipline under study. As few studies take a theory-driven approach to analyze doctoral student motivation (Bayatiyeh & Naja, 2011; Moreno & Kollanus, 2013; Peters & Daly, 2013), this research adds to the body of literature on self-determination theory (SDT) and use of the Academic Motivation Scale (AMS-C 28) with doctoral students. Self-determination theory (Deci & Ryan, 1985) is a motivation theory that assesses and classifies motivation along a continuum rather than simply intrinsic versus extrinsic. It has been used to examine motivation in health and wellness, human resources, and education research.

On a practical level, the researcher hopes data from this study will help set reasonable expectations for the future of the LIS education based on an awareness of entering students' motivational influences. Results are expected to impact student recruitment and assist program administrators in developing doctoral programs that meet the professional and personal interests of students and designing student support services that support retention and matriculation.

RESEARCH METHOD

This investigation used a sequential convergent mixed method design whereby data was first collected in a quantitative phase followed by a second qualitative phase to produce a more comprehensive account of doctoral student motivation than possible using one methodological approach. First-year LIS doctoral students enrolled at institutions included in the 2015 ALISE statistical report were targeted for recruitment. Participants were recruited through email solicitations to deans, doctoral program directors and academic advisors, and doctoral program chairs. Administrators were asked to forward a recruitment flyer to applicable students. Follow-up reminder emails were sent two to three weeks after the initial email.

In the quantitative phase, students completed the Academic Motivation Scale (AMS-C 28) online. The AMS-C 28, a self-report survey developed by Vallerand, Pelletier, Blais, Briere, Senecal, and Vallieres (1992), was designed to assess motivation types according to self-determination theory (SDT). The 28-item instrument focuses on 7 subscales representing 7 motivation subtypes: intrinsic motivation to know, intrinsic motivation to accomplishments, intrinsic motivation to experience stimulation, extrinsic external regulation, extrinsic introjected regulation, extrinsic identified regulation, and amotivation. The AMS-C 28's alpha value of .86 was considered acceptable; alpha values for each motivation subscale ranged from .76 to .93. A sample of items on the AMS-C 28 is shown in Table 1.

Twenty-three students completed the online survey. Five of the 23 students did not meet the main criteria for inclusion in the study: enrollment status as a first-year doctoral student. Thus, the following demographics apply to the remaining 18 students who were in their first year of doctoral study.

Table 1. Sample Items on the AMS-C 28

AMS-C 28 Subscale	Sample Item
Intrinsic to Know (IMK)	Because my studies allow me to continue to learn about many things that interest me.
Intrinsic to Accomplishment (IMA)	For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments
Intrinsic to Experience Stimulation (IMES)	For the "high" feeling that I experience while reading about various interesting subjects.
External Regulation (ER)	In order to have a better salary later on.
Introjected Regulation (IR)	To prove to myself that I am capable of completing my doctoral degree.
Identified Regulation (IDR)	Because this will help me make a better choice regarding my career orientation.
Amotivation (AMOV)	Honestly, I don't know; I really feel that I am wasting my time in school.

Of the participants meeting the inclusion criteria, 9 identified as female, 8 as male, and 1 as gender queer. This distribution was like that in the 2017 ALISE statistical report, which reported 52% female students and 48% male students; students identifying as non-binary were not reflected in ALISE data. At the time of the survey, 9 students were enrolled at institutions holding membership in the iSchool Caucus. Eleven participants were enrolled in doctoral programs located in the U.S.; the rest were completing doctoral study at Canadian institutions. Participant ages ranged between 25 and 64 years old; 67% of students were age 25 to 34. In fall 2016, 52% of enrolled LIS doctoral students (including entering and continuing students) were age 25 to 34 (ALISE, 2017). Most participants identified as white (13; 72%) followed by Asian (3; 17%); only 2 African American students completed the online survey. The time between entrance into a doctoral program and completion of the most recent degree was 1 and 18 years, with most students entering doctoral study immediately following completion of a master's degree. One student was concurrently enrolled, finishing studies in an MLIS program while beginning doctoral work. Participants entered doctoral study with a range of educational experiences. Table 2 shows the graduate-level educational backgrounds of participants; several students earned more than one master's degree.

Table 2. Educational Background of Participants

Graduate Degree Discipline	*n=22*[*]	%
Library Science/Library and Information Science	9	41
Information Studies	2	9
Education	2	9
Other Master's Degree[**]	9	41

*One student did not report any graduate level education, thus an n of 22.
**Disciplines included engineering, art history, linguistics, and English.

Data for the qualitative phase was generated from interviews and participants' personal admission statements. The convenience sample for the second phase was nested – a sub-group of the first sample (Creswell & Plano Clark, 2011). Interviews with 6 participants were audio-recorded and transcribed by the researcher for data analysis, which involved coding, categorizing, and theming the data.

FINDINGS

The AMS-C 28 asked participants to choose a correspondence level for each reason given for earning a doctoral degree. The available responses were: *does not correspond at all* (1), *corresponds a little* (2 or 3), *corresponds moderately* (4), *corresponds a lot* (5 or 6), and *corresponds exactly* (7). The mean responses on the subscales ranged from 1.37 to 6.23. On average students reported definite correspondence with scale items related to intrinsic motivation to know (M = 6.23, SD = .88) and intrinsic motivation to accomplishments (M = 5.10, SD = 1.61); moderate correspondence with identified regulation (M = 4.83, SD = 1.61), intrinsic motivation to stimulation (M = 4.71, SD = 1.50), and introjected regulation (M = 4.04, SD = 1.71); and little correspondence with items reflecting external regulation (M = 3.67, SD = 1.75). The mean score for items related to amotivation was 1.37 (SD = .65), indicating that, on average, the participants reported no correspondence with those items; though, for two students amotivation-related items corresponded a little.

From the qualitative data, four motivating factors emerged centered on research, contribution, self-validation, and previous experience. While each student wrote about their respective research interests – a standard expectation for most personal admission statements – two students wrote about research as a motivation for earning a PhD. One student was motivated by her research question, which she began investigating during graduate studies and wished to continue in the PhD program.

> "This question has guided me to pursue further graduate education, and it is a question I would like to explore as a doctoral student and as a social scientist." (P1)

Another student described earning a doctoral degree as "the single best chance for me to do research" post-PhD (P4). This notion of conducting research was echoed in the closing of her personal statement.

Students for whom contribution was an emerging theme were motivated by a desire to contribute to the existing knowledgebase of the field.

"…there has not been a concerted effort to map the [intended topic of study]. I wish to make such an effort". (P6)

"…but they have not investigated how new generations of students … understand and approach their respective research process. It is my intention to build upon these previous findings as well as others …" (P5)

One student mentioned a validation or ability-related reason for pursuing the degree. For this student being admitted to a doctoral program would put her in the "position to prove myself as a valuable contributor to the field of information science …" (P2)

Students apply to doctoral programs having a range of experiences that have been shown to guide their choice of research topic and decision to earn the degree. Students noted previous educational experience as influential to their decision to earn a doctoral degree as well as to their level of comfort with being in an academic environment and gaining an appreciation of the LIS field. Participation at conferences, working at think tanks and in LIS settings, and experiencing mentorship were experiences that helped solidify students' interest in and enhanced their feelings of relatedness and competence in research environments further contributing to their decision to earn a PhD.

CONCLUSION

Results of the AMS-C 28 showed that first-year LIS doctoral students primarily represented motivation subtypes intrinsic motivation to know, intrinsic motivation to accomplish, identified regulation, and intrinsic motivation to stimulation, in that order. In particular, participants reported being motivated by the perceived pleasure and satisfaction that would come during doctoral study especially when learning something new, concentrating on and continuing to study in an area of personal interest, and achieving one's personal goal on a challenging task. That the doctoral degree would prepare one for their career of choice was another highly motivating factor for participants. Items related to social and economic standing or self-perception were moderately motivating for participants. Amotivation was the subtype least represented in this study.

Results tell us that graduate-level educational experiences are highly influential to one's decision to earn a doctoral degree and particularly for sustaining students' interest in research. Unfortunately, these educational experiences did not spur participants' interest in teaching. Students reported post-PhD plans inclusive of but not limited to tenure-track positions, which may support reports that fewer graduates are entering academia. Students also described SDT-related aspects of the doctoral experience of importance to program administrators and deserving of further examination.

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You're So Sensitive! How LIS Professionals Define and Discuss Microaggressions Online

Miriam E. Sweeney[a] and Nicole A. Cooke[b]

[a]University of Alabama

[b]University of Illinois, Urbana-Champaign

ABSTRACT

This study uses content analysis to explore how LIS professionals define and discuss microaggressions in an extended online discussion thread. Findings reveal that there are multiple mis/understandings of microaggressions by the LIS community. Participants demonstrated gaps in knowledge about microaggressions, and power and privilege. Additionally, while some of the discussions were productive, often the dynamics and content of the conversation reinforced dominant viewpoints and experiences. This research has implications for LIS educators, underscoring the need to expand our students' educational universe by teaching about microaggressions in the context of power and privilege in structured environments like the LIS classroom.

TOPICS:

Education; Social justice; Critical librarianship

INTRODUCTION

Microaggressions as "brief, everyday exchanges that send denigrating messages to people of color because they belong to a racial minority group" (Sue et al., 2007, 273). These are most often directed at minorities, and are hurtful, damaging, demoralizing, and are particularly insidious because of their slow, cumulative effects that are hard to document and prove. These small indignities add up over time and, because they can go unnoticed, particularly by those in positions of power and privilege, their larger effect on a culture or environment can be hard to trace, surprising, and/or unexpected.

There is growing interest in the field of library and information science (LIS) for understanding how microaggressions shape interpersonal interactions in professional practice in ways that reinforce power and privilege (Alabi, 2015). This is connected to broader professional conversations about the need to diversify the LIS profession, promote cultural competence, and decenter hegemonic structures, such as whiteness, in professional practice and institutional culture. Microaggressions, specifically, have become a hot topic at library and information studies conferences and professionally sponsored events. For example, a panel session at the 2016 Public Library Association (PLA) Conference promised to teach participants to detect and react to

microaggressions in support of a "microaggression free environment" (Anderson et al. 2016). Conversations about microaggressions have also been occurring in more informal ways between practitioners in online social media spaces. For instance, the website "Microaggressions in Librarianship" is an "online space for those working in libraries, archives and information fields to share our experiences with microaggressions within the profession" (LIS Microaggressions). Research is needed to map the proficiency of LIS professionals with subjects like microaggressions as one marker of critical awareness of the existing power dynamics that are embedded in professional practice.

RESEARCH METHODS

This study explores these issues through a content analysis of an extensive threaded conversation about microaggressions that took place on a public social media group for LIS professionals following the PLA microaggression panel in 2016. Two research questions guide this study: 1) How do participants of the discussion thread define or otherwise conceptualize microaggressions, and 2) how do power and privilege manifest in the dynamics of this discussion? Following these guiding questions, nine major themes emerged from the discussion thread for analysis:

RQ1: How do participants of the discussion thread define or otherwise conceptualize microaggressions?

1. *Being "too sensitive" and taking offense*
2. *Point of view and positionality*
3. *Nostalgia and the "good ole days"*
4. *The role of intent*
5. *Complimenting*

RQ2: How do power and privilege manifest in the discussion dynamics

6. *Recognition of power and privilege*
7. *Signaling*
8. *Physical and mental fatigue*
9. *Conformity*

FINDINGS

The findings demonstrate that there is a wide berth of understanding amongst this group of LIS professionals as to what microaggressions are, who they impact, and how they are differentiated from other kinds of interpersonal interactions. While there were some productive moments in the online discussion that explored microaggressions as expressions of power and privilege, more often microaggressions were discussed as individual instances of personal offense. This positions microaggressions as discrete interactions that are decontextualized from broader systems of oppression. Under this logic, microaggressions remain mysterious, unknowable, unidentifiable, with every interaction potentially a microaggression.

Unfortunately, many of the mis/understandings of microaggressions, such as those that posited victims of microaggressions as being overly-sensitive, reinforce hegemonic power structures within the discussion dynamics. Instances where participants openly questioned the

validity of microaggressions, or otherwise ignored, minimized, or challenged the experiences, interpretations, and lived-realities of marginalized people, further privileged the perspectives and feelings of those from dominant identity groups. This means that for marginalized participants, the personal cost of engaging in these types of unstructured conversations with peers is quite high. Fatigue, frustration, pressure to conform, and the burden of having to constantly explain oppression, or defend lived experiences present huge barriers for marginalized people to engage in these conversations. Conversely, participants from dominant identity positions may remain oblivious to these dynamics by virtue of their privileged positions, or actively exploit their privilege in these spaces.

This research is significant because it provides insight into the knowledge, competency, and attitudes that a segment of the LIS professional community has with the topic of microaggressions. The findings of this study have practical implications for LIS educators, underscoring the further need to provide education about microaggressions in the LIS classroom, and address the knowledge gaps in structured ways. This research indicates that library and information professionals are underprepared to discuss topics like microaggressions, and require training as to the nature, necessity, and guidelines for productive engagement in conversations about power and privilege, as well as empathy development, and an awareness of their positionality within these conversations.

CONCLUSIONS

LIS educators have an opportunity to expand their students' educational universe in ways that could positively impact professional knowledge and competency with topics like microaggressions. To that end, we offer four recommendations for LIS educators to support teaching and learning about microaggressions in their classrooms: 1) Structuring discussions for success, 2) locating microaggressions in structures of power, 3) developing students' empathy and cultural competency skills, and 4) providing appropriate information resources for discussions of power and privilege. Ultimately, it is the social responsibility of LIS educators to train LIS professionals to have greater comprehension of, and facility with, these topics so they are prepared to go into the workforce, armed with knowledge, empathy, and resources for their colleagues and patron communities.

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Contributed Panels: An Introduction

When reflecting back on the numerous conferences we have attended, often the memorable sessions are well-developed panels. From the perspective of the panel committee, the stakes are higher for panel selection, since there are many competitive panels for a very limited number of panel slots on the program. Contribution of panel jurors is key, as the jurors help determine a quality panel proposal, with their expertise and experience. They give close consideration to the needs of the audience, as well as the conference theme and major voices in our field. Panel presentations are sought after that embrace the conference theme, and hopefully include top scholars in that area. It is exciting to attend panels with presenters who are not only well-informed, but also passionate about their topic, bringing together the latest issues and thoughts.

We are delighted that the panels selected for ALISE 2018 cover a range of important subject areas, from broad topics such as the core areas of the Library and Information Science (LIS) curriculum and online education in the field, to specific yet emerging issues related to social media and open access. As you review the range of panels in these proceedings, you will see many highly published and respected faculty, as well as those who are new to the LIS field, and from various countries. We thank all the panel reviewers who ably assisted us in making decisions about panel selection and we are confident you will agree that those selected are of high caliber. We also thank all the numerous scholars who composed and submitted panel proposals, especially those who were selected and presented their work at ALISE 2018.

Kyung-Sun Kim & Marie L. Radford

The ALISE 2018 Annual Conference Juried Panel Co-Chairs

Autism Spectrum Disorder and iSchools: Expanding the Possibilities through Research

Amelia Anderson[a], Amelia Gibson[b], Paul Wyss[c], Charlie Remy[d], and Dana Hanson-Baldauf[b]

[a]Florida State University

[b]University of North Carolina, Chapel Hill

[c]Minnesota State University, Mankato

[d]University of Tennessee at Chattanooga

ABSTRACT

LIS researchers across the United States are working to meet the needs of individuals with autism spectrum disorder (ASD), their families, communities, and those who serve them. At Florida State University, Project A+ is developing evidence-based training for academic librarians to better meet the needs of students on the spectrum. At UNC Chapel Hill, Amelia Gibson is examining information access, needs and poverty as they are experienced by people with autism and their families in local communities. In this interactive panel, researchers and advisory board members from two university libraries will share their innovative IMLS-funded projects as well as describe firsthand experiences with autism and libraries.

TOPICS:

Community-led services; Academic libraries; Public libraries; Critical librarianship

INTRODUCTION

LIS researchers and practitioners have a long history of working to understand and serve the diverse needs of their communities. The increased prevalence of autism spectrum disorder (ASD), a neurodevelopmental disorder marked by social and communicative impairments, now measured at approximately 1 in 68 children (Baio, 2014), calls for more substantive understanding of how libraries can effectively serve this population and its unique needs.

Recognizing the need for research in this area, the Institute of Museum and Library Services (IMLS) recently awarded grants to two iSchools to study the intersection of information services and ASD. This interactive panel will describe what researchers are doing to address information

needs and improve services for those with autism. With the increased presence of users on the autism spectrum, this panel seeks to cultivate awareness among LIS educators of the complexities in serving this population and its information needs, as well as the importance of including it in library school curricula. Researchers will introduce current studies, librarians on the autism spectrum will describe their lived experiences as both information professionals and library users with ASD. Ample time will be allowed for audience Q&A with all panelists.

FLORIDA STATE UNIVERSITY

At FSU, a multidisciplinary team is working to develop evidence-based professional development strategies for academic library staff to better serve students with ASD – Project A+.

Building on the work accomplished within a previous IMLS funded grant, Project PALS, a series of online training modules to educate librarians about ASD, and addressing the need for strategies specifically for the higher education environment (Anderson, in press; Remy & Seaman, 2014; Wyss, 2014), Project A+ is working with three academic libraries to determine best practices in educating staff about college students on the autism spectrum.

The results will be incorporated into an online guide for librarians that will include step-by-step instructions for making the library more a conducive environment for students with ASD, These tutorials have the potential to enhance services in all types of libraries. Voices of students with ASD will figure prominently as they are surveyed and interviewed as part of Project A+, as will voices of librarians with ASD, currently serving on the A+ advisory board.

This project has relevance for the enhancement of library programs, facilities, and services to students with ASD. The identified audiences for the resulting research findings and implementation guide include library staff, LIS students and educators, and researchers – but, the ultimate beneficiaries will be students with ASD themselves.

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Dr. Gibson's current IMLS funded Career project: Deconstructing Information Poverty: Identifying, Supporting, and Leveraging Local Expertise in Marginalized Communities focuses on integrating critical disability, race and gender theory into an updated model of information poverty, and using this model to inform library approaches to integration of people with ASD into library planning and programming. The project is being done in partnership with the Durham Public Library, the Charlotte-Mecklenburg Public Library, and the Autism Society of North Carolina (ASNC).

The project builds on a previous study on the information needs and information source choices of parents of individuals with Autism in North Carolina (Gibson, 2017), which showed that very few of these parents use libraries to help them meet what they considered important information needs related to their children with ASD. Despite parents' fears about their own information literacy (and their fear of searching for information about ASD on the internet), few parents considered libraries a trustworthy source for information or health information literacy training.

The current project engages individuals with ASD, their families, and library staff in interviews and focus groups about information needs, seeking and sharing. It also facilitates and

records the process of planning a series of local public events addressing information needs identified among local library staff and ASD community. The study will yield practical information about information needs of people with ASD and their families, important information sources, a description of conditions that support information access or poverty in the study communities, and a guide for community assessment and local parent engagement. Interview and evaluation data will also be used to extend the scope of the study impact, and support development of a rich, intersectional theoretical model of information poverty that explicitly acknowledges place, community, and the needs of local, marginalized groups.

PANELISTS

Amelia Anderson. Dr. Amelia Anderson, project coordinator for Project A+, is a postdoctoral researcher at Florida State University's iSchool. Dr. Anderson's research focuses on young adults with ASD, including their experiences using academic libraries as well as their communication methods in the online environment. Dr. Anderson served as the research assistant for Project PALS, A Laura Bush Professional Development IMLS grant that developed four online training modules for librarians and library staff to learn how to better serve their users on the autism spectrum.

Amelia Gibson. Dr. Amelia Gibson is an Assistant Professor at the School of Information and Library Science at the University of North Carolina at Chapel Hill. Her primary research interests center on health information behavior, local communities as information systems, and information poverty among marginalized groups. Dr. Gibson also served as PI for the Healthy Girls Know project, which explores health information seeking among Black and Latina teen girls, and the Disability Lines project, which explored information access and poverty among parents of individuals with Down syndrome and Autism.

Paul Wyss. Dr. Paul Wyss is the Distance Learning Librarian at Minnesota State University Mankato. He earned his M.L.S. at Indiana University and his Ed.D at the University of South Dakota. He received an Asperger's Syndrome diagnosis in 2007 and now devotes many of his energies toward informing those in academia of what it takes to be successful in higher education with an ASD. He serves on the Project A+ Advisory Board.

Charlie Remy. Charlie Remy is the Electronic Resources & Serials Librarian/Assistant Professor at the University of Tennessee at Chattanooga. Being on the autism spectrum himself, he is interested in how libraries can better serve the autistic population (both patrons and employees). He holds an MSLIS from Simmons College and a BA from Elon University. He serves on the Project A+ Advisory Board.

ACKNOWLEDGEMENTS

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Core & More: Examining Foundational and Specialized Content in LIS Programs

Laura Saunders[a], Eileen Abels[a], Lisa Janicke Hinchliffe[b], Charles Owen[c], and Julie Todaro[d]

[a]Simmons College School of Library and Information Science

[b]University of Illinois at Urbana Champaign

[c]Denver Public Library

[d]Austin Community College

ABSTRACT

This panel of LIS educators, leaders of professional associations, practitioners, and recent graduates will share results of a series of surveys, in which over 1900 respondents ranked 53 skills on a scale of "core" to "specialized." The panelists will examine how the survey results in light of competency statements offered by professional associations, and trends observed in job postings. Recent alumni will discuss how the competencies align with their program experiences, and practitioners will share observations about how well interns and new graduates are prepared to take on professional roles. LIS faculty panelists will reflect on implications for curricular development.

TOPICS:

Curriculum; Education programs/schools; Standards; Students; Teaching faculty

OVERVIEW

The LIS field encompasses a wide range of career paths and directions, all of which must be considered when preparing new LIS professionals. In addition to more traditional areas such as information organization and collection development, and dispositions like customer service orientation and interpersonal skills, employers are also looking for skills and qualifications in areas like emerging technologies, data management, design thinking, and cultural competency. It is incumbent on LIS schools to ensure that their curricula are meeting the needs of the field. But which skills are core—meaning that all students should have a foundation in those skills, regardless of their area of focus or ultimate career path—and which are specialized, meaning that only professionals in specific positions are likely to need those skills? How are core skills defined by

professional associations and employers, and how can LIS programs create curricula that lay a foundation of core competencies while also addressing emerging areas?

LIS programs find guidance from professional associations like the American Library Association (ALA), the Society for American Archivists (SAA), and the Special Library Association (SLA), each of which publishes sets of competencies meant to guide program development and content. In the case of ALA, those competencies form part of the basis by which degree programs are accredited.

Because the MSLIS is a professional degree, and its focus is to prepare students for employment and professional practice, LIS faculty can also look to employers to understand current and emerging needs in the field. LIS faculty and program directors might ask employers directly what skills and qualifications they are seeking. They might also track job postings to identify required and preferred skills and qualifications, as well as new job titles and areas of responsibility.

This panel will bring together LIS educators, leaders of professional associations, practitioners, and recent graduates to discuss which competencies and knowledge areas should be considered core to the LIS field and to explore specialized skills, emerging areas, and trends in the field that will should impact employer expectations and LIS curriculum development. The panelists will share results of a series of surveys, in which over 1900 respondents ranked 53 skills on a scale of "core" to "specialized." This survey was distributed to LIS faculty, alumni of an LIS program, internship and practicum supervisors, and other employers. The results suggest a range of skills that various constituencies believe to be core to the field, as well as some that are appear to be required only in specialized positions or settings. In an open-ended question, survey respondents suggested other skills and competencies. When coded an additional 50 categories of skills emerged that LIS programs are expected to address.

The panelists will examine how the survey results overlap with and diverge from the competency statements offered by professional associations, and with trends observed in job postings. Recent alumni panelists will discuss how the competencies from these various data sources align with their program experiences, and practitioners will share observations about how well interns and new graduates are prepared to take on professional roles, and which skills they find to be strong or lacking in their interns and new graduates. LIS faculty panelists will reflect on implications for curricular development.

In an interactive portion, the panelists will poll participants in real time about their impressions of what skills and competencies should be core or specialized, and panelists will respond to the poll results and questions. Time will also be allocated for open discussion.

With its focus on both foundational and emerging areas of LIS education, this panel aligns well with the ALISE Conference theme of "The Expanding LIS Education Universe." Further, the panel composition promises that the discussion includes the perspectives of leaders of professional associations, students, and practitioners, as well as LIS educators. Attendees will gain new insight into what aspects of LIS curricula can be considered core and specialized, and will have a chance to discuss how LIS programs can best address these perspectives.

Expanding LIS Youth Services Curriculum to Embed Computational Thinking

Mega Subramaniam[a] [mmsubram@umd.edu], Melissa P. Johnston[b] [mjohnsto@westga.edu], Natalie Greene Taylor[c] [ngtaylor@usf.edu], Jennifer Moore[d] [jmoore42@twu.edu], Rachel M. Magee[e] [rmmagee@illinois.edu], Colette Drouillard[f] [cldrouillard@valdosta.edu], and Joe Sanchez[g] [jose.sanchez2@qc.cuny.edu]

[a]College of Information Studies, University of Maryland

[b]College of Education, University of West Georgia

[c]School of Information, University of South Florida

[d]School of Library and Information Studies, Texas Woman's University

[e]School of Information Sciences, University of Illinois Urbana-Champaign

[f]Dewar College of Education and Human Services, Valdosta State University

[g]Graduate School of Library and Information Studies, Queens College, City University of New York

ABSTRACT

In examining how libraries promote computational thinking for children and young adults, the *Libraries Ready to Code* (RtC) researchers found a growing interest in offering coding activities in libraries that cultivate computational thinking skills, yet there is a vital need for more graduate-level courses to teach future librarians about designing and implementing these innovative programs. In this panel session, LIS educators, who are also Libraries RtC Phase II participants, will engage the audience in a discussion on transforming and expanding current course offerings for school and youth librarians to better prepare them to promote and develop computational thinking skills.

TOPICS:

Curriculum; Young adult services; Children's Services; School libraries; Public Libraries

INTRODUCTION

Decades of formal computer science (CS) education have failed to produce qualified computer scientists and software engineers that the world needs (Google & Gallup, 2016). Approximately 40% of K-12 schools in the US offer CS courses with programming/coding elements and 9% offer Advancement Placement (AP) CS courses. Black students in the US are 23% less likely to have taken CS classes in schools than their White counterparts (Google & Gallup, 2016). A lack of qualified teachers, mentors, and resources continues to be the root of this lingering problem (Code.org, 2017). Other regions in the world also report similar figures (OECD, 2014). Libraries hold tremendous potential to offer informal CS learning opportunities to underserved youth, thus having the potential to overcome these shortcomings. Libraries can provide mentors and social learning spaces that encourage underserved youth to geek out and tinker with technology (Bertot et al., 2014; Braun, et al., 2014; Hoffman et al., 2016).

Libraries worldwide have implemented steps to create and offer such resources, programming, and spaces (Braun & Visser, 2017; Library Planet, 2017), but admittedly librarian preparation programs need to transform their courses to produce librarians who are prepared to flourish in these roles and responsibilities. A report from the University of Maryland (*Re-envisioning the MLS*) describes findings of the value and future of a Master's in Library Science degree and specifically addresses "the opportunities of focusing youth learning and education...working with youth in schools [through school libraries]...facilitating learning in libraries through making, STEAM (STREAM), coding, and a range of other activities." (Bertot, Sarin & Percell, 2015, p. 10). Libraries Ready to Code (RtC), an initiative led by the American Library Association's Office for Information Technology Policy, released a report that indicates librarians lack of knowledge and understanding of computational thinking, their struggle with facilitating learning in new ways, such as through the use of connected learning frameworks, their inability to connect with community partners and experts that may have the expertise in coding and computational thinking programs, and their failure to build on or augment coding activities occurring in classrooms (Braun & Visser, 2017).

LIBRARIES ARE RtC

The Phase I RtC report recommended focusing action on librarian preparation programs for youth and school librarians by creating and expanding curricula that will allow librarians to help youth develop computational thinking. The RtC report suggested creating opportunities for librarians to develop deeper facilitation and teaching skills grounded in computational thinking design as a critical area for additional work. Through creation of such opportunities in LIS curriculum, librarians will be better equipped to provide coding activities for youth that 1) increase exposure to and interest in coding, 2) change perceptions of who codes and increase affinity to coding activities among non-dominant youth, 3) build foundational computational thinking skills, and 4) help youth connect coding to non-computer science specific domains (Braun & Visser, 2017).

In early 2016, a cohort of six RtC LIS faculty members were selected to redesign and pilot pre-service courses for youth librarians that they will teach in Fall 2017. These revised courses will result in strategies to address the above-mentioned objectives (see press release at: http://www.ala.org/news/press-releases/2017/04/ala-announces-libraries-ready-code-faculty-

fellows). These "RtC Faculty Fellows" teach at graduate schools of LIS that are ALA-accredited (includes iSchools and LIS schools) and graduate schools providing school library certification programs in the United States. Each course differs - target student populations include solely school librarians or both school and public youth services librarians; delivery modes include online or in-person, with both asynchronous and synchronous meetings; the level of redesign varies from a dispersion of RtC concepts to a complete overhaul; and some are tied to state standards and some are not. Thus, this redesign will result in a wide range of courses serving as models and examples to other LIS institutions worldwide, including courses targeted for school and youth services librarians as well as technical courses targeted for all other library types.

STRUCTURE OF PANEL

The panel will be moderated by Mega Subramaniam (Co-PI of this project), and all RtC Faculty Fellows (listed as authors above) will serve as panelists. The panel will begin with a brief introduction of panelists and an overview of the Libraries RtC project (7 minutes). This will be followed by brief presentations by the panelists who will share overviews of their pre- and post-RtC syllabi, how they re-designed their courses, changes they made, and their personal reflections on the process (i.e. what was rewarding and what was challenging) (8 minutes each = 48 minutes). The next 30 minutes will be dedicated to small group audience engagement with RtC faculty Fellow or Fellows of their choice. Attendees will spend five minutes at each RtC Fellow table (attendees are welcome to continue to engage at a single table, if they would like to have a longer discussion with a host). The concluding five minutes will be spent sharing parting thoughts by each Faculty Fellow, highlighting what was discussed at their table.

QUALIFICATION OF THE PANELISTS

Each panelist has redesigned their course by embedding computational thinking and RtC concepts into course content and activities and will have finished teaching these courses in December 2017. They have collaborated as a cohort during the redesign, and they will be able to convey the redesigning process, including opportunities and challenges that they have encountered. The panelists' backgrounds differ, as do their student body characteristics, allowing them to relate to the differing backgrounds of LIS educators. This session will offer techniques and approaches for integrating computational thinking - allowing attendees to blend syllabi and strategies to meet the needs of their respective schools.

ACKNOWLEDGEMENTS

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Expanding the LIS Universe: Implementing Archival Theory, Practice, and Pedagogy within the Catholic and Social Justice Traditions

Christine M. Angel[a] [angelc@stjohns.edu], Youngok Choi[b] [choiy@cua.edu], Molly Hazelton[c] [mdhazelton@stkate.edu], Cecilia L. Salvatore[d] [csalvatore@dom.edu], and Pat Lawton[e] [plawton@nd.edu]

[a]St. John's University, 8000 Utopia Parkway

[b]The Catholic University of America

[c]St. Catherine University

[d]Dominican University

[e]University of Notre Dame

ABSTRACT

A panel of LIS educators representing the four Catholic universities with LIS programs, will speak to the linkages among theory, practice and pedagogy as they teach archival appraisal, description, access, advocacy, outreach, and other domains to their students. Working with diverse collections, such as a collection at the Center for Migration Studies (New York) and active and inactive religious collections, students are challenged to address the question, "How do archival standards and core domains fit in diverse collections?"

TOPICS:

Archival arrangement and description; Metadata; Pedagogy; Archives; Social justice

CONTENT

Significantly, this is the first time the four US Catholic LIS schools have collaboratively shared their work with the ALISE community. The shared focus of their work to preserve diverse collections in a variety of formats representing the history and stories of marginalized groups such as migrants, Native Americans, the homeless, and others, is no coincidence. How to preserve their records and their stories and ultimately, their dignity, is a distinguishing characteristic of the

panelists' work and context. The Catholic perspective emanates from a long lineage of service with emphasis on the dignity of the individual. How these archival institutions have addressed strategies for maintaining the often endangered records of groups that lack political or financial resources or voice is particularly relevant and illuminating within the contemporary political and social environment.

Working with diverse collections, such as collections from the Center for Migration Studies of New York (CMS-NY) and active and inactive religious collections, students are challenged to address the question, "How do archival standards and core domains fit in diverse collections?"

Panelists will give a status report of their own research into this question, with the discussion grounded by findings from a survey comparing Catholic archives' operational elements compared with peer special collections and archives. From this analysis, audience members will be invited to consider unique needs and approaches within their archives, emphasizing particular projects and audiences served. Panelists include:

Christine M. Angel, Ph.D. is Assistant Professor in the Division of Library and Information Science (DLIS) at St. John's University.

Youngok Choi is the chair and an associate professor in the Department of Library and Information Science at the Catholic University of America, in D.C.

Molly Hazelton is the Site Director for National Catholic Sisters Week (headquartered at Saint Mary's University of Minnesota in Minneapolis, MN) and adjunct faculty in archives at St. Catherine University in St. Paul, MN.

Cecilia L. Salvatore is Professor and Coordinator of the Archives and Cultural Heritage Program at the School of Information Studies/College of Applied Social Sciences at Dominican University in River Forest, IL.

Pat Lawton is the Catholic Research Resources Alliance Digital Projects Librarian at the University of Notre Dame.

Serving as panel moderator, Pat will provide a brief introduction to the topic and the speakers. Panel presentations will be followed by discussion with Q&A. Speakers and topics are as follows:

Christine M. Angel. Demonstrating the value of Catholic archives: Increasing governmental transparency of immigration legislation utilizing an active teaching pedagogy

Constructing an active teaching pedagogy demonstrating evidence of student achievement in the arrangement and description of archival collections within the online teaching and learning environment can be challenging. However, students must be provided with practical experience that meets the needs of today's expanding information environment and be able to demonstrate how those needs were met to the American Library Association – Committee on Accreditation (ALA-CoA).

During the past five years, students within the DLIS program at St. John's University have been engaged in the processing and digitization of Catholic archival collections housed within the Center for Migration Studies of New York (CMS-NY). These documents provide both

photographic and written evidence documenting the internal process of the analysis, discussion and creation of United States immigration legislation.

Through metadata creation and digitization, St. John's DLIS students provide access to previously unseen legislative documentation. Providing access to this information supports the general devotion of the CMS to safeguarding the dignity of migrants and newcomers to the United States by contributing to governmental transparency and increasing the general understanding of, and policies behind, specific acts of immigration legislation.

In addition to furthering the specific goals of the CMS, it is hoped that the organization of, and increased access to the current collections will demonstrate the value of Catholic archival collections of this type, and will inspire further organization and investigation into related primary sources managed by Catholic archives which document the internal process of the analysis, discussion and creation of immigration legislation.

Youngok Choi. Characteristics of Catholic archives administration and management: Findings from a survey of Catholic archives.

A key endeavor of cultural heritage organizations is to increase access to their collection materials. As web technologies open up new exposure to the materials, cultural heritage organizations have made tremendous investments in digitizing their rare and unique special collections for preservation and to promote wider access. Similarly, U.S Catholic archival institutions have focused on digital projects to promote scholarly and public understanding of the records of the documentary and artifactual heritage of American Catholic culture and history as well. In support of this trend, the Department of Library and Information Science collaborated with The Catholic University of America's American Catholic History Research Center to hold a series of conferences under the theme of how Catholic archives are evolving in the digital age. At the conferences, many archivists and staff working at Catholic archives expressed challenges in advancing and innovating services for Catholic institutions as well as the public due to many obstacles and a lack of organizational understanding of and investment in archives. Likewise, a 2011 Survey of Digitized Rare Catholica among North American Catholic college, university, and seminary libraries revealed that 67% of such institutions have not yet digitized their Catholic resources. Most indicated lack of money, staff, and time as the major barriers to digitization, and did not have an institutional repository to hold digital materials, nor a digital specialist dedicated to digital projects. Such anecdotes and the survey findings suggest a need to explore the state of Catholic archives and identify norms to define appropriate action and further research. In response, Dr. Choi conducted a survey providing a snapshot of the nature of Catholic archives. The survey goal was to provide a context and the current status of Catholic archives in adapting to this changing world. Results will guide the professional archival community and educational programs in discussions about collaborative actions and decisions necessary to care for endangered Catholic Church records and heritage.

Dr. Choi's presentation addresses topics of archives' operation, administration, digital archives, and outreach, describing Catholic archives' operational elements compared with peer special collections and archives.

Molly Hazelton. Telling their stories: Developing a pedagogical framework for the capturing of oral histories of Catholic sisters.

The contributions of Catholic sisters to the history of our country are profound, ranging from founding hospitals to educating schoolchildren to working with the poor. However, in the narrative of women's history, their contributions remain largely invisible. Although the archives of communities of Catholic sisters have done an excellent job preserving paper archives, efforts to capture oral histories vary widely. The need to preserve their stories is increasingly pressing, as recent Vatican research indicates that the average age of Catholic sisters is in the mid-to-upper 70's. SisterStory, part of a broader initiative at St. Catherine University, funded by the Conrad N. Hilton Foundation, set out to develop an oral history project that could: 1) teach college students how to conduct archivally sound oral histories and 2) preserve the stories of this historically significant group of women. From 2013- 2017, college students nationwide collected over 180 oral histories of Catholic sisters representing over 20 different communities.

Oral History Project Coordinator Molly Hazelton will discuss the development of the oral history project, including the incorporation of oral history and archival pedagogy into a nation-wide student project led by a wide range of community partners and the challenges that come with a project of this nature.

Visit www.sisterstory.org to see samples from our oral histories.

Cecilia L. Salvatore. Developing a methodology for the care of records and archives of Catholic women religious communities.

Archivists are called to commit to social responsibility and social justice, such as by actively pursuing archives that would have been ignored, otherwise, if archivists maintain a neutral stance and only "receive" archival records and collections (Jimerson 2007). The processing, preservation, and stewardship of religious archives adheres to the archival conscience of social responsibility. In working with the archives of a religious order and preparing access tools and finding aids for them, the archivist inevitably partakes in the construction of the identity of the religious order. But Kaplan warns that identity can be constructed for social, political, or historical reasons.

As more and more Catholic religious communities are coming to the end of their historical journey, they are confronted with the pressing and dire question of what to do with their records. Students in the Archives and Cultural Heritage Program classes at Dominican University's School of Information Studies have participated in the archival processing of records of religious communities and congregations that have closed, mainly those records of the Dominican Order. For these students, diverse – and often unwieldy – issues come to the fore, which in turn mobilize a symbiotic relationship between themselves and the religious order. These issues include: appraisal of records, arrangement and description of records, preservation of records, and the legal, financial, social, and cultural systems in which the records were created and would now be made accessible. As instructor in the Archives and Cultural Heritage Program classes, Dr. Cecilia Salvatore describe these issues and the issues that emerge in the act of social responsibility and identity construction. Furthermore, she describes her own research and work on the records of a specific religious community that is coming to the end of its historical journey. The goal of her research is to develop a methodology for taking care of the records and archives of disappearing and transitioning communities.

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F That: Why Fake News and the Weaponization of Information are Good for LIS

Moderator: Shari Lee[a] [lees2@stjohns.edu], Renate Chancellor[b] [chancellor@cua.edu], Nicole Cooke[c] [nacooke@illinois.edu], and Joe Sanchez[d] [jose.sanchez2@qc.cuny.edu]

[a]St. John's University

[b]Catholic University of America

[c]University of Illinois at Urbana-Champaign

[d]Queens College, CUNY

ABSTRACT

In the US, recent developments in the information environment have created a national mood of distrust and highlighted the need for increased information/media/digital literacy. While some politicians and journalists have come to see the value of educating the public; it is problematic for LIS that neither of these players identified that "education" for what it really is, information literacy/fluency. Nor did they connect that solution to LIS. Why? The panel will answer this question and discuss how and why challenges created by the current information environment should be viewed as opportunities for improving LIS education as well as challenging perceptions of the profession.

TOPICS:

Information literacy; Education programs/schools; Political economy of the information society

INTRODUCTION

It is unlikely that Tim Berners-Lee foresaw the extent to which his Hypertext Markup Language would disrupt the lives of the American people, let alone the lives of people across the globe. Perhaps the most far-reaching have been the ongoing accusations and revelations of fake news and media bias among journalists and politicians in the United States. The most concerning is, perhaps, the global implications of *information as weapon*.

These developments have resulted in an information environment of distrust, where the notion of a universal truth is virtually non-existent. In this information environment, individuals seemingly choose their own truth. Also problematic is the general idea that any information with which one disagrees can be labeled "fake." This has created a national mood (Kingdon, 2010) of distrust, which speaks to the obvious need for increased information/media/digital literacy in the United States, as LIS stakeholders have long acknowledged. As Wineburg points out, "Online civic literacy is a core skill that should be insinuated into the warp and woof of education as much as possible" (Banks, 2016, para. 16).

This idea also appears to be gaining some traction among politicians and journalists, as several have recently suggested "educating the public" as one way of staving off the types of attack the US recently experienced during the 2016 Presidential Election; however, it is problematic for LIS that neither of these players identified that "education" for what it really is, information literacy/fluency. Nor did they connect it to LIS and the fact that libraries represent a readymade infrastructure through which this education could actually begin to take place. There was no connection made between Library and Information Science as a discipline and what the US has been experiencing with regard to fake news, the weaponization of information, or the need for information literacy. This gap is reflective of the longstanding disconnect between the public and Library and Information Science i.e., the public's general lack of knowledge regarding the discipline and practical applications of the profession (Kenney, 2013), as well as challenges to its legitimacy as a profession (Lonergan, 2009).

Regarding issues of digital literacy, Jaeger et al. (2012) contend that public libraries should have a seat at the policymaking table. They note that more strategic involvement in the policymaking process would provide an efficient method for bringing the library's message to stakeholders, because libraries as a group have often failed to articulate their message to policy makers, specifically regarding funding. Kingdon's (2010) three streams approach to how public policy is formed offers some insight as to why this might be the perfect time for this type of strategic involvement. He explains:

The separate streams of problems, policies, and politics come together at certain critical times. Solutions become joined to problems, and both of them are joined to favorable political forces. This coupling is most likely when policy windows - opportunities for pushing pet proposals for conceptions of problems - are open. (Kingdon, 2010, p.20)

In other words, once an issue becomes hot and a window opens (i.e., a near perfect opportunity to push that issue), stakeholders want input on how the policy develops, even if it's an agenda to which they are opposed. The American Library Association (ALA) did just that in 1993, when the National Information Infrastructure (NII) Agenda for Action was being developed. In its bid to protect the public good, the ALA was determined that the old rules should still apply to this new information infrastructure. Nevertheless, the NII heralded an information age that did, in fact, create new issues and problems that old rules and policies failed to adequately address. In 2016, fake news became one such problem. Today, it's a hot button issue – and for LIS stakeholders, a window is now open.

This panel will discuss how and why LIS stakeholders should exploit the current information environment as a means of improving or challenging perception of the profession, recruiting

students, developing new and relevant programs/curricula, supporting students, conducting globally relevant research, and securing a seat at the policymaking table. In addition, drawing on their respective areas of expertise, each panelist will provide specific ideas and strategies that can serve as models for audience participants.

STRUCTURE

The session will use the Ignite format. The session will begin with the introductions of the panel members and followed by an overview of the topics that will be discussed by the moderator (10 min). Each panel member will then present; these will be 7-10 minute presentations that will showcase key issues in a way that ensures audience interest and engagement. The audience will then be invited to respond, ask questions, and/or offer comments. More information about the Ignite approach is available at: http://sixminutes.dlugan.com/ignite-presentations/.

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LIS Qualifications, Certification, and the Meaning of 'Professional' Around the World

Saif Al Jabri[a] [saljabri01@gmail.com], Kendra Albright[b] [kalbrig7@kent.edu], Clara M. Chu[c] [cmchu@illinois.edu], Keren Dali[d] [keren.dali@alumni.utoronto.ca] (moderator), Primož Južnič [e] [Primoz.Juznic@ff.uni-lj.si], Filiberto Felipe Martínez-Arellano[f] [felipe@unam.mx], Dick Kawooya[g] [dkawooya@gmail.com], Jaya Raju[h] [jaya.raju@uct.ac.za], Ana Maria Talavera Ibarra[i] [atalave@pucp.edu.pe], and Anna Maria Tammaro[j] [annamaria.tammaro@unipr.it]

[a]Information Center, Sultan Qaboos University

[b] School of Information, Kent State University

[c] University of Illinois at Urbana-Champaign

[d] University of Calgary; [e] University of Ljubljana

[f] National Autonomous University of Mexico

[g] University of South Carolina

[h] University of Cape Town

[i] Pontificia Universidad Católica del Perú

[j] University of Parma

ABSTRACT

As the field of library and information science (LIS) grows increasingly interconnected on account of transborder mobility and international collaborations, the transferability of LIS credentials takes center stage. The knowledge of qualification and certification requirements become paramount for developing credential equivalencies across geographic borders and quality

assurance standards for relevant and meaningful LIS education. To address these issues, the proposed international panel will present selected results of the international survey, conducted by the IFLA BSLISE Working Group in the spring of 2017, thus injecting a timely international dimension into the conference discussion of the expanding LIS education universe.

TOPICS:

Accreditation; Curriculum; Education; Education programs/schools; Standards

PANEL DESCRIPTION

Background. The LIS education universe is expanding in response to new technologies, globalization, and socio-cultural developments that create opportunities and challenges in LIS teaching, research, and practice. International collaborative ventures and the increasing transborder mobility of LIS professionals put the issues of credentials equivalencies and education quality assurance in a spotlight (e.g., Dali & Dilevko, 2007, 2009). The IFLA Building Strong Library and Information Science Education (BSLISE) Working Group, an initiative of the IFLA Section on Education and Training (SET), LIS Education in Developing Countries SIG, and Section on Library Theory and Research (LTR), emerged after the 2016 IFLA Satellite Meeting; today it includes members from across the globe. As part of its mandate, BSLISE is working towards the development of an international quality assessment framework that will promote educational standards in LIS, on par with current socio-political and technological developments and inclusive of regional and national contexts. There have been past attempts by UNESCO and IFLA for curriculum harmonization, but significant results have never been achieved for the international recognition and equivalence of LIS qualifications (e.g., Bird, Chu, & Oguz, 2015; Johnson, 2013; Tammaro, 20015; Tammaro & Wheech, 2008; Wheech & Tammaro, 2012). The proposed framework will enable and facilitate the identification of core competences for LIS professionals that will allow for their mobility across geopolitical contexts. At present, however, there is a very limited understanding of differing educational and professional practice requirements around the world because education, certification, and accreditation systems are nationally or regionally based. The scarcity of vital, comprehensive, and current information in this regard presents one of the biggest obstacles for the framework development. There is a very uneven amount of knowledge about education and training practices and professional entry requirements from country to country; particularly palpable is the lack of information from and about developing countries.

Method. To compensate for this deficiency in the knowledge on international education and to map the LIS professional and educational landscape around the world, BSLISE conducted a survey that was available in six languages (Arabic, Chinese, English, French, Russian and Spanish) and administered online in March-May, 2017. The survey, combining multiple choice and open-ended questions, examined: (1) LIS qualification and certification requirements; (2) the definition and meaning of an LIS "professional"; and (3) agencies tasked with determining professional entry requirements. The survey received 795 responses from 100 countries. Meticulous work has been done to translate responses into English and to develop a uniformed and rigorous coding procedure for data comparability and quality control. This survey marked the initial phase of an ongoing research project geared toward developing the described framework. Preliminary findings will be

presented at the IFLA World Congress in August 2017, and feedback from the session will be integrated into the proposed ALISE panel.

PANEL STRUCTURE

Logistics. After a brief introduction by the moderator, the panelists will take turns discussing the salient issues related to:

(1) the previous international efforts to examine educational and professional qualifications and LIS education internationally (a brief historical overview);

(2) the challenges of studying the transferability and comparability of educational and professional qualifications, standards, and requirements;

(3) highlights of the survey findings, including but not limited to: a university degree as a mandatory requirement for practicing in the field; undergraduate vs. graduate education; librarians vs. information professionals in varying contexts; certification as a condition for professional practice; global similarities in education and practice; national, regional, and socio-cultural contexts accounting for differences in LIS education, accreditation, and certification; and so on;

(4) future directions, including: a) follow-up country- and region-based case studies, set to resolve ambiguities and gaps in the collected data and to generate additional qualitative material; and b) strategic planning for the development of a credential equivalency framework that will adhere to the principles of regional relevance, cultural sensitivity, and cross-border comparability and enable the transborder integration of LIS professionals and international collaborations in different areas.

Audience engagement. The panelists will employ a variety of techniques to facilitate audience engagement with the presented material. More traditional Q&A will be followed by relatable case-studies, problem-solving exercises, and specific scenarios that the audience will be invited to discuss, offer solutions to, or connect to their own teaching, professional practices, or curriculum design.

PANELISTS

All panelists are members of the IFLA BSLISE working group and are uniquely qualified to discuss issues at hand, based on their international experience with LIS education. They represent six countries, from developing and developed regions. All panelists have published and presented widely on the issues of international LIS credentials and international LIS education.

RELEVANCE AND IMPACT OF PANEL

Both panel discussions and audience engagement exercises will be designed with diverse attendees in mind and made relevant to: program directors, chairs, and other administrators; teaching faculty; practitioners; and graduate students. We hope that the issues we raise and the survey findings will shed some light on international approaches to curriculum content; the importance, usefulness, and practical applications of accreditation procedures through a comparative lens; and similarities and differences in professional practices and educational standards around the world. We hope that an international perspective, based on empirical research

and the collective experience of the panelists, will make a valuable contribution to the discussion of the expanding LIS education universe.

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Revisiting the Evolving Landscape of Open Access and Scholarly Communication

Daniel G. Alemneh[a] [Daniel.Alemneh@unt.edu], Abebe Rorissa[b] [arorissa@albany.edu], Shimelis Assefa[c] [Shimelis.Assefa@du.edu], Kris Helge[d] [khelge@twu.edu], Suliman Hawamdeh[a] [Suliman.Hawamdeh@unt.edu], and Samantha Hastings[c] [hastings@sc.edu]

[a]University of North Texas

[b]University at Albany, State University of New York

[c]University of Denver

[d]Texas Woman's University

[e]University of South Carolina

ABSTRACT

Open Access (OA) has the potential to increase the exposure and use of published research. A number of researchers explored the various facets of open access and how the movement impacted scholarly communication in general. Considering the evolving and unresolved issues around OA, this panel brings together diverse perspectives to review the current landscape and shed light on the future direction in terms of OA impact in expanding LIS Education Universe and in the overall advancement of scholarship in general.

TOPICS:

Scholarly communications

INTRODUCTION

The Open Access movement is transforming scholarly communication. While the notion of Open Access to scholarly information is not new, various factors, including federal mandates for sharing the products of federally funded research drive scholars to rethink traditional scholarship models (Herb, 2010).

The panelists will explore the various facets of open access and how the movement impacted scholarly communication in general. In particular, the panelists will argue as Pinfield et al. (2014) notes that open access plays significant roles in expanding LIS Education Universe, among other things by enabling scholars more equitable participation in research and development activities globally.

Based on the current practices and emerging trends, this panel will further assess the open access and scholarly communication landscape and speculate on the future direction, and the influence on global scholarship. Panelists will also highlight trends in open access practices around research datasets, including the publishing, sharing, use, citation, and management of research datasets alongside scholarly publications.

PANEL AGENDA

Each panelist will provide her/his unique perspective on the issues and panelists will share their personal viewpoints on how to enhance audience members' engagement with respect to open access.

Furthermore, this year's 10th International Open Access Week theme "Open in order to…", is an invitation to answer the question of what concrete benefits can be realized by making scholarly outputs openly available (SPARC, 2017).

The most recent UNESCO's fact sheet (Figure-1) presents the latest data, as of December 2016, on Global Investment on research and experimental development (R&D) (UNESCO Institute for Statistics, 2017). The most commonly used indicators to monitor resources devoted to R&D worldwide are gross domestic expenditure on R&D (GERD). Although the top-40 leading countries remain the same, some developing countries have relatively significantly increased their R&D expenditure. However, their research outputs still remain woefully low (less than 1% of the world output).

Notes: -1 = 2013; -3 = 2011.
Source: *UNESCO Institute for Statistics, August 2016*
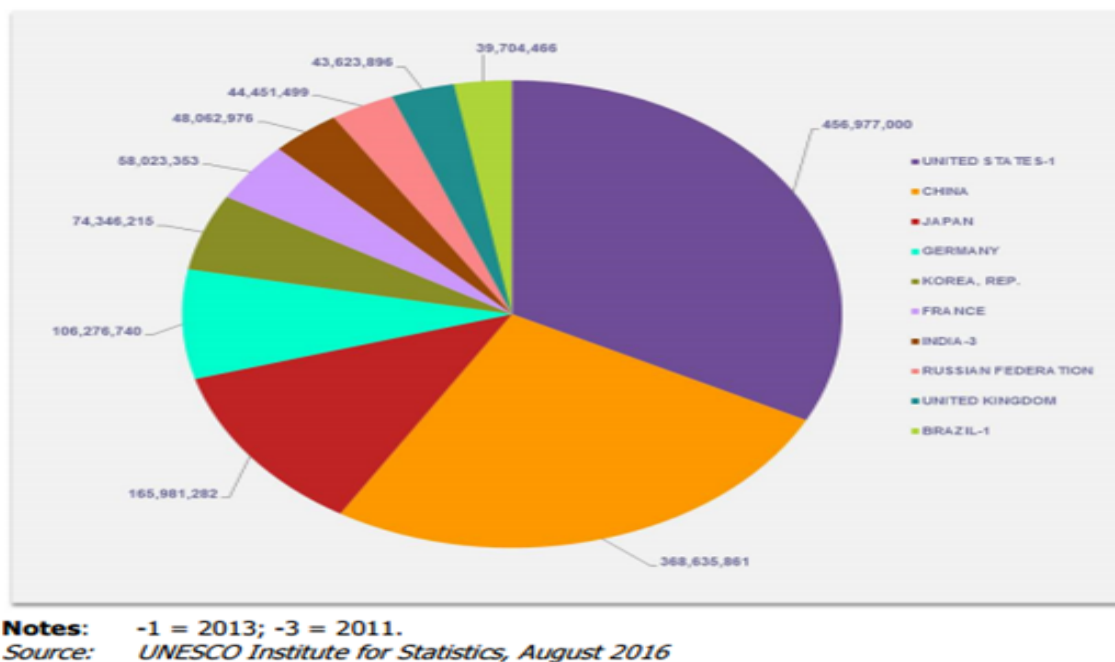
Figure 1. World's Top 10 Leaders in R&D Investment

In light of the prospects and challenges that this new environment brings, the panelists will provide overviews and lead discussions among audience members on a number of issues related to open access from a variety of perspectives.

Panelists' perspectives.

Dr. Daniel Alemneh is a faculty member at the University of North Texas, coordinator of digital curation activities and also teaching at the College of Information (University of North Texas, 2017). For the past 15 years, Dr. Alemneh has been actively involved in various professional activities including member of ASIS&T Board of Directors. Dr. Alemneh will offer a presentation on promoting Open Access and use of institutional repositories. He will also discuss and advocate the need for removal of barriers (including legal and technical) to facilitate the numerous digital curation activities required in the lifecycle management of digital resources.

Dr. Abebe Rorissa is an Associate Professor in the Department of Information Science at the University at Albany, State University of New York (SUNY). Dr. Rorissa's research focuses on multimedia information organization and retrieval, measurement and scaling of users' information needs and their perceptions of multimedia information sources and services, and use/acceptance/adoption and impact of information and communication technologies (ICTs). Dr. Rorissa will provide a broad overview of the articles in the Universal Declaration of Human Rights (UN General Assembly, 1948) that are relevant to open access. He will also facilitate a discussion among members of the audience on the idea of access to information as a basic human right. The guiding question for the discussion will be: what are the roles of information users, information creators (e.g., publishers), information professionals, educators, governments & elected officials,

professional associations, etc., in ensuring that access to information is guaranteed as a universal and basic human right (UN General Assembly, 1948).

Dr. Shimelis Assefa is Associate Professor in the Department of Research Methods and Information Science at the University of Denver. His research interests include scholarly communication and measurement of knowledge production; knowledge diffusion, learning technologies, and health informatics. He will discuss the landscape of scientific and technical research outputs together with trends and practices in open access efforts to publishing and sharing research datasets. Dr. Assefa invites panel attendees to participate in discussions that explores the following questions – to what extent does open access ease the lack of access in scientific and research outputs in developing countries; what is the perception of 'open data' in scholarly communications, and what are the challenges and enabling environments for data sharing.

Dr. Kris Helge is Assistant Dean for Academic Engagement Services at Texas Woman's University Library. Dr. Helge received his Ph.D in Information Science from the University of North Texas, his J.D. from South Texas College of Law Houston, and an M.L.S. from the University of North Texas. He will examine how the removal of barriers – (pricing, technical, and legal) facilitates access and use of scholarship globally. Some of these barriers consist of paywalls, contractual obstructions, obsolete or inadequate technology, and often-outdated policy. Strategies to remove such barriers include consortia agreements that successfully disseminate information, open institutional and research repositories, updated policy that fervently circulates information, educational endeavors that lead to open access, and the advocacy and implementation of licenses, policy, and contractual tools that lead to the free dissemination of information.

Dr. Suliman Hawamdeh is a Professor and Department Chair in the Department of Information Science at the University of North Texas. He is an expert and a pioneer in the field of knowledge management. He will discuss about Open Access in the context of Global Information Infrastructure. Given the importance of information as a key economic resource, access to information is a basic human right issue. This includes highlighting the importance of both physical and virtual libraries roles in providing open access to information. While open access to information might not mean free access to information, there is a need for developing an open access business model that insures the continuation and sustainability of open access repositories.

Dr. Samantha Hastings: Former Director and Professor of School of Library and Information Science at University of South Carolina; will moderate the discussions of this panel. As a proponent of Open Access, the former ASIS&T and ALISE President, and monographs Editor, Dr. Sam will offer her perspectives of the impact of open access for LIS research and scholarly communication in general.

EXPECTED OUTCOMES

The panel will be relevant to ALISE. In fact, in light of the theme of this year's conference "The Expanding LIS Education Universe" and the theme of Open Access Week, "Open in order to…", it is very fitting to revisit issues related to open access issues. It would be interesting to answer what openness means in various contexts, including as enabler to increasing the visibility and impact of scholarship at the individual level, at a particular institution, or in a specific discipline.

International Open Access WEXeek is indeed an opportunity to take action in order to open up access to research and to realize the benefits of openness. Accordingly, the panelists will discuss the feasibility of making openness the default for research.

Furthermore, audience members will be encouraged to use the hashtag #OpenInOrderTo to join the global community and continue an online conversation about the benefits of an open system of communicating scholarship, way beyond the time and location of the 2018 ALISE Annual Meeting.

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Teaching for Justice: Centering Social Justice in LIS Pedagogy

Nicole A. Cooke[a] [nacooke@illinois.edu], Miriam E. Sweeney[b] [mesweeney1@ua.edu], Sandra Hughes-Hassell[c] [smhughes@email.unc.edu], Bharat Mehra[d] [bmehra@utk.edu], John Burgess[b] [jtfburgess@ua.edu], Kevin Rioux[e] [riouxk@stjohns.edu], Julie Winklestein[d] [jwinkels@utk.edu], Jenny Bossaller[f] [bossallerj@missouri.edu], and Vandana Singh[d] [vandana@utk.edu]

[a]School of Information Sciences, The University of Illinois, Urbana-Champaign

[b]School of Library and Information Studies, The University of Alabama

[c]School of Information and Library Science, The University of North Carolina, Chapel Hill

[d]School of Information Sciences, The University of Tennessee

[e]Library and Information Science, St. John's University

[f]School of Information Science & Learning Technologies, The University of Missouri

ABSTRACT

This panel is based on the 2017 publication *Teaching for Justice* (Cooke & Sweeney, 2017), which was written as a response to the rising awareness of library and information science (LIS) educators about the need to integrate social justice frameworks and values into their pedagogy. This panel invites selected authors from *Teaching for Justice* into a conversation that considers the impacts of the current political environment on library services and professional practice. Building on strategies shared in the prior publication, this session explores what teaching for justice looks like in the current political landscape.

TOPICS:

Social justice; Critical librarianship; Pedagogy; Curriculum; Teaching faculty

TEACHING FOR JUSTICE

This lightning talk panel is based on the 2017 publication *Teaching for Justice* (Cooke & Sweeney, 2017), which was written as a response to the rising awareness amongst library and information science (LIS) educators of the need to actively integrate social justice frameworks, values, and strategies into LIS teaching practices and curricula as a foundation for training the next generation of just and critically-minded library and information professionals. "Teaching for justice" is a timely topic, as internal conversations about professional identity, status, scope of the field, and the role of LIS education are playing out against a panoply of complex external forces that include: decreased public funding for education and social services, increased state spending on mass incarceration and defense, widening wealth gaps, and the privatization of information. These are just some of the forces that are held in tension with LIS core professional values that emphasize access, democracy, public good, intellectual freedom, diversity, and social responsibility. These tensions are felt in the lived experiences of members of our communities, most keenly amongst those belonging to oppressed and marginalized groups.

Libraries and librarians have the potential to serve as the frontlines of advocacy and information provision in their communities. Research demonstrates the critical community-building and informational roles that libraries take on in times of economic downturn, natural disasters, and social crises. These issues raise questions for LIS educators; namely, are we, in fact, preparing students to engage in justice oriented professional practice? Do they have the appropriate knowledge and tools available to them to name, and interrogate, structures of power and inequality as they impact information professions and user communities? We cannot expect that students will somehow magically be prepared to take part in conversations about power and privilege, or be automatically culturally competent and self-reflective in their practice. These are skill sets that have to be intentionally developed, refined, and practiced as part of a life-long education process. Additionally, many LIS students come to their graduate education without prior exposure to cultural studies, gender and feminist studies, or ethnic and race studies courses. Initiating conversations about power reflected in systems of race, gender, class, and sexuality at this late stage provides a challenge for LIS educators who are effectually tasked with teaching students proficiency in these areas along with discipline specific knowledge. Thus, spreading social justice education across the LIS curriculum is crucial for sharing the burden amongst educators as well as for normalizing these values to our students.

Lastly, it is crucial that students come to think of justice oriented professional practice as part and parcel of everyday LIS work. The real stakes are in keeping justice anchored as a foundational and persistent feature of LIS professional norms and status quo. Social justice as an ethical framework can guide daily activities such as policy development, collection building, interpersonal interactions, reference work, information literacy, programming, outreach activities, and cataloging. Our role as LIS educators is to make these connections explicit for our students and provide them with the tools and strategies they can use as they go forward.

This panel will feature 10-minute lightning talks from several *Teaching for Justice* chapter contributors; each speaker will describe their chapter and how they employ social justice in the LIS classroom. All of the speakers have experience teaching either a stand-alone course(s) related to social justice, or otherwise infuse social justice principles and frameworks across the LIS curriculum in their courses.

- Kevin Rioux will describe his social justice framework, which articulates a "unified social justice stance for LIS curricula" to help bridge potentially disparate conceptual understandings of social justice within the field.
- John Burgess will discuss his chapter "Teaching the long game: Sustainability as a framework for LIS education," which posits sustainability theory as a potential framework for social justice in LIS that is compatible with extant professional values such as fair and equitable access to information and the public good.
- Julie Winklestein will discuss her chapter "Social justice in action: Cultural humility, scripts and the LIS classroom," which identifies the concept of "cultural humility" as a potential starting place for social justice librarianship.
- Sandra Hughes-Hassell will introduce her co-written chapter "Examining race, power, privilege and equity in the youth services classroom," which describes her master's level LIS course "Youth and Children's Services in a Diverse Society" that draws on critical race theory (CRT) and other cross-disciplinary frameworks to prepare students to work with diverse user communities.
- Jenny Bossaller will discuss her chapter "Social justice in study abroad," which evaluates the intentions and outcomes of three graduate level LIS study abroad programs that she designed and taught at the University of Missouri.
- Bharat Mehra and Vandana Singh will discuss their chapter "Library Leadership-In-Training as embedded change agents to further social justice in rural communities," which explains the integration of social justice agendas in the teaching of library management courses that were formed as a part of two grant projects associated with their university's "Information Technology Rural Library Master's Scholarship Program."

These short talks will highlight the challenges associated with transforming the normative space of higher education that go beyond updating content modules in a given course. A social justice curriculum, by definition, critiques and disrupts the normative environment, exposing asymmetrical power relations, within the classroom and discipline, for the purpose of formulating interventions and actions to redress inequalities associated with the status quo. It is hoped that these conversations will inspire, validate, and support LIS educators who are or wish to incorporate social justice into their pedagogy. The suite of talks will be followed by a 20-minute moderated and interactive discussion with the audience.

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Teaching Research Methods in LIS Programs: Approaches, Formats, and Innovative Strategies

Rong Tang[a] [rong.tang@simmons.edu], Lynn Silipigni Connaway[b] [connawal@oclc.org], Timothy J. Dickey[c] [tdickey1@kent.edu], Jenna Hartel[d] [jenna.hartel@utoronto.ca], Lori Kendall[e] [loriken@illinois.edu], Kristen Rebmann[f] [kristen.rebmann@sjsu.edu], and Elaine Yontz [g] [yontzm@ecu.edu]

[a]Simmons College

[b]OCLC Research

[c]Kent State University

[d]University of Toronto

[e]University of Illinois at Urbana-Champaign

[f]San Jose State University

[g]East Carolina University

ABSTRACT

This panel session features LIS faculty members exchanging information about their research methods courses, and discussing approaches ensuring that courses deliver both core knowledge and practically relevant skills. Panelists will present how research methods courses are taught in their respective LIS curricula with regard to whether it is required or elective, prerequisites, textbooks, delivery format, and assignments/projects. With emerging positions in UX, data science, and assessment librarianship, it is essential for LIS educators to understand how core knowledge areas are taught, and explore ways of incorporating emerging content areas, tools and approaches into the research methods pedagogy.

TOPICS:

Research methods; Pedagogy; Curriculum; Online learning

INTRODUCTION

Most accredited library and information science programs offer a research methods class featuring, among other things, a general survey of research thinking and process to prepare students as producers and consumers of research, quantitative, qualitative, and mixed methods designs, research instrumentation, and proposal or research report writing. With existing research librarian positions and emerging positions in UX, data science, and assessment librarianship, it is essential for LIS educators to examine practices of teaching research methods across LIS curricula and to understand how core knowledge areas are consistently taught, and to explore ways to incorporate emerging content areas, new tools, and approaches into the classroom (whether face-to-face or online).

PANELISTS AND MODERATOR

The session moderator, Lynn Silipigni Connaway, is a world renowned expert in LIS research methods. Her book *Basic Research Methods in Library and Information Science* has been widely adopted as the textbook for LIS research methods courses. In addition to successfully conducting several funded user behavior research projects, Dr. Connaway taught research methods in a variety of LIS programs, including Royal School of Library and Information Science at the University of Copenhagen, University of Denver, and University of Missouri. Six panelists are faculty members of different LIS schools and programs, and together they have a wide range of experiences in teaching research methods at Master's or Doctoral level, through online or face-to-face, and as a small seminar or a large required class. In addition to exchanging information about how research methods courses are taught, panelists are keenly motivated to discuss current issues and existing gaps in teaching research methods in LIS and to explore innovative strategies for LIS research methods pedagogy.

SESSION DETAIL

In this 90-minute panel session, panelists will exchange information about the learning outcomes and content of their research methods courses, with the goal of aggregating best practices. Emphasis will be placed on approaches ensuring that courses deliver both core knowledge and practically relevant skills. Panelists will present how research methods courses are taught in their respective LIS curricula in terms of whether it is a required or elective course, depth (a series of classes or a single course), prerequisites, required and recommended textbooks, delivery format, course assignments and projects, and typical enrollments.

The questions that the panelists will address include:

1. Roles, purposes, and value of research methods courses in the MLIS curriculum.

2. Specific educational objectives of research methods courses and evaluation methods (e.g., assignments, in-class exercises, discussions, student presentations, etc.).

3. Tools and resources covered in the research methods course for sampling, participant recruitment, data collection, and data analysis.

4. Depth of knowledge required from Master's students about various reflective inquiry components, research design, sampling, data collection, data analysis and visualization.

5. Challenges, strengths, and gaps in teaching research methods across the LIS curriculum.

6. Ways in which research methods courses contribute to MLIS students' career preparation for existing and emergent professional positions.

7. Established practices and innovative strategies that may be employed to the teaching of research methods in LIS.

Interaction with the audience will follow after the presentation. Panelists will post the following questions to the audience:

1. What do you think are the core purposes of research methods courses in the MLIS curriculum?

2. What do you think students want to learn from these courses?

3. What other courses in the curriculum cover research methods and scholarly literature consumption and evaluation?

4. How much focus should be placed on instrumentation skills (in terms of coverage and emphasis) in the research methods course?

5. Does one research methods course per program model work well? What are the alternative ways to deliver the knowledge and skills (e.g., embed research methods content in a variety of courses without one dedicated course)?

6. Are there differences between the online delivery of a research methods course and a face-to-face one?

7. What differences, if any, are there between a Master's level research methods course and a doctoral level research methods course?

8. How can we make research methods courses timely, relevant, and practically useful?

Will "Online" Go The Distance? The Quality of Teaching and Evaluation in Online LIS Education

Keren Dali[a] [kdali@ualberta.ca], John Burgess[b] [jtfburgess@ua.edu], Shari Lee[c] [lees2@stjohns.edu], and James Vorbach[c] [vorbachj@stjohns.edu]

[a]SLIS, University of Alberta

[b]SLIS, University of Alabama

[c]DLIS, St. John's University

ABSTRACT

The universe of LIS education has dramatically expanded through the introduction of online distance education, bringing new opportunities and posing new challenges, which can be best solved collectively through the shared wisdom and experience of online educators. In the spirit of collaboration, this interactive engagement session will bring together the expertise and experience from three US and Canadian institutions. The panelists will delve into the larger ethical and pedagogical dilemmas of online teaching and also address specific methodological problems encountered by online instructors. Two aspects will be in the focus: (1) achieving the parity of educational experience in face-to-face and online courses; and (2) developing viable and valid evaluation methods for online projects.

TOPICS:

Education; Online learning; Pedagogy; Teaching faculty; Students

INTRODUCTION

The introduction of online learning in Library & Information Science (LIS) has reshaped the pedagogical landscape of the field. According to the American Library Association (ALA, 2017), there are currently 32 online LIS programs in the United States and Canada. Online education has become a staple of LIS graduate schools, with most ALA-accredited programs offering some version of online learning: from select courses to online teaching streams to fully online degrees. The universe of LIS education has thus expanded to include individuals who in the past would not be able to benefit from graduate studies easily: residents of rural and remote locations, those with full time jobs and conflicting personal and professional responsibilities, mature students, and so on. The online educational environment opens up new opportunities but also poses new challenges (e.g., Cook & Sonnenberg, 2014; Jahng et al., 2010; Khanova, 2013; Mok & Cheng, 2000), which

can be best solved collectively through the shared wisdom of online educators. Drawing on the advantages of collaboration and co-creation, this interactive engagement session will bring together the expertise and experience from three US and Canadian institutions. The panelists will delve into the larger ethical and pedagogical dilemmas of online teaching and also address specific methodological problems encountered by online instructors. Two aspects will be in the focus: (1) achieving the parity of educational experience in face-to-face and online courses by capitalizing on the interactive nature and technological capacities of the Internet and compensating for the deficiencies of online instruction; and (2) developing viable and valid evaluation methods for online projects.

CASE STUDIES

Case Studies: The proposed case studies will fall into the two aforementioned categories: student experience and experiential learning (cases 1 & 2) and evaluation (cases 3 & 4).

(1) Experiential Learning in Online Reference Courses (John Burgess). Offering reference courses online is affected by a reduced sensorium, when students practicing a reference encounter or an instructional session have no access to the instructor's body language, facial expressions, and immediate feedback as they would face-to-face. Textual feedback lags in time and is time-consuming for instructors. The proposed activity and discussion will introduce a method suitable for the synchronous online environment which improves experiential learning online, instills confidence and autonomy in students, and emphasizes low-risk learning whereby procedural errors do not impact grades. Participants in this group will engage in a "learning by play" activity and simulations of student-led role-play sessions (e.g., Dodd, 2014; Farné, 2005; Gitterman, 2004; Kuchah & Smith, 2011). The chosen user encounters will illustrate common ethical dilemmas on the reference desk. For this engagement, participants will be invited to use their own laptops/tablets, and internet access will be required.

(2) Incorporating the Student-Centered Focus in Online Learning (Shari Lee). This case study will discuss the significance of the student-centered focus in online learning; highlight several innovative online teaching strategies, which take the student-centered shift into account (e.g., Jowallah, 2014; Cook & Sonnenberg, 2014); and provide a "best practices" perspective drawing on the moderator's own experience. The follow-up activity will invite the group to respond to the introduced "best practices" presented through a series of specific examples. The post-activity discussion will focus on participants' own online teaching strategies; challenges they face; and opportunities for the future of online teaching and learning in LIS. A planned tangible outcome of this activity will be a compendium of thoughtful online teaching strategies.

(3) Managing and Evaluating an Online Group Project (James Vorbach). Group projects whereby students gain practical experience in designing websites are often found in online LIS courses. Using the example of designing a website for an archival collection exhibit, this case study will (1) discuss the issues involved in design stages (group formation & client selection; the initial meeting; research & design; and implementation) and (2) offer a set of sample questions for assessing student performance and related to content and methodology; student training; group composition; and the authenticity of tasks in the context of real-life applications (e.g., Darabi et al., 2010; Hamann et al., 2012; Oliphant & Branch-Mueller, 2016). Participants will be invited to apply the model questions to another design project of their own choosing and discuss their

experience through a series of follow up questions (e.g., What worked and what did not work for them? How would the situation be different in their institutions/programs?). Laptops/tablets and internet access will be required for this activity.

(4) "Task-Neutral" and "Environment-Neutral" Evaluation Strategies (Keren Dali). There is a lingering concern about standardized evaluation rubrics stifling student creative expression and innovative thinking and about the need for different evaluation approaches in online and face-to-face courses (e.g., Dali, 2017; Rogers, 1954; Sarooghi, Libaersa, & Burkemper, 2015). This case study will introduce grading grids developed by the moderator that can be termed "task-neutral" (i.e., applicable over a wide range of assignments and encouraging students' diverse and creative production) and "environment-neutral" (e.g., equally valid in face-to-face and online courses). After the demonstrated application of the grading grids to assignments as diverse as policy briefs and a learning object design, participants will be invited to apply these grids to online group assignments and projects that involve non-traditional deliverables, e.g., multimedia; images; creative writing; 3-D objects; videos. Sample assignment deliverables in different media will be prepared in advance and made available to participants.

STRUCTURE

The session will start with the introduction of speakers and the general introduction into the panel by the moderator (10 min) and continue with presentations of four case studies by four panelists taking turns; these will be delivered in a pecha-kucha-style format and highlight selected issues in an enticing and succinct way (5 min x 4 = 20 min). Then, after a brief Q&A (5-10 min), the audience will be invited to break down into four activity groups. Each table will be moderated by a panelist responsible for the issue in question. Attendees will have a chance to work through these issues using creative activities, hands-on exercises, and follow-up questions (30 min). The session will conclude with the general sharing of insights and discussion (20-25 min).

The innovative engagement mode, including 3-D objects, online demonstrations, and theatrical techniques, will ensure a stimulating, productive, and creative atmosphere to address pressing pedagogical issues.

PANELISTS

All panelists are well positioned to expertly speak on the issues at hand. DLIS at St. John's University (Shari Lee and James Vorbach) offers a fully online graduate degree in LIS; SLIS at the U of Alabama (John Burgess) offers synchronous and hybrid online courses; and SLIS at the U of Alberta (Keren Dali) is home to the only fully online LIS graduate degree in Canada.

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Special Interest Groups Sessions: An Introduction

The ALISE Special Interest Groups (SIGs) represent an important part of the ALISE community. The SIGs provide a vehicle for ALISE members to share ideas, plans, news, and opinions related to a particular area of interest, not only at the conference but also throughout the year. The ALISE SIGs constitute subcommunities within ALISE that focus on library and information science (LIS) educator roles and responsibilities, teaching and learning practices, and the range of curricular areas addressed in LIS programs.

The 12 SIG sessions accepted for the 2018 conference present a broad range of topics of interest to the LIS education and professional community. This year's sessions address faculty of color in LIS, the expanding array of curricular areas, technical services education, school library pedagogy, information ethics, history and theory in LIS, expanding literacies, practitioner input in curricular design, STEM in libraries, trends in archival education, and international aspects of LIS education.

A Critical Dialogue: Faculty of Color in Library and Information Science

Nicole A. Cooke [a] [nacooke@illinois.edu], Tonia Sutherland [b] [tnsutherland@ua.edu], Beth Patin [c] [bethp@uw.edu], Renee Franklin Hill [d] [rfhill@umd.edu], Amelia Gibson [e] [angibson@email.unc.edu], Joe Sanchez [f] [Jose.Sanchez2@qc.cuny.edu], Bharat Mehra [g] [bmehra@utk.edu], Monica Colon Aguirre [h] [monica.colon-aguirre@simmons.edu], Vanessa Irvin [i] [irvinv@hawaii.edu] and Renate Chancellor [j] [chancellor@cua.edu]

[a] University of Illinois, Urbana-Champaign

[b] The University of Alabama

[c] University of Washington

[d] University of Maryland

[e] University of North Carolina, Chapel Hill

[f] Queens College

[g] University of Tennessee, Knoxville

[h] East Carolina University

[i] University of Hawaii

[j] Catholic University

Curricula and Programs for the Expanding LIS Education Universe

Karen Miller [a] [millerk8@email.sc.edu], Rajesh Singh [b] [singhr1@stjohns.edu], Lilia Pavlovsky [c] [pavlovsk@comminfo.rutgers.edu], Elysia Guzik [d] [elysia.guzik@mail.utoronto.ca], Anh Thu Nguyen [d] [hanhthu.nguyen@mail.utoronto.ca], Jenna Hartel [d] [jenna.hartel@utoronto.ca], Deborah Hicks [e] [deborah.hicks@ubc.ca], Suliman Hawamdeh [f] [Suliman.hawamdeh@UNT.EDU] and Cheryl Stenstrom [g] [cheryl.stenstrom@sjsu.edu]

[a] University of South Carolina

[b] St. John's University

[c] Rutgers University

[d] University of Toronto

[e] University of British Columbia

[f] University of North Texas

[g] San Jose State University

Expanding Literacies Across the LIS Education Universe

Ellen M. Pozzi [a] [pozzie@wpunj.edu], Kathleen Campana [b] [kcampan2@kent.edu], J. Elizabeth Mills [c] [jemills1@uw.edu], Michelle Martin [c] [mhmarti@uw.edu], Lesley S. J Farmer [d] [Lesely.Farmer@csulb.edu], Annette Goldsmith [c] [agoldsmi@uw.edu], Amanda Hovious [e] [amandahovious@my.unt.edu], and Marianne Martens [b] [mmartenc@kent.edu]

[a] William Paterson University

[b] Kent State University

[c] University of Washington

[d] California State University Long Beach

[e] University of North Texas

Expanding Technical Services Education: From Cataloging and Classification to Electronic Resources and Information Infrastructure Development

Sarah W Sutton (co-convener) [a] [ssutton3@emporia.edu], Susan Rathbun-Grubb (co-convener) [b] [SRATHBUN@mailbox.sc.edu], John D'Ignazio [c] [jadignaz@syr.edu], Cris Ferguson [d] [ferguson13@murraystate.edu], Gretchen Hoffman [e] [ghoffman@twu.edu], Sue Kimmel [f] [skimmel@odu.edu], Maurine McCourry [g] [mmcourry@hillsdale.edu], Heather Moulaison-Sandy [h] [moulaisonhe@missouri.edu], and Karen Snow [i] [ksnow@dom.edu]

[a] Emporia State University

[b] University of South Carolina

[c] Syracuse University

[d] Murray State University

[e] Texas Woman's University

[f] Old Dominion University

[g] Hillsdale College

[h] University of Missouri

[i] Dominican University

The Expanding Universe of School Library Pedagogy, Practice, and Research

Mirah Dow [a] [mdow@emporia.edu], Kenneth Thompson [a] [kthompso@emporia.edu], Lucy Santos Green [b] [lucysantosgreen@gmail.com] and Abigail Phillips [c] [abigail.phillips@usu.edu]

[a] Emporia State University

[b] University of South Carolina

[c] Utah State University

Exploring the Boundaries of Information Ethics

John Burgess[a] [jtfburgess@ua.edu], Emily Knox[b] [knox@illinois.edu], Keren Dali[c] [kdali@ualberta.ca], John Budd[d] [buddj@missouri.edu], Iulian Vamanu[e] [iulian-vamanu@uiowa.edu], Toni Samek[c] [asamek@ualberta.ca], Cheryl Trepanier[c] [catrepan@ualberta.ca], and Ali Shiri[c] [ashiri@ualberta.ca]

[a]University of Alabama

[b]University of Illinois Urbana Champagne

[c]University of Alberta

[d]University of Missouri

[e]University of Iowa

History and Theory, Past and Future: Understanding the Changing Ideals of Professional Service

Jennifer Burek Pierce[a] [jennifer-burek-pierce@uiowa.edu], Anthony Bernier[b] [anthony.bernier@sjsu.edu], Joyce Latham[c] [latham@uwm.edu], Rachel Clarke[d] [rclark01@syr.edu], Jennifer Bossaler[e] [BossallerJ@missouri.edu], Chris Freeland[f] [chris.freeland@wustl.edu] and Ana Ndumu[g] [avg05d@my.fsu.edu]

[a]University of Iowa

[b]San Jose State University

[c]University of Wisconsin Milwaukee

[d]Syracuse University

[e]University of Missouri

[f]Washington University

[g]Florida State University

Is What You See What You Get?

Lesley S. J. Farmer[a] [lfarmer@csulb.edu] and Travis Wagner[b] [wagnertl@email.sc.edu]

[a]California State University Long Beach

[b]University of South Carolina

Practitioner Input in Curriculum Design: Is Our Present Model Working?

Linda Lillard[a] [llillard@clarion.edu], YooJin Ha[a] [yha@clarion.edu]

Cecilia L. Salvatore[b] [csalvatore@dom.edu], Nora J. Bird[c] [njbird@uncg.edu]

Michael Crumpton[c] [macrumpt@uncg.edu], and Jason Coleman[d] [coleman@k-state.edu]

[a]Clarion University of Pennsylvania

[b]Dominican University

[c]University of North Carolina at Greensboro

[d]Kansas State University Libraries

STEM in Libraries: Opportunities and Alliances for LIS Educators in This Uncharted Territory

Keliann MG LaConte [a] [klaconte@spacescience.org], R David Lankes [b] [rdlankes@mailbox.sc.edu], Mary Stansbury [c] [Mary.Stansbury@du.edu], and Mega Subramaniam [d] [mmsubram@umd.edu]

[a] Space Science Institute

[b] University of South Carolina

[c] University of Denver

[d] University of Maryland

Trends in Archival Education

Jennifer Douglas [a] [Jen.douglas@ubc.ca], Patricia C. Franks [b] [patricia.franks@sjsu.edu], Sarah A. Buchanan [c] [buchanans@missouri.edu], and Rhonda L. Clark [d] [rclark@clarion.edu]

[a] University of British Columbia

[b] San Jose State University

[c] University of Missouri

[d] Clarion University

Within and Without: International Aspects of LIS Education

Andrew J. M. Smith [a] [asmith37@emporia.edu], Clara Chu [b] [cmchu@illinois.edu],
Zamir Hassan [c] [mzamir@dom.edu], Dick Kawooya [d] [kawooya@sc.edu],
Ramona La Roche [d] [rlaroche@email.sc.edu], and Jaya Raju [e] [jaya.raju@uct.ac.za]

[a] Emporia State University

[b] University of Illinois at Urbana Champaign

[c] Dominican University

[d] University of South Carolina

[e] University of Cape Town, South Africa

ALISE/Jean Tague-Sutcliffe Doctoral Student Research Poster Competition: An Introduction

This doctoral students research poster competition was established in memory of Jean Tague-Sutcliffe, professor and former dean of the Graduate School of Library and Information Science at the University of Western Ontario (now the Faculty of Information and Media Studies). During her thirty-year career, Professor Sutcliffe's research on the measurement of information made significant contributions to the theoretical, methodological, and practical foundations of library and information science. This award was established by students at UWO in 1997. This award is sponsored by the Western University, Faculty of Information and Media Studies. The first-place winner will receive a one-year student membership to ALISE and $200 cash prize.

This year 26 eligible students will present their posters and compete in the ALISE/Jean Tague-Sutcliffe Doctoral Student Research Poster Competition.

June Abbas & Pnina Fichman

The 2018 ALISE/Jean Tague-Sutcliffe Doctoral Student Research Poster Competition Co-Chairs

Censorship in Public Libraries: An Analysis Using Gatekeeping Theory

Jennifer Elaine Steele [jsteele1@crimson.ua.edu]

Advisor: Laurie Bonnici [lbonnici@ua.edu]

The University of Alabama

Collaborative Learning in Online Environment: An Exploratory Study of MLIS Students' Experiences in Group Assignments

Shabnam Shirley Shahvar [shahvar@simmons.edu]

Advisor: Rong Tang [rong.tang@simmons.edu]

Simmons College

Convivial Making: Power and the Library Faith in Public Library Creative Places

Shannon A. Crawford Barniskis [crawfo55@uwm.edu]

Advisor: Joyce M. Latham [latham@uwm.edu]

University of Wisconsin-Milwaukee

Cross-Cultural Adaptation of Classification: The Case of the Korean Decimal Classification (Doctoral dissertation)

Inkyung Choi [ichoi@uwm.edu]

Advisor: Hur-li Lee [hurli@uwm.edu]

University of Wisconsin – Milwaukee

Data Service Librarianship: A Comparative Analysis between the Role of Emerging Data Librarians and Traditional Research Librarians in RI, RII, RIII University Libraries and Oberlin Group Libraries

Watinee Sae-Lim [saelim@simmons.edu]

Advisor: Rong Tang [rong.tang@simmons.edu]

Simmons College

Dynamics of Peer Production of Knowledge in Online Social Q&A Communities: A Life-Cycle Perspective of Successful and Failed Cases

Hengyi Fu [hf13c@my.fsu.edu]

Advisor: Besiki Stvilia [bstvilia@fsu.edu]

Florida State University

Emotional-Social Intelligence and Award-Winning Reference and Information Services Librarians in Academic Libraries

Terri L. Summey [tsummey@emporia.edu]

Advisor: Mirah J. Dow [mdow@emporia.edu]

Emporia State University

Everyday Life and Health Information Practices of a Natural Immunity Advocate

Samantha Kaplan [sjkaplan@live.unc.edu]

Advisor: Ryan Shaw [ryanshaw@unc.edu]

University of North Carolina at Chapel Hill

Foreign-Born Blacks & Information Overload: A Three-Paper Dissertation

Ana Valeska Ndumu [avg05d@my.fsu.edu]

Advisor: Gary Burnett [gburnett@fsu.edu]

Florida State University

A Grounded Theory of Information Quality in Web Archives

Brenda Reyes Ayala [brenreyes@gmail.com]

Advisor: Jiangping Chen [jiangping.chen@unt.edu]

University of North Texas

The Impact of Research Data Sharing and Re-Use on Data Citation in STEM Fields

Hyoungjoo Park [park32@uwm.edu]

Advisor: Dietmar Wolfram [dwolfram@uwm.edu]

University of Wisconsin – Milwaukee

Information Seeking Behavior of Geologists When Searching for Physical Samples

Sarah Ramdeen [ramdeen@email.unc.edu]

Advisor: Claudia Gollop [gollop@ils.unc.edu]

University of North Carolina at Chapel Hill

Information Seeking Behavior of Public Health Professionals in the U.S.: An Exploratory Investigation

Sarah Al-Mahmoud [mahmouds@simmons.edu]

Advisor: Rong Tang [rong.tang@simmons.edu]

Simmons College

Managing Personal Health Information from Activity Trackers: The Healthy Users' Perspective

Yuanyuan Feng [yf93@drexel.edu]

Advisor: Denise E. Agosto [dea22@drexel.edu]

Drexel University

Modeling Participatory Literacy: An Analysis of Social Reading and New Media Convergence in Vlogbrothers' Videos, 2007-2012

Alaine Martaus [martaus2@illinois.edu]

Advisor: Kate McDowell [kmcdowel@illinois.edu]

University of Illinois, Urbana-Champaign

The Multimodal Power of Storytime: Exploring an Information Environment for Young Children

Kathleen Campana [kcampana@uw.edu]

Advisor: Allyson Carlyle [acarlyle@uw.edu]

University of Washington

"My Audience is Me": Embodied Sensibility When Creating the Serious Beauty and Lifestyle YouTube Video

Leslie Thomson [lethomso@ad.unc.edu]

Advisor: Barbara Wildemuth [wildemuth@unc.edu]

University of North Carolina at Chapel Hill

A Nice Place on the Internet": An Exploratory Case Study of Teen Information Behavior in an Online Fan Community

Amanda Waugh [awaugh@umd.edu]

Advisor: Mega Subramaniam [mmsubram@umd.edu]

University of Maryland

'Other' Librarian: Library Paraprofessionals from Preparation to Practice

Norene Erickson [njames@ualberta.ca]

Advisor: Jennifer Branch [jbranch@ualberta.ca]

University of Alberta

Rural Public Library Assets and Socioeconomic Demographics: A Multi-Classification Study

Karen A. Miller [millerk8@email.sc.edu]

Advisor: Jennifer W. Arns [arnsj@mindspring.com]

University of South Carolina

Safe for Whom?: Censorship and Safety on the Reality Storytelling Stage

Sarah Beth Nelson [sbnelson@live.unc.edu]

Advisor: Brian Sturm [sturm@ils.unc.edu]

University of North Carolina at Chapel Hill

The Social Construction of Risk in the Audit and Certification of Trustworthy Digital Repositories

Rebecca D. Frank [frankrd@umich.edu]

Advisor: Elizabeth Yakel [yakel@umich.edu]

University of Michigan

Understanding the Factors That Influence Interactive Innovation Adoption in Health Care: A Study at a Research-Intensive Medical Center

Danielle Pollock [dpolloc2@vols.utk.edu]

Advisor: Suzie Allard [sallard@utk.edu]

University of Tennessee at Knoxville

User Engagement in Web-Based Interactive Visual Information Searching

Qiong Xu [qxu5@crimson.ua.edu]

Advisor: Dan Albertson [dalbert@buffalo.edu]

The University of Alabama

User Experience and Information Architecture of National Library Websites

Reham Isa Alshaheen [reham.alshaheen@simmons.edu]

Advisor: Rong Tang [rong.tang@simmons.edu]

Simmons College

Walking a Tightrope Without a Net: Exploring How Rural Homeless Adults Use Information to Solve Problems While Residents at a Northern Midwest Rural Homeless Shelter

Tracie M Kreighbaum [tkreighb@g.emporia.edu]

Advisor: Mirah Dow [mdow@emporia.edu]

Emporia State University

Works in Progress Posters: An Introduction

The Works-in-Progress (WiP) Poster Showcase will demonstrate an excitingly wide variety of topics and methods that reflect the theme of the ALISE 2018 conference. In total, 68 posters were accepted and are expected to be presented. There is a strong focus on equity, diversity, inclusivity, and welcomeness, including education and efforts to foster access for users of specific ethnicities and races, across spectra of genders and neurodiversity, and in an array of settings both global and hyperlocal. Additionally, a substantial number of posters is devoted to data policy and practices, including data curation, linked data, learning analytics, scholarly communication and open access, and use of data in and out of libraries by members of the public and other researchers. The shared focus on education for LIS shows a technical and entrepreneurial bent, with examinations of how to incorporate technology into pedagogy and practice through techniques such as interface design, visualization, coding and making, and virtual reality. Overall, the WiP posters show an enthusiasm for the expanding horizons of LIS education that combines thoughtful approaches to data and technology with vigorous programs for engagement and inclusivity.

Authors and presenters of the WiP Poster Showcase represent many countries and different continents, further enhancing the reputation of ALISE as an international venue for research dissemination. As Co-Chairs, it was a pleasure to read all submissions and to gain perspective on the diverse range of research within LIS education. We thank all authors and upcoming presenters, and we look forward to seeing the outcomes of these works at the WiP Poster Showcase at ALISE 2018.

Michelle Kazmer & Dan Albertson

ALISE 2018 Works in Progress Poster Co-Chairs

An Analysis of Emotional Support Exchanges in Autism Support Groups on Facebook

Yuehua Zhao [yuehua@uwm.edu], Jin Zhang [jzhang@uwm.edu],
and Xin Cai [xincai@uwm.edu]

University of Wisconsin-Milwaukee

Assessing Factors Affecting Young African Americans' Adoption of Mobile Health Technology for Managing a Healthy Lifestyle

EunYoung Yoo-Lee [a] [eunyoung@NCCU.EDU] and Kyung-Sun Kim [b] [kskim@slis.wisc.edu]

[a] North Carolina Central University
[b] University of Wisconsin at Madison

Assessment of Rural Library Professionals' Role in Community Engagement in the Southern and Central Appalachian Region: Mobilization from Change Agents to Community Anchors

Bharat Mehra [bmehra@utk.edu], Vandana Singh [vandana@utk.edu],
and Everette Scott Sikes [esikes@vols.utk.edu]

University of Tennessee at Knoxville

The Association of Sexual Health Information Behavior with the HIV Testing Behavior of Young Black Men Who Have Sex with Men (YBMSM) in Rural and Urban Areas of North Carolina

Megan Threats [meganv@live.unc.edu]

University of North Carolina at Chapel Hill

Attitudes of Scholars Towards Open Access (OA) Publishing

Ahmet Tmava [Ahmet.Tmava@unt.edu]
and Daniel Alemneh [Daniel.Alemneh@unt.edu]

University of North Texas

Bibliometric Analysis for Measuring the Value of Research Data: Using Hints Dataset

JungWon Yoon [a] [jyoon@usf.edu], EunKyung Chung [b] [echung@ewha.ac.kr],
Jae Yun Lee [c] [memexlee@mju.ac.kr], and
Mary Kate Downing [a] [marykated@mail.usf.edu]

[a] University of South Florida
[b] Ewha Womans University
[c] Myongji University, South Korea

Black Mothers, Public Housing, & Information Space:
Exploring Theory Building Using Historical Case Study Method

LaVerne Gray [lgray7@vols.utk.edu]

University of Tennessee at Knoxville

The Burden of Generosity: Assessing Formal Donor Relations Education
in LIS Programs

Jane Thaler [a] [jsn23@pitt.edu] and Samantha Mat [b] [samanthamatmat@gmail.com]

[a] University of Pittsburgh
[b] University of Colorado Boulder

The Challenge of Collaboration between Schools and Libraries

Anu Helena Ojaranta [a] [anu.ojaranta@abo.fi] and Siinamari Tikkinen [b]
[siinamari.tikkinen@gmail.com]

[a] Åbo Akademi University, Finland
[b] Oulu University, Finland

Challenges of LIS Education in China: From the Perspective of LIS
Schools' Deans and Department Chairs

Si Li [1550124245@qq.com] and Changyang Feng [fengchangyang@whu.edu.cn]

School of Information Management, Wuhan University, China

Community Inquiry as Impact Infrastructure in Public Library Practice

Sharon L. Comstock [sharonc@evpl.org], Charles Sutton [charless@evpl.org],
Jerica Copeny [jericac@evpl.org],
and Cynthia Sturgis Landrum [cyndeel@evpl.org]

Evansville Vanderburgh Public Library

Configuring the Scope of Digital/Data Curation in LIS Education

Seungwon Yang [a] [seungwonyang@lsu.edu], Boryung Ju [a] [bju1@lsu.edu],
and Haeyong Chung [b] [haeyong.chung@uah.edu]

[a] Louisiana State University

[b] University of Alabama Huntsville

A Continuum of Care: School Librarian Interventions for New Teachers

Rita R. Soulen [rsoulen@odu.edu]

Old Dominion University

Creating Rural "Infostructures": Preparing for the Challenges of Rural Librarianship

Jessica Massey Ross [jrmassey1@crimson.ua.edu]

University of Alabama

Demographic Characteristics of Doctoral Students and Their Information Exchange with Faculty Advisors

Jongwook Lee [drlee@kongju.ac.kr]

Kongju National University, South Korea

Educating the Entrepreneurial Librarian

Nora Bird [njbird@uncg.edu] and Michael Crumpton [macrumpt@uncg.edu]

University of North Carolina at Greensboro

Enacting the Library as Transformational Space

Karen Sobel [a] [Karen.Sobel@ucdenver.edu] and Zachary Newell [b] [zlnewell@gmail.com]

[a] University of Colorado

[b] Salem State University

Evaluating Virtual Reality Use in Academic Library-Supported Course Integrations: Methodology and Initial Findings

Zack Lischer-Katz [zlkatz@gmail.com] and Matt Cook [mncook@ou.edu]

University of Oklahoma

Expanding LIS Education by Thinking about How Academic Librarians Can Collaborate with Undergraduate Women and Faculty in the STEM Fields

Rebecca O'Kelly Davis [davisr3@simmons.edu]

Simmons College

Expanding Scholarly Communication Instruction for the Next Generation of LIS Leaders

Maria Bonn [a] [mbonn@illinois.edu], William Cross [b] [wmcross@ncsu.edu], and Joshua Bolick [c] [jbolick@ku.edu]

[a] University of Illinois Urbana Champaign

[b] North Carolina State University

[c] University of Kansas

Expanding the North American Approach to LIS Education: How Should Globalization and the Network Society in Serbia Influence Professional Practice?

Amanda Eileen Harrison [aesharrison@gmail.com]

Emporia State University

Factors Influencing Cancer Clinical Trials Information Seeking Behaviors in Underrepresented Populations

Lynette Hammond Gerido [lhg16@my.fsu.edu] and Zhe He [Zhe.He@cci.fsu.edu]

Florida State University

Flipped Classroom to Teach Web-Based Services Offered by Libraries to LIS Students

Sangeeta Namdev Dhamdhere [modernlibrary.sangeeta@gmail.com]

Modern College of Arts, Science and Commerce, Ganeshkhind, Pune, India

The Genealogy Quest: Why LIS Faculty Need to Teach Family History Services

Rhonda Lebedev Clark [rclark@clarion.edu]

Clarion University

Generation Examination: The Experience of Gen-X Women with Mobile Games

Michelle Kaput Benedicta [benemich@my.dom.edu]

Dominican University

Health Literacy and Mental Health of Youth Involved
in the South Carolina Juvenile Justice System

Yao Zhang [a] [yzhangko@163.com], Xiaoming Li [b] [xiaoming@mailbox.sc.edu],

and Sayward Harrison [b] [harri764@mailbox.sc.edu]

[a] Kent State University

[b] University of South Carolina

Historical Case Study: A Diachronic and Comparative Research Strategy
in the LIS Multiverse

Michael Widdersheim [mwidders@emporia.edu]

Emporia State University

How IT Education Can Prepare Students for the IT Workforce Needs:
Any Opportunities or Challenges?

Jung Hoon Baeg [jhb6536@my.fsu.edu], Marcia Mardis [marcia.mardis@cci.fsu.edu],

Charles McClure [cmcclure@lis.fsu.edu], Sang Hoo Oh [so17c@my.fsu.edu],

and Faye Jones [Faye.Jones@cci.fsu.edu]

Florida State University

How Useful is the Saudi Digital Library to Locate Arabic Language Resources?

Hany M. Alsalmi [hma16c@my.fsu.edu]

Florida State University

Human Resource Challenges in Developing Public Library Services System and the Demand for LIS Education

Jing Zhang [zhangj87@mail.sysu.edu.cn], Xiaoying Xu [649816028@qq.com], and Siyu Li [576702078@qq.com]

Sun-Yat sen University, China

The Impact of a Problem Based Learning Approach Applied to Library Science Education in South Korea

Yong-Jae Lee [lyj5384@pusan.ac.kr]

Pusan National University, South Korea

Information Needs and Behavior of Spanish-Speaking Communities in Times of Social, Economic and Political Changes

Sylmari Burgos-Ramirez [burgoss@simmons.edu]

Simmons College

Instructing the Instructional Librarian: Best Practices for MLS Programs

Sandra J Valenti [svalenti@emporia.edu]

Emporia State University

Interdisciplinary Framework for LIS Mission Statement Analysis

Monica Colon-Aguirre [a] [mcaguirre@hotmail.com]

and Desiree Alaniz [b] [desiree.alaniz@simmons.edu]

[a] East Carolina University;

[b] Simmons College

Intersectional Reference: Expanding LIS to Equitably Service Diverse Users

Diana Floegel [djfloegel@gmail.com]

Rutgers, The State University of New Jersey

Language and Spatial Agency in Disclosive Interface Design

John Daniel Martin III [john.d.martin.iii@unc.edu]

University of North Carolina at Chapel Hill

Learning and Creation in Makerspaces: Implications for Expanding LIS Education

Kyungwon Koh [kkoh@ou.edu]

University of Oklahoma

Librarians Matter! Librarian Impact on Young Adult Information Literacy within Community Libraries

Toni McGee [holden_toni@hotmail.com]

Dominican University

A Linked Data Competency Framework for Educators and Learners

Michael Crandall [a] [mikecran@uw.edu], Marcia L. Zeng [b] [mzeng@kent.edu],

Stuart A. Sutton [c] [sasutton@dublincore.net], and Thomas Baker [c] [tom@tombaker.org]

[a] University of Washington;

[b] Kent State University

[c] Dublin Core Metadata Initiative

LIS Education to Save the World: Information Skills for International Development

Devendra Potnis [dpotnis@utk.edu]

University of Tennessee at Knoxville

Machine Translation and Scholarly Communication: Why? When? How?

Jairo Nabor Buitrago Ciro [jbuit008@uottawa.ca]

and Lynne Bowker [lbowker@uottawa.ca]

University of Ottawa

Marathon runners and smartwatches: Running for information

Nathaniel Ramos [nramos33@me.com]

Florida State University

A Moveable Feast on the Eastern Seaboard: Hiking, Dancing, Martial Arts (and More) in Public Libraries

Noah Lenstra [a] [njlenstr@uncg.edu] and Ellen Rubenstein [b] [erubenstein@ou.edu]

[a] University of North Carolina at Greensboro

[b] University of Oklahoma

Neighborhood Walks and Community Talks: A Research Study Examining Public Library Family Outreach Strategies and Challenges

J Elizabeth Mills [a] [jemills1@uw.edu], Kathleen Campana [b] [kcampan2@kent.edu], and Michelle H Martin [a] [mhmarti@uw.edu]

[a] University of Washington

[b] Kent State University

On Perceptions of Welcomeness in Academic Libararies: A Black Perspective

Brenton Stewart [a] [brentonstewart@lsu.edu], Boryung Ju [a] [bju1@lsu.edu], and Kaetrena Davis-Kendrick [b] [kaetrena@mailbox.sc.edu]

[a] Louisiana State University

[b] University of South Carolina Lancaster

Power Up: Exploring Gaming in LIS Curricula in South Korea

Jonathan M. Hollister [a] [hollisterjm@pusan.ac.kr],
Aaron J. Elkins [b] [aelkins3@twu.edu], and Jisue Lee [c] [jl10n@fsu.edu]

[a] Pusan National University, South Korea

[b] Texas Woman's University

[c] Florida State University

A Preliminary Analysis of American Library Association's Libraries Transform Campaign in Twitter

Yin Zhang [yzhang4@kent.edu] and Emad Khazraee [skhazrae@kent.edu]

Kent State University

Python Programming, Version Control and Professional Collaboration for MSIS Students

Elliott Hauser [eah13@mac.com]

University of North Carolina at Chapel Hill

Reaching Hidden Communities within the Academy

Tracy Gilmore [a] [tgilmore@vt.edu] and Lenese Colson [b] [lcolson@odu.edu]

[a] Virginia Tech

[b] Old Dominion University

Recruiting Hard-to-Reach Academic Library Users: Preliminary Findings

Amelia Anderson [amelia.anderson@fsu.edu] and Nancy Everhart [everhart@fsu.edu]

Florida State University

A Research Approach for Investigating the Role of Open Data in the Environmental Justice Movement

Michelle Parker [mparke48@vols.utk.edu],

Danielle Pollock [dpolloc2@vols.utk.edu], and Suzie Allard [sallard@utk.edu]

University of Tennessee at Knoxville

Rock, Paper, Scissors: "Informative" Visualizations in LIS Thought

Betsy Van der Veer Martens [bvmartens@ou.edu]

University of Oklahoma

Rolling Dice: Librarians' Views of E-Book Purchase

Mei Zhang [mzhang48@wisc.edu]

University of Wisconsin-Madison

Similarities and Variation of Library and Information Courses Offered Among 4 Universities in Nigeria and United States

Musa Dauda Hassan [mhdauda@uwm.edu]

University of Wisconsin Milwaukee

Student Engagement for Student Learning

Elizabeth Lieutenant [e.lieutenant@me.com]

Quality Information Partners

Student Surveillance in the Age of Learning Analytics: An Inquiry into LIS Syllabi and Student Privacy Policies

Kyle M. L. Jones [a] [kmlj@iupui.edu] and Amy VanScoy [b] [vanscoy@buffalo.edu]

[a] Indiana University–Indianapolis

[b] University at Buffalo, The State University of New York

Teaching Information Tools on the Command Line: UNC's INLS 161

John D. Martin [jdmar3@unc.edu], Elliott Hauser [eah13@mac.com],
and Lawrence Jones [larry@ljonesdesign.com]

University of North Carolina at Chapel Hill

Theory and Users of Fake News

Dan Albertson [dalbert@buffalo.edu] and Siobhan Dempsey [sedempse@buffalo.edu]

University at Buffalo, The State University of New York

Towards a Pedagogy of Librarianship

Stephanie Sukoff Trzeciakiewicz [sclar031@odu.edu], Gail K. Dickinson [gdickins@odu.edu], and Bree Ruzzi [blave001@odu.edu]

Old Dominion University

Training Librarians to Better Serve Patrons Using Assistive Technologies: An Inquiry-Based Approach

Devendra Potnis [dpotnis@utk.edu] and Kevin Mallary [kmallary@vols.utk.edu]

University of Tennessee at Knoxville

Transformation of a Library Into a Learning Commons Through the Application of Knowledge Management Strategies

Noraida Domínguez-Flores [noraida.dominguez@upr.edu], Ana Rodríguez-Olmo [ana.rodriguez39@upr.edu], Jaime Rodríguez-Alicea [jaime.rodriguez16@upr.edu], Alexis López-Nieves [alexis.lopez2@upr.edu], Yomarilly Meléndez-Meléndez [yomarilly.melendez@upr.edu], and Rosana Torres-Cintrón [rosana.torres1@upr.edu]

University of Puerto Rico

Transformation of Library and Information Science Education in China

Changyang Feng [fengchangyang@whu.edu.cn]

Wuhan University, China

Understanding Information Behaviours of "Personal Connection" Researchers

Rob Anderson [rander39@vols.utk.edu]

University of Tennessee at Knoxville

User Experiences in the Academic Library for Students on the Autism Spectrum: An Ethnographic Research Study Using a GoPro Camera

Kristie Lynn Escobar [klescobar@fsu.edu] and Nancy Everhart [Nancy.Everhart@cci.fsu.edu]

Florida State University

What Influence YouTube Users' Attitude on Diabetes-Related Videos: A Preliminary Result

Yanyan Wang [a] [wang238@uwm.edu], Jin Zhang [a] [jzhang@uwm.edu], Yifan Zhu [a] [yifanzhu@uwm.edu], and Zhong Zheng [b] [zhengzhg@mail.sysu.edu.cn]

[a] University of Wisconsin Milwaukee
[b] Sun Yat-sen University, China

Young Children's Individual Interests & Information Practices: Pilot Study Findings & Lessons Learned

Sarah Barriage [sarah.barriage@rutgers.edu]

Rutgers, The State University of New Jersey

Young Early-Career Employees' Information Practices and Learning Preferences in the Workplace

SeoYoon Sung [ss2748@scarletmail.rutgers.edu]

Rutgers, The State University of New Jersey

Young People's Information Practices in Library Makerspaces

Xiaofeng Li [xiaofeng.li@rutgers.edu]

Rutgers, The State University of New Jersey

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