Marcia Zeng, PhD:
From Indexing to Knowledge Organization Systems, One Woman’s Journey Across the Globe and Into the Future of Library and Information Science

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ABSTRACT. In an interview, Marcia Lei Zeng, Professor of Library and Information Science at Kent State University, discusses her education, career path, important trends and their implications for digital libraries. Her professional interests are highlighted beginning in the early part of her career with indexing, classification, and information retrieval, and continuing with more recent interests in metadata and knowledge organization systems. doi:10.1300/J141v07n02_03 [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com> © 2004 by The Haworth Press, Inc. All rights reserved.]
When I first met Marcia she was a new faculty member at the Kent State University School of Library and Information Science. She was charmingly shy and slightly self-conscious in her new role as a university professor in a foreign country. Yet even under those intimidating circumstances she could not contain her enthusiasm for the subject at hand. Over the years, she has not only maintained her passion for the subject, but has come to be one of the leading experts in the field. Recently, she sat down with me over tea in the sunny lobby of a Columbus hotel to share a few highlights from her journey through the ever changing landscape of library and information science.

**BACKGROUND: SCHOOL, CAREER PATH, MENTORS, INFLUENCES, INTERESTS**

**JIC:** Can you tell us something about your background and how you came to be in the field of library and information science?

**MLZ:** To answer your last question first, it was an accident. The Cultural Revolution began in 1966 and lasted ten years. There was no formal education in China from 1966 until 1977. When higher education resumed in 1977, it was very competitive because everyone that graduated from high school during that ten years was competing to get into a limited number of colleges. The admission rate that first year was approximately 4% of those who took the national college entrance examinations. Initially I had the idea to go into engineering because I had been working as a welder in a large factory. However, my elder sister, who was engineering major, suggested that women in engineering usually had a very limited career because of physical limitations and family responsibilities—so I decided to find something else. In China the college entrance exams are based on two categories: science (math, physics, and chemistry) and social science/humanities. It requires you to choose your major in either category before you register for the examinations. I thought that libraries embrace all disciplines and usually require librarians to have a wider range of knowledge. If I chose library science I
could still keep my interests in science while I would be studying in a social science area, that is, library science.

There were only two library science schools in China at that time. I was very fortunate to be admitted to Wuhan University in 1977. I began in library science at the undergraduate level, which is typical in China.

**JIC: What were some of your favorite courses?**

MLZ: My favorite courses were in information retrieval languages, taxonomy and classification which are related to what they now call knowledge organization systems (KOS). The professor who taught those courses and who later became my graduate advisor wrote a book, which is still very heavily cited today (Zhang, 1983). The book led to two newer editions and the most recent one was published in 1997.

**JIC: Can you describe some of the projects you did as a graduate student at Wuhan University?**

MLZ: When I became a master’s student in 1982, my university class had only 14 female graduate students. Of course the situation changed very quickly in later years as more women entered higher education in every subject area. In China, we had to study three full years to get a master’s degree. During that time, I was directly involved in the development of two KOS projects: (1) the Index for Chinese Library Classification, which is similar to DDC (Dewey Decimal Classification); and (2) the Chinese Classified Thesaurus, which is similar to LCSH (Library of Congress Subject Headings) in that it is a pre-coordinate system but it is not as restrictive. I was also asked to assist in creating a special thesaurus, the Urban Construction Chinese Thesaurus, in 1985 for the information center of the Ministry of Urban Construction of China.

**JIC: What did you do once you finished the Master’s program?**

MLZ: I taught three years in the library school at Wuhan University. Then, I came to the United States in 1988, to enter a PhD program at the University of Pittsburgh School of Library and Information Science, now The School of Information Sciences.

**JIC: Did you continue to pursue your interest in IR (Information Retrieval) languages when you entered the PhD program or did your interests change?**
MLZ: My research interests remained the same but there were not many courses in that area. I did an independent study on the compatibility of controlled vocabularies. I learned a great deal from Professor Allen Kent and my advisor, Professor Edie Rasmussen. Pitt gave me an opportunity to study many aspects and issues of library and information science, which really widened my research areas and interests.

JIC: What topic did you choose for your dissertation at Pittsburgh?

MLZ: My dissertation was titled “An evaluation of the quality of Chinese language records in the OCLC/OLUC database: a study of a rule based data validation system for online Chinese cataloging.” The purpose of the study was to investigate the quality of Chinese-language records in a large multilingual database, an area that had not been explored, and to develop a viable approach for improving quality. OCLC funded the research and provided a random sample of over 2,000 records. The dissertation received the 1992 American Society for Information Science (ASIS) Doctoral Forum Award for outstanding doctoral research done in the information field.

JIC: Can you provide a brief overview of your career path?

MLZ: I worked as a Lecturer at the School of Library and Information Science in Wuhan University in China for three years after receiving my master’s degree. Then when I came to the United States to attend the University of Pittsburgh I worked in Pitt’s East Asian Library. Once I received my doctorate, I accepted a faculty position at Kent State University in the School of Library and Information Science. I have been at Kent State for 12 years, from an assistant professor to a full professor. In addition, I was a Visiting Associate Professor at Columbia University for my sabbatical and I now also hold a number of appointments at major university and province libraries in China.

JIC: Who has helped you most in your career development?

MLZ: My graduate advisor, Professor Zhang Qiyu at Wuhan University, was very involved in my development. He looked everything over in great detail. He gave me a lot of feedback and was always very positive. He taught me what it meant to be a scholar. He was very detail oriented, but was also able to think abstractly.
Also my advisor, Professor Edie Rasmussen at the University of Pittsburgh, helped with not only her special knowledge, but also how to publish in English, how to be involved in professional societies, and how to become a good researcher and instructor. She is very loyal to the field. Her vision and her teaching methods have influenced my research and teaching a great deal. I always see her as my role model but I know I will never be able to become as excellent as her.

My classmates at Pittsburgh and the librarians at the East Asian Library where I worked, helped me with the culture shock I experienced when I first came to the United States. They helped me fit in and adjust to living in a new country. My classmate Linda Hill has helped in most of my publications, from then to now. We have a lot of common interests and have been participating in similar professional activities such as those of the NKOS (Networked Knowledge Organization Systems/Services/Structures).

The faculty and director at Kent State University where I currently teach have given me the best support possible for my teaching, research, and personal life. I could not imagine that I could have gone so far without their support and help.

**JIC:** What about your mentors in professional service?

MLZ: My mentors in professional service include Kaye Gapen (former Dean at the University Library at Case Western Reserve University and now President of Northern Lights, Inc), Dorothy McGarry (former Head of Cataloging Division, UCLA Physical Sciences and Technology Libraries), and Margie Hlava (President of Access Innovations, Inc). They brought me into the professional associations and taught me how to contribute to the profession. Without them I would not hold the positions in SLA (Special Libraries Association), NISO (National Information Standards Organization), and IFLA (International Federation of Library Associations) that I do today. The committees I have served on are all related to knowledge organization and representation as well as technical standards.

**PROJECTS: RESEARCH, DIGITAL LIBRARIES**

**JIC:** What are your current research interests?

MLZ: I am very interested in KOS (Knowledge Organization Systems). I especially like the work of Elaine Svenonius. Her background is
in philosophy, cataloging, classification and thesaurus development in which I am always very interested.

**JIC:** Can you describe some of the DL (digital library) projects you’ve been involved in?

**MLZ:** An early project, funded by OCLC, was done using a collection at Kent State University’s Fashion Museum. The purpose was to study what metadata schemas could be used for non-document-like objects. We compared VRA core, MARC, and Dublin Core. We looked at what information was actually available and how it fit with various elements. We modified the VRA core, using qualifiers and added elements, built-in vocabularies, and built a metadata tool (Zeng, 1999).

The GREEN Project (Green’s Functions Research and Education Enhancement Network) is funded by the National Science Foundation. Dr. Greg Shreve (Director of the Applied Linguistics Institute) is the project director. There are two things that are unique about it. First, it’s multilingual. Parallel metadata must be maintained for each of five different languages. In addition to obtaining the metadata there are also related display and interpretation issues. Second, a special markup language was developed which uses domain-specific content labels in tags. It could be described as very granular indexing that follows a schema. Metadata, together with domain-specific markup, makes it possible to discover what’s inside a document and it enables the creation of new resources from existing resources (Shreve & Zeng, 2003).

I have also worked with the Columbia University Rosenthal Center for Complementary and Alternative Medicine (CAM) on a prototype for a multilingual, multicultural, comprehensive CAM resource. This has provided me with another opportunity to address issues of semantic interoperability. I worked with Drs. Fredi Kronenberg and Pat Molholt on a couple of proposals to develop a conceptual framework and a vocabulary for CAM (Zeng, Kronenberg, & Molholt, 2001).

**JIC:** Tell us more about your most recent research.

**MLZ:** I am working on another NSF-NSDL project—“Quality Analysis of Metadata in the NSDL Repository.” Dr. Greg Shreve and Dr. Bhagirathi Subrahmanyan are co-PIs (Principal Investigators). We can now do many tests on quality with automated processes but some things still need to be analyzed manually. In digital repositories, unlike Union Catalogs, everyone is not using the same standards. Much of the
metadata is created by non-librarians, sometimes on a voluntary basis. There are still no common standards for metadata applications. Repositories have purposes beyond bibliographic control. The environment is loosely controlled and dependent on voluntary sharing. Some of the issues that are addressed: What are the various aspects of metadata quality? How can it be measured? How can it be improved?

Another recent article titled “Building Semantic Tools for Concept-Based Learning Spaces” looks at strongly-structured models (SSMs). The major work was done by Dr. Terence Smith and his ADL (Alexandria Digital Library) project team. I was involved in the conceptual model for the digital learning environment. We applied standard principles from knowledge organization and representation and cognitive science, using semantic and visualization tools, in the development of a model designed for learning scientific concepts (Smith & Zeng, 2004).

I also recently published a paper with Prof. Lois Mai Chan on KOS interoperability approaches, after more than two years’ work and over 20 versions. The paper surveys activities and research projects aimed at achieving interoperability among KOS and analyzes the methods used in achieving interoperability. In all, 18 projects were examined and evaluated (Zeng & Chan, 2004). Working with Professor Chan is a great joy and I have learned so much from her.

PREDICTIONS, CHALLENGES, ADVICE FOR STUDENTS AND PRACTITIONERS

JIC: In your opinion, what are some of the most important recent developments and trends in digital libraries?

MLZ: Important trends and developments are related to Semantic Web applications, including XML (Extensible Markup Language), RDF (Resource Description Framework), KOS, and ontologies.

JIC: Why are these important?

MLZ: The Semantic Web is the next generation of the Web. No matter whether one accepts it or not, it will happen. The leaders and practitioners of the Semantic Web have used (or borrowed) fundamentals of library and information science, especially knowledge organization theories and practices. However, this is not a simple repeating of conventional
KOS. It’s important for Library and Information Science to continue to be part of this movement.

**JIC: Where can our readers learn more?**

MLZ: Pay attention to the Semantic Web activities at W3C (http://www.w3c.org).

**JIC: What are you doing currently?**

MLZ: As I mentioned earlier, I am currently a professor at Kent State University School of Library and Information Science, where I develop new courses as well as teach established ones. The new courses include a course in KOS, digital image processing and collection management, and a workshop in metadata. We have a new degree program in Information Architecture and Knowledge Management. It has three concentrations: Information Architecture, Knowledge Management, and Information Use. I’m also involved in a number of KOS related research projects and I’m on the Advisory Group for the NISO Z39.19 thesaurus standard’s revision.

**JIC: I understand that IAKM (Information Architecture and Knowledge Management) is an interdisciplinary program. What are the other disciplines involved?**

MLZ: In addition to core courses in Library and Information Science there are courses in business management, computer science, visual communication design, communication studies and journalism and mass communication.

**JIC: In your opinion, what are some of the most significant challenges to libraries in the future and how can they be overcome?**

MLZ: There are many challenges. The current focus of libraries seems to be on digitizing the past. Libraries are creating new resources based on old models. But what about the future? It’s not just the same wine in a new bottle. New types of information resources introduce many new issues. The information itself is different in its granularity and the technology it requires. We need to think how to better serve users in the new electronic learning environment, in an environment that depends on knowledge sharing and collaboration. There needs to be more communication between librarians and researchers.
JIC: What do all these changes mean for the field of librarianship as a whole? What impact will they have on the practitioner, the person out in the field building the digital libraries of the future?

MLZ: Progress requires leadership. Directors should go to some of the same conferences that researchers attend, such as ASIS and IEEE-ACM’s Joint Conference of Digital Libraries (JCDL). Academic libraries will need to prepare for a shift of focus from integrated library systems to integrated information services, services for distance learning, teaching and learning material repositories which will include many resources outside the library.

JIC: What do these changes mean for library education?

MLZ: We need to prepare librarians of the future. We need to have up-to-date competitive programs, and teaching methods that include theories as well as best practical applications. The educators also need to keep themselves up to date. Direct involvement in the activities of professional societies and continuing education are essential for any educator.

JIC: Any final advice for our readers?

MLZ: Classification, indexing, cataloging, technical services . . . those terms seem to have been slowly replaced by other fashionable terms such as ontologies, metadata, digital curating, etc. The change is not just in terminology. Underneath those new terms are changes to the entire scope of library and information science including changes to fundamental concepts, methodologies, and best practices. There is some concern today about the viability of technical services. However, if you take the larger view, you can see the wider application of many of these theories and practices in non-library environments, such as museums, publishers, digital libraries, digital exhibitions, information architecture of institutional portals, a wide range of other knowledge management tasks, and in Semantic Web applications. I believe that these changing times provide a unique opportunity for library and information science to test and advance its intellectual foundations, to secure a role for itself in the changing information environment and to train the information professionals of tomorrow.

JIC: Marcia, thank you so much for taking the time to share your story and your perspective with our readers—it’s been enlightening, as always!
REFERENCES


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