

Byte-Sized Pieces: Equipping Academic Librarians to Integrate Technology into
Library Instruction through Manageable, Maintainable, and Meaningful Staff
Development

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Abstract

Technology changes how classroom instruction happens and, unlike K-12 educators who receive pedagogical training, academic librarians are not always experts in teaching information literacy – especially in 21st century ways with technology tools. As such, how to equip on-the-ground academic librarians to effectively teach with technology tools while still addressing the ACRL information literacy competency standards needs to be considered. This article shares how one academic library addressed this need while also considering how to: assess knowledge, competencies, and needs; share information in meaningful ways; and encourage librarians to build their technology knowledge independently and as part of a cohort.

Introduction

Technology has changed the ways instruction can happen in the classroom. Audio, video, and multimedia resources are readily accessible to the novice and advanced technology users alike, and in addition to the panoply of educationally-focused technology tools on the market, there are many consumer-focused products that can be adapted to serve educational purposes. While teachers at the K-12 educational level have pedagogical training in instructional methods, instructors at post-secondary and higher education institutions often do not have such a background. This includes academic librarians, who may be experts in the discipline of information literacy but not experts in *teaching* information literacy, or integrating instructional technology tools to teach information literacy in 21st century ways.

It is relevant, then, to consider how libraries can equip these academic professionals to teach effectively using technology while striving to attain the Association of College and Research Libraries' (ACRL) *Standards for Proficiencies for Instruction Librarians and Coordinators*. Wrapped up in these big-picture questions are the more focused issues of how knowledge, competencies, and needs are assessed; how information is shared in meaningful and appropriate ways; and how librarians can be encouraged to build their technology knowledge continuously and independently, as well as a part of a broader cohort engaged in institutionally-situated learning.

This article examines how one academic library attempted to accomplish these goals and equip library faculty to effectively and meaningfully integrate

technology into their teaching.

Literature Review

In considering how to best design professional development to impact librarians' work and practices, it is important to consider what has been demonstrated as effective in the field -- and what has not. When designing learning experiences for adult learners, Knowles' (1980) theory of andragogy serve as an important set of guiding principles. Instructional interactions need to allow adults to be self-directed and employ their prior experiences and knowledge as a scaffold around which to construct new learning. Also, any learning intervention should relate to specific needs and should relay knowledge and skills that can be immediately applied. And furthermore, an instructor -- and especially an instructional designer -- should bear in mind that adult learners are guided by intrinsic motivation. This internal drive, of course, may be a result of a number of different desires: a personal drive to gain new knowledge, for example, or a pressing necessity of skill or practice in one's work. Constructing learning experiences for adults around these principles can help make knowledge acquisition relevant, meaningful, and long-lasting.

Considering Professional Development's Effectiveness

Beyond the philosophical considerations of instructional design for adult learners, it is also necessary to consider what makes professional development effective and how professional development should be *conceived* of to be considered effective. Generally, library scholarship is quiet on this point, and in fact, there is no *one* way to measure *any* professional development's

effectiveness. However, Harada, Fontichiaro, and Abilock (2012) found that librarians believe effective professional development is relevant to learners' needs, varied in its delivery methods, responsive, and allows participants time to practice and use the skills and competencies addressed. Shupe and Pung (2011) assert that training for librarians should begin with a needs assessment, which can determine training objectives while considering organizational constraints. From this needs assessment, an instructional designer or trainer can then determine the format, type, and target of any training offering most effectively. The important step prior to measuring effectiveness, or even implementation, is to consider the specific goal or desired outcome of professional learning experiences.

When considering the effectiveness of librarians as educators, the ultimate end goal should be to impact learner achievement; in this way, librarians as instructors are similar to educators and teachers. From this perspective, there is a considerable body of established scholarship on structuring professional development to foster students' knowledge acquisition and change learners' skills and behaviors. Garet, Porter, Desimone, Birman, and Yoon (2001) note that, for teachers, professional development is effective when it focuses on content knowledge, provides participants opportunities to engage in active learning, has coherence with other activities in participants' daily lives, and collectively engages participants in working together. Furthermore, Licklider (1997) asserts that, for professional development to have the most impact, it should emphasize the changing of those teaching behaviors that may impact

learners' achievement through research-based, skill-specific content.

Furthermore, educators need to be engaged in professional development that allows them to be directly applied and practiced in their teaching environments (Ingvarson, Meiers, & Beavis, 2005). In particular, professional development that centers on the acquisition of technology skills and knowledge has been shown to be the most meaningful when this intersects with educators' content and pedagogical knowledge (Koehler & Mishra, 2005; Koehler, Mishra, Kereluik, Shin & Graham, 2014; Walker et al., 2012).

Connecting otherwise abstract skills to instructional tactics and discipline-focused knowledge helps teachers to employ technology in more meaningful and content-centered ways, and training programs that link these areas of understanding have been shown to have greater impact on student achievement than technology training alone (Keengwe & Onchwari, 2011; Walker et al., 2012). While professional development that links new technology knowledge to existing content and pedagogical knowledge may be useful for primary and secondary educators, librarians may need to build their pedagogical knowledge *first* and then develop understanding in technology use and integration.

Growing Importance of Instructional and Pedagogical Competencies

Once reserved for school and academic librarians, information literacy instruction as a job responsibility is growing in prominence and importance *across* librarian roles (Fontichiaro, 2012). In an examination of job postings, Bailey (2010) found that instructional and technical skills are increasing in importance, and have been for some time. Bell (2008) surveyed academic

librarians and found that information literacy and teaching/instructional experience are considered essential in the training of future librarians, and learning to use Web 2.0 technology is of significant importance. However, while these roles may be professionally significant, librarians are not equipped with the same pedagogical and instructional training as K-12 teachers are. While some library education programs offer courses that focus on experiences as an academic librarian, these topics may be covered in inconsistent ways, and may not address all of the Association of College and Research Libraries' *Standards and Proficiencies for Instruction Librarians and Coordinators* (Bailey, 2010; Sproles, Johnson & Farison, 2008). In fact, Corral (2010) found that practicing academic librarians found that information literacy was poorly or inadequately covered in their professional education, and that much of their education came through on-the-job experiences.

Further complicating the picture, Sproles, Johnson, and Farison (2008) found that library and information schools' course sequencing and timing meant students were not always able to take courses in instruction. While they also found that most library students are exposed to instructional concepts in centric courses, this limits what the kinds of instructional knowledge students can develop and the context in which this knowledge exists. Gaining this knowledge and experience is particularly critical for academic librarians, because the majority of college students perceive them as teachers, whether they provide direct in-classroom instruction or not (Polger & Okamoto, 2010). This teaching is moving beyond just instructing in informational processes -- in order to

understand information literacy and information-seeking behavioral skills, library instruction must also help students learn to understand and effectively use technology (Warnken, 2004).

Librarians' Learning Goals, Expectations, and Limitations

Sare, Bales, and Neville (2012) found that new academic librarians do not expect to enter the field with deep instructional and technological knowledge, but instead anticipate engaging in on-the-job training to “bolster weak skills, expand their personal sphere of possibilities in terms of ability, and gain positive experience with areas of librarianship outside of their academic preparation (191-192). Watson-Boone (2000) also found that many librarians can be classified as “practitioner-researchers,” who use continuing learning to learn about their practice and adapt both themselves and their work to changing situations and requirements. How to provide opportunities for this continual learning, then, is essential

Addressing this knowledge gap, or this need for in-field practice, in academic librarians' practice is especially important as technology advances and its influence on instruction increases. Hardesty and Sugarman (2007) found that academic librarians are conscious of this need, and feel that the literature and other professionals' experiences provide them important professional development information. However, the librarians surveyed also noted that they felt unable to keep up with the instructional trends, because they were time-limited or overwhelmed by the amount of information available to digest. This, Hardesty and Sugarman found, limited academic librarians' “ability to stay on top

of new developments in library science and other areas key to their positions” (2007, 203). Furthermore, Riley-Huff and Rhodes (2011) found that 84 percent of librarians said that keeping up with technology is essential for their practice, particularly for librarians with technology-related roles, but library school did not adequately prepare them for their positions. In fact, these researchers found that 62 percent of their respondents felt they had never been adequately prepared for the technology use or roles in their work, either in their educational experiences or in on-the-job training . Warnken (2004) asserted that, in order to ensure this learning occurs, library administration should provide learning opportunities and motivational resources for academic librarians to learn to use and integrate technology into their teaching. Providing professional development and learning opportunities for librarians in technology, then, is a fertile area to address expressed needs.

The literature on librarian-centric training designed for, and implemented by, librarians is relatively sparse, particularly for building pedagogical and technological competencies. Quinney, Smith, and Galbraith (2010) implemented a technology “challenge” program to help equip library staff and faculty to address students’ technological expectations of the 21st century library experience; they found that small, instructor-led training sessions and self-learning through reading were considered the most effective and most useful training options. Various iterations of Blowers’ (2006) “Learning 2.0” library staff development program have been used at public and small academic libraries with some success (Blowers & Reed, 2007; Kingsley & Jensen, 2009;

Mackenzie, 2007; Quinney, Smith & Galbraith, 2010). Shupe and Pung (2011) found that effective and well-designed work-specific training programs, particularly those in technology skill development, can help librarians increase their motivation to *use* technology tools, develop technology-rich practices, and perform these practices in their daily work. However, time to address these needs is a central concern, and support must exist from managerial or administrative levels (Kingsley & Jensen, 2009; Monk, 2004).

Professional Development: One Library's Experience

In the fall of 2012, Oakland University Libraries was in the midst of change. A new library dean had begun a year before, and the library faculty were shifting from library generalists to the liaison librarian model. Amid this change, two new librarians joined the fold, each with a focus on increasing the libraries' technological presence, albeit from different perspectives. While one new position focused on increasing and maintaining the Libraries' digital assets, the other was intended to strengthen the Libraries' presence in e-Learning and instructional technology. Part of this role involved training and equipping other library faculty members to embed instruction in online learning environments and integrate instructional technology meaningfully in their teaching to augment the faculty strength in our information literacy program, as stated in a strategic planning document. To accomplish this strategic goal, a professional development effort was undertaken by the e-Learning and Instructional Technology librarian.

Developing a Perspective on the Instructional System

Before initiating any sort of professional development plan, it was critical to gain an understanding of the instructional system, including the objects that made up this system and their attributes, and how the various components interacted. This systems analysis began with through informal discussion with OU Libraries' Coordinator of Instruction about the Libraries' strategic plan. From a macro perspective, the document reflected that OU Libraries' presence on a campus where teaching was consistently evaluated and seen as important meant that librarians, too, had an important instructional role; their status as full-time, tenure-track faculty reinforced this assumption. To continue to advance the Libraries' instructional position on campus, the strategic plan reflected a vision for teaching that was rich with technology integration and distributed learning options through online instructional offerings. The Libraries' administration demonstrated support for, and investment in, technology not only through this strategic plan but also through grant programs available for technology pilots.

However, at a more micro level, the discussion also reinforced that ratio of librarians to university students was very high; roles and responsibilities were spread across the library faculty body, and all librarians wore many different job hats -- instruction being only *one*. So while interested in, and willing to learn about, instructional technology, library faculty had faced several challenges in the past. They had too much to do to seek out information and build instructional technology knowledge on their own. They had varying levels of experience using technology in instruction. They had differing *definitions* of what using technology in instruction meant.

In spite of these challenges, the library faculty were highly collegial, with a strong collaborative culture and willingness to learn from each other.

Furthermore, they were open to -- and in fact, *wanted* -- direction and best practices from a knowledgeable peer who knew the context of their instructional environment. And, both librarians and library administrators supported regular and consistent professional development efforts.

From this information, an informal survey was developed to provide librarians the opportunity to share their thoughts, experiences, interests, and concerns about using technology in instruction. This survey was deployed in September 2012, and focused heavily on gaining knowledge about librarians' practices, either current or desired, to further gain knowledge about the components within the OU Libraries' instructional system.

[Insert Figure 1 here]

Librarians' feedback from this form illustrated some general trends. Technology tools, especially social media tools, were frequently used by librarians. More traditional "instructional" technology tools such as blogging resources and social bookmarking tools were more sporadically used. As a whole, OU's librarians were interested in learning more about implementing technology in their instruction and doing so effectively and without unnecessary effort.

From this initial survey, three goals were set for OU Libraries' professional development in instruction. First, any professional learning needed to be meaningful to librarians. This meant that technology use needed to be directly connected to how integration of such tools could impact their *information literacy*

integration, instructional design, and assessment/evaluation, three key components of the *Standards for Proficiencies for Instruction Librarians and Coordinators* (ACRL, 2008). Second, trainings and learning opportunities needed to present technology in manageable ways. This meant that the instructional design needed to make instruction manageable from a trainer's perspective, and that the content delivered needed to be manageable for librarians to integrate into both their conceptions of information literacy instruction and their teaching practices. If information was seen as manageable to integrate, librarians would be more likely to integrate it into their teaching and communicate it as an instructional option to subject area faculty (ACRL, 2008). And finally, all instructional technology training needed to be maintainable, both from the librarians' and the trainer's perspective. Tools seen as overly labor-intensive would not fit into librarians' instructional planning (ACRL, 2008). These principles guided the subsequent professional development offerings and provided a structure around which learning efforts could be evaluated.

Implementing, Evaluating, and Responding

In the Fall 2012 semester, a monthly professional development training program was initiated to help make instructional technology meaningful, manageable, and maintainable for faculty. At the outset, these learning offerings were linked to monthly meetings on the Libraries' instruction program. "Instructional Technology Updates," as they were termed, provided faculty members with a short lesson on a tool that could be used to impact their instruction. Diverse resources such as backchannels in Twitter, using Skype and

screensharing tools to deliver online reference consultations, tools to annotate images for instructional purposes, and free online mindmapping resources were shared; best practices for integrating these resources were discussed, and when available, supporting scholarship was also provided to librarians.

This initial structure helped to introduce instructional technology and, through regular updates, make it a regular occurrence in librarians' professional work. This consistency helped to convey the manageability of technology integration into instruction. From discussions around resources and tools, the concept of meaning began to emerge: how could this tool be used in *your* instructional situation? How might you implement this in *your* teaching? How might *your* students actively engage in library instruction and information literacy concepts through this resource? The presence of these updates in meetings helped colleagues to collaborate and make meaning together.

In December 2012, librarian feedback was collected on the Instructional Technology Updates in an effort to assess their effectiveness in making technology meaningful, manageable, and maintainable. Generally, library faculty felt that the updates had exposed them to new tools that were helpful and appropriate for their work. The majority of librarians had tried at least one tool demonstrated in their instructional work, and there was universal agreement that all librarians intended to try at least one tool demonstrated in the future. However, a common thread ran through responses: there was not enough time, or opportunity, to implement these resources, or to really get a handle on how the instructional technology tools could be implemented to influence active learning

in library instruction.

To address the issue of time and increase opportunities for library faculty to engage in using instructional technology tools, an active learning component was added to the Instructional Technology Updates during the Winter 2013 semester. Each month, an hour of drop-in lab time was provided on a Friday afternoon; this time followed the monthly Instructional meeting, so librarians were introduced to a pedagogical concept or tool and could explore it more in-depth while still fresh in their minds. This time also provided librarians an opportunity to consider the update and their instructional work independently before engaging in collaborative discussions.

Feedback following this change was largely positive, but the active learning time, while desired in theory, saw a very low attendance rate. So, again, the instructional technology librarian found it was time to evaluate and reconsider how to best provide learning opportunities for library faculty. Around the same time, faculty were also polled on their interest in eLearning and development of online instructional resources in their liaison areas. Librarians, regardless of liaison assignment, were interested in learning more about developing an eLearning presence, and their preexisting knowledge and experience levels were moderate. These expressed interests, coupled with the continued instructional technology professional development that faculty desired, led to a shifting in the focus of future learning offerings.

Prior to the start of the 2013-2014 academic year, the library faculty were polled about their continued interest in monthly instructional technology updates.

Again, the support for these informal professional development opportunities was nearly unanimous. However, the instructional technology librarian asked respondents to consider the format: was the content perhaps best delivered in a different way *before* the meeting, in a blog or other online resource that could be consulted at librarians' leisure? Again, there was interest for information in an electronic format. But, when considering faculty members' interest in eLearning and the different skills and knowledge that existed across the faculty body, the instructional technology librarian looked to provide resources for beginner, intermediate, and advanced learners, she posited that a faculty learning community, where participants could *truly* actively engage in learning and in constructing meaningful eLearning objects that related to their work would address this need. And this, too, had wide-scale faculty support.

Throughout the 2013-2014 academic year, OU Libraries engaged in two instructional technology professional development programs. First, instructional technology updates continued at monthly instruction-focused faculty meetings, but were held *after* the meeting ended. This allowed for greater discussion time among interested parties. The content presented in these discussions was made available at least two days in advance on a shared Instructional Technology website; the information provided contained the essential details about the tool or resource, how it might be used, examples of use, and any relevant literature on the topic. Also contained within this instructional technology website was an electronic message board where library faculty could share information about instructional technology tools, resources, ideas, or questions they encountered;

this decentralized the knowledge sharing from the instructional technology librarian and distributed it more broadly among the faculty.

[Insert Figure 2 here]

Second, the instructional technology librarian developed a library-centric faculty learning community that met monthly with the expressed goal of designing an online learning object to deploy in Fall 2014. This learning group was structured around Booth's (2011) USER instructional design model, which interprets the ADDIE instructional design philosophy into library-centric language and breaks instructional design into four steps: understanding the learner and the learning situation, structuring the learning interaction, engaging students in learning, and reviewing and revising for the future. By spreading this learning community over the course of an academic year, librarians were able to consider each of these steps and work through the process in addition to their other job responsibilities. Also, this allowed the diversity of need to shine through: a vast array of projects emerged, from web tutorials to integrated online learning modules for a course to freestanding topical courses, and were driven by librarian need. This group allowed library faculty to put into practice and engage with the tools, resources, and pedagogical approaches that had been discussed since 2012.

[Insert Figure 3 here]

Discussion

As this ongoing project demonstrates, providing professional development for a diversely-skilled group with a wide range of interests requires continuing

adaptations: faculty needs change, and professional development needs to change in an ongoing effort to meet those needs. In this way, technology training and learning really is a moving target.

From this in-practice research with library faculty training, the initiative's big ideas of meaningful, manageable, and maintainable learning were illustrated in several ways. It was demonstrated that librarians can make meaning through concrete practice. As andragogical principles assert, the OU faculty librarians were able to make sense of the role of instructional technology in their teaching practices as they, in fact, got more practice with it. Also, the instructional technology learning community allowed for faculty to build meaning *together*. Ideas and thought processes were shared, both in writing and in discussions, and this helped all librarians come to deeper understanding of eLearning in their instructional contexts. Furthermore, technology tools can become increasingly manageable in professional practice if they build on each other. In the context of the Instructional Technology Updates, tool introduction often led to tool implementation, and then subsequent reflection on tool usage. The Libraries' informal faculty learning community built on this in the context of e-Learning. And finally, hands-on work and continued use can increase the maintainability of a tool or resource. As familiarity with a tool increased, the tool became more maintainable for use in daily instructional practice. Here, too, the library faculty learning community helped to strengthen librarians' development of maintainable and reusable learning resources.

Future Directions

As OU Libraries moves forward and continues to increase its instructional technology use in student learning, there are several future goals for faculty professional development. First, and most importantly, all professional development efforts need to be continually evaluated, both from the faculty and designer standpoint. Whether these learning opportunities meet librarians' needs is of paramount concern. Professional development offerings also need to be revised and realigned with future strategic planning efforts; OU Libraries is undertaking a revision of the current strategic plan to align it with future goals. Also, the current methods for instructional technology training need undergo further evaluation to assess their effectiveness from multiple dimensions. To this end, evaluation metrics need to be developed; these can help to assess performance and impact in the present while also providing a structure to measure future work. And, it may be useful to evaluate how to expand these professional learning options for the broader faculty community at the university. Librarians are frequently early technology adopters, but the lessons learned from these professional development efforts may have meaning to other instructors, and may help the academic library demonstrate its value in online learning and teaching.

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