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**A New Cataloging Curriculum in a Time of Innovation:**

**Exploring a Modular Approach to Online Delivery**

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**Abstract.**

Cataloging librarianship has a tradition of innovation. Currently, professional and instructional innovations must be considered in a new Cataloging curriculum. Using as a framework Rogers’ *Diffusion of Innovation*, this reflective study explores one solution being considered at the University of Missouri while revising the Cataloging curriculum. A balance between theory and practice is suggested through the establishment of a set of core theoretical topics to be covered in the first part of the Cataloging class; web-based modular elements to be covered in the second part will focus on cataloging practice in specific kinds of libraries.

**Keywords.**

Cataloging, Cataloging education, Innovation

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Libraries have historically been loci for innovation, making new ideas, practices, and objects available to their users as part of their mission to provide access. *Innovation* is defined as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption”[[1]](#endnote-1). Cataloging librarianship in particular has been ambitious with the adoption of innovations. An example of innovation in cataloging is the use of playing cards after the French Revolution as a way to inventory collections.[[2]](#endnote-2) Cataloging has historically been a field where practitioners have adopted innovations, adapting them for local practices to support patron needs. An example of this is French catalogers who created local subject headings based on national standards until the 1970s and 1980s. According to this practice, each heading was created locally according to rules set forth by the national standards body; despite being based on the same set of rules, a lack of overarching uniformity in the headings existed as a result. This lack of uniformity would necessarily slow the process of sharing records, but was a satisfactory practice until an increase in the availability of computing power.[[3]](#endnote-3) Anecdotally, librarians who currently create records in digital repositories enjoy their work in part because they actively make decisions affecting local practice; they oversee innovation. Until the point when records were shared in North America, innovations in the application of cataloging codes were also easily accepted because libraries could adopt or not as they saw fit, without repercussions.[[4]](#endnote-4)

In the current shared technological environment, the need to connect libraries to each other and to the outside world is increasing. In cataloging (throughout this paper, the profession of cataloging will be written with a lower-case *c*, differentiating it from the course, which will be written with an upper case *C*), new practices and systems will change the way that library metadata is created, stored, and made available, modifying in some respects the foundations upon which the modern library is constructed. Changes to the cataloging code, the proposed changes to the way bibliographic information is housed, and the advent of a robust linked data community represent innovations being considered for adoption by the library community. If adopted, they represent new practices that will have to be navigated by cataloging professionals. These innovations challenge the way librarians will think about data and metadata, and have the potential to be much more difficult to implement within the library social system than innovations like the ones adopted by individuals or small groups of individuals in the examples above. “Getting a new idea adopted, even when it has obvious advantages, is difficult. Many innovations require a lengthy period of many years from the time when they become available to the time when they are widely adopted.”[[5]](#endnote-5) Already with the implementation of RDA, as with the implementation of AACR2, additional time has been accorded for libraries to begin to work through details of implementation. Yet, for the library data-sharing model to continue to work, it is clear that libraries must continue to use the same standards and rules, and that these standards and rules will have to advance with the times.

Innovations in library and information science education have likewise kept pace with the times. Nontraditional methods of course delivery were perhaps one of the most important changes to Library and Information Science (LIS) instruction in recent years. Preparations for moving LIS courses online began as early as 1995 at the University of Missouri, with the first asynchronous class, ISLT 7334, Library Information Systems, going fully online in January 1997. That course was not only the first course in LIS to go online, but also was the first wholly online course at the entire University of Missouri[[6]](#endnote-6). Since that time, many courses, including Cataloging, have consistently been offered online both through local programs and instructional consortia like the Web-Based Information Science Education (WISE) consortium (http://www.wiseeducation.org/). The WISE consortium has permitted online courses to be creatively offered and shared across schools to the benefit of students, and Canadian schools involved in LIS instruction have also expressed a willingness to work together to offer courses online.[[7]](#endnote-7) For some instructors, choosing to teach online may be a matter of personal preference, as face-to-face classes with students may be more rewarding for some, while online courses may be better for others. Students who do not have geographic barriers may prefer face-to-face sections of Cataloging, but busier students might prefer being able to attend class from home. This special issue of *Cataloging and Classification Quarterly* on online education for Cataloging implies that, despite drawbacks, the online provision of Cataloging is a mature approach to instruction. Explicit criticism of the online model in relation to the Cataloging context is left to other articles in this issue.

More than any other course taught in library schools today, Cataloging is at a pivotal juncture. Changes affecting professional cataloging practice, as noted above, will in turn affect instruction. Fundamental changes in the profession as well as changes in technologies must be taken into account when educating future professionals. The Cataloging curriculum must be both responsive to the professional environment in which students will work while being robust enough to meet present and future needs of students. The balance between practice and theory is delicate, and should be revisited in this time of change. As innovations are considered in the professional realm, there is an interest in reflecting concurrently on practice.[[8]](#endnote-8) The Cataloging curriculum at the University of Missouri has been examined recently in light of cataloging innovations affecting the profession as a whole with the understanding that the moment has come to reflect systematically on the adoption of innovation in the Cataloging curriculum, especially in the online environment. Innovation is important as technologies and expectations evolve, with some of the greatest challenges to cataloging librarianship possibly now coming from online information resources like Google[[9]](#endnote-9). Personal and organizational change have been studied by researchers throughout the 20th century, and insights gained through this body of research can be applied to the situation affecting cataloging librarianship and the online provision of Cataloging instruction. In this time of innovation in cataloging librarianship, reconsidering the challenges and the goals is essential. The current study aims first to situate in a general way the state of Cataloging education as it relates to the innovation in professional aspects of the field. Roger’s Diffusion of Innovation framework will be used as a way of framing changes to professional librarianship. The case of Cataloging education at the University of Missouri will then be examined with the idea of looking to online education as a way of supporting and promoting innovation in the local curriculum. Finally, an appropriately innovative approach to moving some or all of the Cataloging coursework online is proposed and discussed.

***DIFFUSION OF INNOVATIONS***

To begin the study of change in cataloging education and practice, it is beneficial to investigate mechanisms of change. One of the noted scholars in the study of change is Rogers (2003).[[10]](#endnote-10) His book, *The Diffusion of Innovations*, addresses this topic largely from the point of view of the individual, but organizational change is also addressed.[[11]](#endnote-11) Rogers puts forth a four-part framework addressing the diffusion (or adoption) of innovations. The four elements described in the framework are 1) the innovation itself, 2) the communication surrounding the innovation, 3) the time it takes for the diffusion of the innovation, and 4) the social system in which the innovation is diffused. The first element, the innovation, can have a variety of qualities that make it more or less appealing to members of the social system. These qualities are relative advantage, compatibility, complexity, trialibility, and observability. The second element, communication, is a social process where a user shares an innovation with a member of the social system who is not a user. The element of time includes the innovation-decision process for both individuals and organizations, individual adopter categories, and rates of adoption. Finally, the social system element includes the social structure itself, opinion leadership, types of innovation-decisions, and the consequences of adoption.[[12]](#endnote-12)

Aspects of the third and fourth elements will be the focus of the current study. Because some of the changes to cataloging librarianship are seen as inevitable, this study does not wish to debate the merits of the proposed innovations as part of the first element or to explore communication channels supporting their implementation as the second element. The time element, the third element, is useful for discussing how librarians as professionals will be adopting or rejecting innovations that affect their professional lives. As Chang notes, the time element is one of the least studied aspects of the Rogers Diffusion of Innovation framework.[[13]](#endnote-13) Adoption or rejection of professional innovations influences what students will learn in future Cataloging courses. The social system, the fourth element, where catalogers and instructors work, is useful for investigation of types of innovation-decisions and their potential for success. Like the first and second elements, the fourth element is implicit in the successful diffusion of innovations; it will be discussed here only briefly as a part of the innovation-decision process.

***Adopter Categories and Adoption Rates in Cataloging and Education***

Two aspects of the time element in the Rogers framework cover the characteristics of the individual adopter and the rate of adoption over time.[[14]](#endnote-14) Adoption of innovations happens over time, and not all individuals accept an innovation concurrently. When plotting the adoption characteristics of individuals across disciplines, a bell-shaped curve consistently emerges. Innovators (2.5%) and Early Adopters (13.5%) are the first individuals to accept the innovation. The Early Majority (34%) adopt ideas slightly ahead of the majority. The Late Majority (34%) must see that others have adopted the innovation first. Finally, the Laggards (16%) decide to adopt the technology once a solid majority have already done so. Adoption rates reflect the characteristics of the individual adopter categories. A small group will adopt at first, then a larger number will join in, and finally the last remaining adopters will adopt the innovation. There is no set timeframe for this adoption of an innovation – it can be days, months, or years. [[15]](#endnote-15) A scholarly analysis of the adoption of innovations in libraries could not be found in the literature; Rogers’ adoption rate distribution, however, seems to be plausibly applied to librarianship based on reports of innovation adoption in libraries. For example, automation in North American libraries seems to follow more or less the adoption rates set out by Rogers. Roughly speaking, Innovators like the University of California at Santa Cruz and Bell Laboratory Libraries had machine-readable catalogs in the 1960s. Early Adopters had them in the 1970s, Early Majority in the early 1980s, Late Majority in the late 1980s, and Laggards in the 1990s.[[16]](#endnote-16) Turnkey Integrated Library Systems (ILSs), not surprisingly, had a very similar rate of adoption and beginning only slightly later, with 4 ILSs adopted in 1973, 73 ILSs adopted in 1977, 284 ILSs adopted in 1981, and 1877 ILSs adopted by 1990.[[17]](#endnote-17) These numbers likely represent Innovators, Early Adopters, and the Early Majority, roughly speaking.

How and to what extent professional innovation-decisions are integrated into the Cataloging curriculum remain at the discretion of instructor or the person designing the curriculum. Early adopters in the field of Cataloging education may have already been teaching RDA for years. It will be interesting to know how long the adoption of professional standards like RDA will take to diffuse through education and through practice as well. Those who benefit the most from early adopter instructors are the students and their future employers. These students, once at ease with new standards, will be able to assist with the transition to those standards in an organization choosing to hire them after graduation.

***Innovation-Decisions in Cataloging and Education***

The element of time in Rogers’ framework includes the innovation-decision process for individuals and organizations. [[18]](#endnote-18) Innovation-decisions must be made in response to an innovation, as once an innovation has been identified and communicated (elements one and two), it must be adopted or rejected. This innovation-decision requires conscious action on the part of the decision-maker, and an implementation will follow if the decision was made to adopt the technology. Finally, there is confirmation from others in the social system and if negative, the decision has the potential to be reversed.[[19]](#endnote-19)

In the fourth element of the Rogers framework, three types of innovation-decisions emerge.[[20]](#endnote-20) Optional innovation-decisions are made by an individual who chooses for him or herself to adopt or reject an innovation. Collective innovation-decisions are made by a group based on consensus. Authority innovation-decisions are made by a powerful few members of a group and adoption is mandated as a top-down process. An optional innovation-decision might involve a cataloger’s decision, for example, to improve his workflow through the use of a new software application or an instructor’s interest in using Twitter for in-class communication. Collective innovation-decisions would include a library’s agreed-upon strategy to implement RDA or a group of instructors’ collective decision to adopt a set of course objectives to be used in all of the sections of a given course. Finally, an authority innovation-decision would be the decision to move from AACR2 to RDA by the national libraries in the United States or the requirement that Cataloging courses include the study of both FRBR and linked data in the library environment. An additional example of an authority innovation in Cataloging would be the requirement that instructors move components of their course online; an optional decision-innovation would allow for instructors to work out how that would take place and a collective decision-innovation might encourage a group of instructors to work together to create content or assessments collectively.

The decision to adopt innovations such as new cataloging codes or new methods of instruction is made by individuals or groups who may or may not be representative of the individuals for whom they make decisions. The decisions described above affect the work of professional librarians and instructors. The decision to adopt RDA and the decision to require both in-person and online components to a course are ultimately meant to benefit the end-user, but may require a certain amount of adjustment to workflows and habits in the process.

**Cataloging Education: Potential for Innovation**

Cataloging education attempts to provide future professionals with an understanding of the current state of the field and the knowledge to exercise that profession in their library of predilection. In the cataloging literature, there is a tradition of analyzing the place of Cataloging within the LIS curriculum at ALA-accredited schools. Vellucci, Joudrey, Hsieh-Yee and others have analyzed the place of Cataloging in the past 15 years and have found it to be diminishing over time.[[21]](#endnote-21) Introduction of cataloging concepts has been made in other courses, though, implying that the theories and principles have not become less relevant .[[22]](#endnote-22) Other research in cataloging related to education focuses on the expectations of employers vis-à-vis skills. Many articles published in the past 15 years also shed a great deal of light on the evolving field of metadata librarianship and the required skills of cataloging librarians in the new millennium.[[23]](#endnote-23) Swan-Hill found that necessary proficiencies are acquired by students to the same extent in online and face-to-face environments.[[24]](#endnote-24) Anecdotally, those who prepare future catalogers come from two different domains. Some may be professional catalogers or librarians who carry out work related to cataloging that involves library metadata, systems, or vendors. Other instructors of cataloging are professors of library and information science who study organization of information from, arguably, a less practice-based and more holistic stance. There is an expectation that whoever the instructor, the knowledge that is transmitted in Cataloging will prepare students for work in today’s library environment, and will allow them to work well into the future through the instruction of necessary theory and professional ideals. [[25]](#endnote-25) Due to the large number of topics to be covered, there is an inherent difficulty in training catalogers while educating thinkers within the time constraints of a one-semester class. This challenge to Cataloging education transcends mode of delivery, affecting any Cataloging course.

The two primary groups teaching Cataloging, practitioners and professors, arguably come from different epistemic communities and will not approach the teaching task identically. Members of both communities value innovation, but catalogers, like the employers mentioned by Vellucci, are logically more closely aligned to the reality of practice, although they indisputably must understand the theory to be successful at their craft.[[26]](#endnote-26) LIS professors, as career researchers and educators, may be more tied to cataloging theory or may be less confident teaching current practice. The longstanding debate over the place of theory and practice in the Cataloging classroom which was eloquently described by Intner remains unresolved.[[27]](#endnote-27) Indeed, if anything it has been exacerbated by an ever-increasing number of topics to teach.[[28]](#endnote-28) The difficulty of balancing knowledge and skill in semester-long courses has not been resolved. Lubetzky’s statement that “a bare knowledge of the rules of a given code at a given time is bound to limit the student in his professional growth, in his service to the library employing him, and in his possible contribution to the art of his profession” could almost be considered more true today than it was in 1964.[[29]](#endnote-29) Dussert-Carbone makes an impassioned plea to stop teaching Cataloging altogether, as it encourages memorization without understanding, and to teach (principles of) bibliographic control in its place.[[30]](#endnote-30) Both Vellucci’s 1997 and Hsieh-Yee’s 2004 survey of the extent of cataloging and metadata education indicate that Cataloging courses are covering diverse topics of interest to the profession. It is unclear, though, if students learn to *do* subject cataloging or if they learn *about* subject cataloging in the courses identified.[[31]](#endnote-31) There is more training that needs to be learned to master the numerous systems and software required for work in cataloging, but a continued need for theory also exists so that today’s students will be able to adapt to and perhaps even be at the forefront of future changes in practice.

The number of optional innovation-decisions made regarding Cataloging instruction will vary according the situation of the program in which it is taught. Some programs may require instructors to teach a ready-made curriculum, where lectures, exercises, and exams are prepared centrally by a faculty member. Instructors who have the title of adjunct professor will normally be free to innovate in their own classes and to adopt optional innovations as they see fit. It is possible as well to imagine a scenario where instructors work as a part of a group and make consensus decisions about the use of innovations in teaching. Any Cataloging course will necessarily meet the requirements of the institution, of the program, and will hopefully anticipate and meet the needs of the students and their future employers.

**CASE STUDY: UNIVERSITY OF MISSOURI’S CATALOGING CURRICULUM**

Cataloging courses at the University of Missouri are faring well and consistently draw relatively large and interested groups of students. All students enrolled in the Master of Arts in Information Science & Learning Technologies with an Emphasis in Library Science must take either Principles of Cataloging and Classification (“Cataloging”) or Organization of Information as a degree requirement. While some students opt to enroll in Organization of Information, many others take Cataloging; students have the option to take both, with one of the courses being considered an elective credit. For students earning the additional certification to become School Library Media Specialists (SLMS), Cataloging is a required course. The decision to make this course a requirement for SLMS comes from the state-level accrediting body for that additional certificate. Since at the same time it satisfies the core requirement for the ALA-accredited masters in LIS, SLMS students tend to take Cataloging only. It is possible that interested undergraduate students and curious community members also enroll in Cataloging.[[32]](#endnote-32) The Cataloging course is currently one of the few introductory courses in the program and does not have any prerequisites. This implies that instructors need to situate cataloging within the broader context of librarianship while also teaching the subject matter. In fifteen weeks, this is a lot to ask.

The LIS program in which Cataloging is taught is centered at the flagship campus for the University of Missouri system. Students enrolled in this ALA-accredited Masters program are free to take their courses on that campus, via online delivery (depending on the course), in hybrid classes that are partly online and partly in-person, or at one of four locations around the state and in neighboring Nebraska. Some of the courses, including Cataloging, may be taught in cooperative agreements with other universities. Students enrolled in these courses may be enrolled in the University of Missouri-based ALA-accredited program, or may be taking the course through the host institution as part of a certificate program. The State of Nebraska has agreed to partner with the University of Missouri for the preparation of its state’s librarians. Each of the four remote locations has a coordinator who works closely with the University of Missouri; that coordinator also acts as a point person for students. While students in the ALA-accredited Masters program all have advisors at the main campus who work full time, efforts to promote the sense of community based on geographic location exist. All of the locations have vibrant and active networks, both formal and informal, supporting members of the student cohorts as well as local practicing librarians.

Cataloging courses are typically taught by experienced and passionate professional catalogers from around the state and from Nebraska. The courses are taught primarily face-to-face with some online support using *Blackboard*. Since the practitioner-educators teaching the course have the status of adjunct instructor, they have ownership of their course. Agreed-upon guidelines including common course objectives and course description have provided continuity across the sections from location to location since the Cataloging instructors met in the summer of 2011. These guidelines are meant to assist in meeting the requirements for students going into all kinds of librarianship in any kind of library. In general terms, each location has a mix of students with varied goals and interests, and each instructor has specific expertise based on his or her professional work.

**Challenges to Cataloging Instruction at the University of Missouri**

Two primary challenges emerge when analyzing the Cataloging curriculum at the University of Missouri: 1) varied interests and expertise of both instructors and students, and 2) the perpetual issue of education versus training of Cataloging students.

Because of the structure of the program and the fact that Cataloging is not taught online, Cataloging courses currently group students by geographic location. The interests and expertise of instructors are not currently a focus of instruction, as academic and special librarians must teach courses that will be of interest to a variety of students with diverse professional interests. Students are likewise grouped with members of their cohort who do not necessarily have the same professional interests as they do. For example, a School Library Media Specialist student may expect a very different curriculum than an aspiring academic library cataloger or future public library systems librarian. While there is no doubt that it is beneficial to have a good relationship with other students in the geographic cohort, the mechanisms are already in place for students with varying interests to meet socially, and other core courses will bring them together anyway. No concrete reason to group students in Cataloging with different professional interests exists.

Strongly tied to the question of interest and expertise on the part of the instructor is the question of curriculum. What is taught in a given section, while remaining within the boundaries of the common course objectives, is subject to interpretation by the instructor. Instructors who are professional librarians run the gamut of including things like theory, international considerations, and emerging innovations in their courses, but tend to focus very strongly on current and upcoming standards. While the course has not been taught by a regular faculty member in a number of years, it is expected that LIS faculty might tend to focus on theory, context, and future innovation, with relatively less emphasis on current practice or systems.

***Proposed Innovations to the University of Missouri Cataloging Curriculum***

As a means of capitalizing on this period of diffusion of innovation in the profession, two primary innovations are suggested for the Cataloging curriculum at the University of Missouri: 1) grouping Cataloging sections by professional interest instead of by geographic location, and 2) introducing a modular approach to instruction to ensure equal focus on theory and (specialized) practice. The suggested innovations address the challenges identified in the section above, and identify a solution made possible through instruction.

Moving some or all of the Cataloging course online will permit a better grouping of students and instructors based on interest and expertise. Students could work together on exercises to catalog materials that are more immediately of interest, and would be working with a cohort of interested individuals with similar professional goals. This approach would also allow instructors to teach more strictly within their comfort zones in terms of practice-based content, since, as Intner notes, instructors not comfortable teaching theory may end up wasting time and being personally embarrassed.[[33]](#endnote-33) Instructors could teach more specific local innovations such as local practice to help students understand a given Cataloging milieu and the integration of theory. By freeing the course from ties to a certain geographic location, the needs of both students and the interests of adjuncts could be better met.

Introducing a modular approach to instruction could be one way to capitalize on the accumulated expertise of all Cataloging instructors, to the direct benefit of the students regardless of location. The proposed modular, web-assisted approach to cataloging instruction is designed to empower students to discover practice after having mastered theory. Modules could be two complementary 8-week sessions that together meet the requirement for the Cataloging course. During the first part of the class or Module 1, cataloging theory could be explored. Instructors who prefer to meet online could do so, while instructors preferring to meet face-to-face would have that option. During the second part of the class or Module 2, thematic groups could be formed that would meet solely online. These groups would focus on cataloging practice in certain kinds of librarianship. Because the focus would be narrower, less time would need to be devoted to learning multiple sets of systems and tools.

To ensure equal focus on theory and practice while allowing for optional innovation and collective innovation, instructors could collaboratively create materials for both modules. In particular, instructors with an interest in theory could work together to identify core readings to ground students’ understanding of past, present, and future practice. These readings and assignments could be carried out during the first module by all of the instructors teaching all of the sections. Instructors with interest and expertise in specialized kinds of librarianship (i.e. school, special, academic, or public) would focus their teaching in the second half of the class on systems that they know well and that are of immediate use to librarians in that domain. Materials cataloged in class could reflect the workflows of professional librarians in those particular kinds of libraries. If students have studied classification theory, there is no need to learn both the Dewey Decimal Classification (DDC) and the Library of Congress Classification (LCC) in a Cataloging class. Those teaching school librarians and public librarians could collaboratively work on lectures and exercises dealing with DDC. By reducing the number of tools and practical standards in a deliberate way, students can focus on tools they need after having gained a foundation in the principles of cataloging.

Both of these innovations rely on the use on online teaching systems. If a modular approach were adopted, then students could take the first half of the course as theory. It would not be important if the course met face-to-face or online, as long as the students were receiving grounding in the importance of and mechanisms behind library organization of information. Offering a second half-semester module could permit students to delve more deeply into particulars of a kind of cataloging based on professional interest. That second part of the course could be repeatable, based on interest. Students unclear about the kind of library they will work in could re-take the options from the four listed (i.e. school, special, academic, or public) as electives.

***Innovations in Cataloging: An Analysis***

Focusing on Rogers’ elements of time and social system discussed previously, it is possible to envision a scenario where the innovations to the curriculum described above could be adopted by adjunct instructors over a short period of time to the benefit of the students. Assuming that the innovation is sound and the communication channels (and curricular support) are sufficient to the point of insuring a positive outcome, the current analysis can focus on the adopter characteristics, rate of adoption, and aspects of the types of innovation-decisions required.

To implement the proposed innovation with the adjunct instructors, it seems most prudent to propose a scenario whereby the type of innovation-decision to move to the new format would initially be an optional innovation-decision. After a similar modular course is taught in spring 2012 via *Blackboard* by a regular faculty member, interested adjunct instructors could be given access both to course materials and to *Blackboard* shells designed in collaboration with the University’s Educational Technology Department. After those Innovators/Early Adopters have had some experience with the mechanisms and begin to create their own materials, it will be possible to reunite the adjunct instructors to discuss, as a collective innovation-decision, the move to the new format for most remaining sections. If this happens, the rate of adoption will approach the s-curve described by Rogers.

***DISCUSSION***

Characteristics of innovativeness fall into a bell-shaped curve, with only a small percentage of individuals who are Innovators. Cataloging librarians are custodians for library data, and to innovate quickly or needlessly puts that data at risk. Issues with innovation adoption are compounded by the sheer size of the social system. Not all librarians are or should be Innovators or even Early Adopters. However, with the changes to librarians and to cataloging librarianship that seem inevitable, fostering an environment that is accepting of innovation when it comes and creating a social system that is supportive of change seems a reasonable way to reduce the time necessary for the rates of adoption of innovations. If Laggards were coming on board after only six months as opposed to a number of years, that would be an advancement for all of librarianship. Given the accelerated pace of change in recent years, it seems only prudent to reinforce that need for continuously anticipating change in the Cataloging curriculum. Since Technological Knowledge and Skills are part of the core competences of librarianship, and since these are moving targets, the importance of anticipating and embracing innovation needs to be instilled in students throughout their tenure at the university and it should be reinforced by all of their instructors by example.[[34]](#endnote-34)

Like the institutions in which they work, be they universities or libraries, instructors will also not all be Innovators or even Early Adopters. Creating an environment that is accepting of change, including change in terms of the method of instruction, exercises, evaluation practices, and in-class activities requires work and creativity on the part of the instructor, but keeps the class fresh for students. Instructors have the potential to be taken out of their comfort zones when trying new things, and this kind of optional innovation-decision is empowering. When teaching to the future, there is the potential to teach something that will never come to pass or that falls out of favor at the expense of a competing innovation. The whole of the process, however, keeps cataloging education moving forward, and if grounded nonetheless in theory and principles, can infuse in students a sense of the excitement that the future of cataloging holds. The tension between teaching theory and practice is and will remain a difficult issue for Cataloging education.[[35]](#endnote-35) While all instructors want students to leave their classrooms at the end of a semester comfortable with basic cataloging tasks, those students must also understand why we those tasks, and what future tasks will and should look like. Studying the context and the place of innovation is as important as studying the mechanics behind why or how cataloging is carried out.

For this reason, when changes need to be made to Cataloging instruction, the adoption of collective innovation-decisions should be a priority. Authority innovation-decisions, while necessary in some instances, can be met with resistance and can ultimately be rejected. It is advisable, considering the history and context of librarians and of cataloging librarianship, to allow adjunct instructors who are experienced, dedicated, and engaged, to provide as much input as possible in any curricular revisions. By soliciting input, these adjunct instructors will be less marginalized and their concerns will be known by the faculty coordinator for the Cataloging course.[[36]](#endnote-36) Continued autonomy in the classroom permits innovation in its own right. Issues surrounding limitations to professional innovation because of the shared social system were raised briefly in this paper. To ensure against the paralysis of trying to convince a large group to innovate *en masse*, individuals should be allowed to follow their own adoption rate. The past shows us, however, that innovation is necessary. Instructors who are categorically unwilling to innovate should be offered other opportunities to provide service to the profession.

When cataloging courses move online, in-person interactions between students and other students and between students and instructors are eliminated or reduced. Anecdotally, it has been reported that moving Cataloging online would remove the pleasure of teaching for some adjunct instructors. These librarians, who otherwise spend work hours in front of a computer, seek an opportunity to interact with human beings and to make a connection with future catalogers. They enjoy the socialness of the in-person classroom. Others prefer the freedoms afforded by online teaching. Connecting with students who are geographically dispersed can be rewarding. Students may experience this same range of perceptions. Yet, web-based instruction ties in to the changes in the profession where increased comfort with online tools is not only advisable, but necessary. Swan-Hill shows that online course delivery can be as effective as face-to-face.[[37]](#endnote-37) In some cases, perhaps, online courses in Cataloging might be more nimble, as a course might rely more on students working on their own, using the most current versions of documents, software, and available resources. Anecdotally, one of the concerns expressed by instructors at the University of Missouri is that it will not be possible to teach the use of online or computer-based cataloging tools. While this concern makes a great deal of sense if moving a course as-is online, the available screencasting and screen-sharing technologies including WIMBA and Camtasia can allay this fear if these technologies are properly understood and utilized.

***CONCLUSION***

The cataloging community has traditionally been a community of innovators. While optional innovation-decisions are arguably the easiest to implement in the organizational structure of libraries, the community has been successful, over time, with the implementation of authority-decisions like new cataloging codes and encoding standards. With the possibility of upcoming changes to both the cataloging codes and encoding standards and with the emergence of new web-based technologies and standards affecting operations, the tradition of innovation in professional cataloging will undoubtedly continue. Moves to exploit linked data in catalogs and to model library data according to FRBR present an exciting horizon for freshly minted catalogers and for long-time catalogers alike.

Future-proofing the Cataloging curriculum must be a priority in these changing times. New methods of Cataloging instruction, including web-based instruction, to support the innovations in professional cataloging are worth exploring in the context of an already successful Cataloging program. The University of Missouri’s Cataloging program was used as a case study, and it is felt that it is somewhat representative of a Cataloging program at a school its size. It is hoped that other programs and instructors will see themselves in the challenges presented here. It is also hoped that the proposed solutions bring about discussion about the best way to absorb innovation into the Cataloging curriculum. In keeping with the theme of this special issue, online instruction is seen as a potential innovation to be adopted for the benefit of Cataloging instruction. Further, it is hoped that the above-mentioned professional innovations can be effectively and meaningfully be diffused throughout all Cataloging curricula, providing lasting benefits to the profession at this critical point in time.

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