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Educational Technologies in Health Science Libraries: Teaching Technology Skills

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Abstract

As technology rapidly changes, libraries remain go-to points for education and technology skill development. In academic health sciences libraries, trends suggest librarians provide more training on technology topics than ever before. While education and training have always been roles for librarians, providing technology training on new mobile devices and emerging systems requires class creation and training capabilities that are new to many. To appeal to their users, many health sciences librarians are interested in developing technology-based classes. This column explores the question: what skills are necessary for developing and teaching technology in an academic health sciences library setting?

Keywords

Academic health sciences libraries; education; educational technology; technology literacy; teaching

INTRODUCTION

In today's ever-shifting technology landscape, with the proliferation of new technologies including mobile devices, online services, and discovery models for research, the ease of access to information relies on a user's familiarity with and access to new technologies. While advancements in technology provide new ways to access information, undeveloped technology skills may result in unused or overlooked information. In academic environments as well as in patient-provider health care settings, the inability to use technology successfully may act as a barrier to accessing vital information. Many medical libraries have taken steps to diversify educational opportunities and now provide technology training for faculty, students, and staff alongside more traditional library education offerings. Training staff to use new technologies and to feel at ease with new devices is an important step in creating a library that is responsive to the technology needs of users. As librarians prepare to teach themselves and others about new technology, development of new technology skills and teaching techniques may be beneficial to both instructor and class participant. Many variables impact the quality of training users on new technology. This

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column aims to examine some of the barriers associated with technology training in libraries and provide an overview of planning methods to ensure successful technology training for library staff and users.

TEACHING TECHNOLOGY

According to Roy Tennant, “Teaching technical topics is difficult. Teaching technical topics to those who are not technically inclined is extremely difficult.”¹ When it comes to teaching technology topics to any audience, these words could not be more accurate. Whether teaching library staff or library users, designing effective technology-focused classes for any group can be a challenge.

One of the foremost challenges with a technology class designed for library users in academic settings is developing a class designed to meet the needs of an adult audience. When preparing to train adult learners about new technologies, the key factors of adult education and technical skill must be taken into consideration. Class design and course work for adult audiences requires instructors to understand the needs of adult learning, including the learners’ motivations for attending the class, expectations for the course, and their level of experience with the technology or topic at hand.² As adult learners, librarians demonstrate a variety of motives for attending classes, including: desire to learn about new technologies for personal needs, interest in developing or improving technology skills for continuing education or staff development purposes, knowledge acquisition of topics important to their user base, and interest in developing or designing services or training for their users on technology topics.³ Because many librarians demonstrate an interest in learning about technology in order to educate their user base, training sessions often become train-the-trainer experiences, the librarian learning from the instructor in order to provide assistance or training to the library’s users.

DIGITAL LITERACY

Another important aspect of teaching technology to any audience relates to digital literacy. Simply defined, digital literacy is “a person’s ability to perform tasks effectively in a digital environment,” and includes the ability to use digital technology to locate, evaluate, and use digital information.⁴ As society moves toward a more digital world, digital literacy skills become integral for the success of libraries and library staff.⁵ Technology training opportunities should therefore be designed to increase the digital literacy skills of class participants.

While recent data demonstrates that access to broadband Internet and mobile device ownership is on the rise, locations where technologies are more slowly implemented and adopted continue to exist. According to a recent study by the Pew Internet and American Life Project, home access to high speed broadband now reaches 70% of the U.S. adult population.⁶ At the same time, mobile device ownership among college faculty and students continues to climb, with reports suggesting device ownership will rise to between two and four mobile devices per person by 2014.⁷

While acceptance of technology into everyday life has become common, some class participants may still be intimidated by technology. This may be related to numerous factors, including the perceived high cost associated with technology, or a psychological barrier such as a misconception of the required technological expertise necessary to operate a device or system. Proper staff training using technology can help adult learners overcome emotional barriers associated with technology use. Employing strategies such as encouraging active use and even exploration of a device or technology can help break down the emotional barriers associated with learning new technologies.⁸ Demonstration of technology in class

using hands-on training techniques is recommended. Additional insights into the importance of hands-on training for technology topics are described below.

CLASS DESIGN

When teaching any topic, preparation always plays a critical role. Determining class objectives and goals, which are also used to manage class expectations, provide both the instructor and the class participants with a better understanding of topics to be covered in the class. For this reason, a class designer must be familiar with the expected audience's needs and skill levels, the technology being demonstrated, and the given time limit for the class.⁹

An environmental scan or pre-assessment of technology knowledge, interest, and skill can provide some insight for instructors preparing a class. Strategies used to assess class interest and skill level may be as straightforward as asking the class participants at the start of class: "What do you hope to learn today?"; "What scares you the most about today's topic?"; "How do you want to use this technology after class?" These are just a few examples of icebreaker questions which also provide the instructor with a better understanding of the audience. Additional assessment measures may include a pre-test, which can be used to gauge attendee competency prior to attending class. When done prior to a class session, pre-tests can be used by a course designer to tailor content for a specific group.⁹

Despite best efforts by technology instructors to address barriers for class attendees, it is typically difficult to ensure that all class attendees possess the same level of technical expertise. Generally, class design should be oriented to address the needs of the majority of those in attendance. Using class participant feedback as a guide, the instructor can lead the class in an appropriate direction which best accommodates the information needs of the class majority. With any technology topic, the amount of information to share with an audience can be seemingly limitless. Developing a class that reaches set goals and objectives while not exceeding the time allotted can be one of the most challenging aspects of teaching technology. Using the knowledge gained from a class participant assessment, a trainer can develop a strategy to simplify the type of information being shared and hone in on the aspects of the technology which mirror the needs and skills of the audience.¹

TEACHING METHODS

When teaching technology topics to adults in a face-to-face environment, hands-on use of devices or services by all class participants is highly recommended. According to Stephanie Gerding in *The Accidental Technology Trainer*, "it is very important to use hands-on activities to ensure learning not only happens, but is retained."⁹ Providing hands-on exercises and activities demonstrates the technology to the class while also breaking down potential barriers that exist. Another important aspect of hands-on training methods is the ability for class attendees to interact with technology they may be interested in purchasing or finding funding for use at the library. According to evaluation comments provided by class participants from 12 tablet and e-Reader classes offered by the National Network of Libraries of Medicine, South Central Region from June 2012 – May 2013, many were "happy to finally try out the device" and expressed gratitude for allowing hands-on use with the devices that "all the patrons are bringing in."³ For library staff, hands-on training with technology may provide some staff with their first opportunity to "test-drive" devices that they have seen their patrons using.

In preparation for any hands-on instruction, the instructor or course designer should take time to become acquainted with the technology at hand.⁸ Spending time investigating a device, tool, or service from the perspective of a new learner can lead to a well-developed

understanding of the topic and a deeper understanding of how the class participants may react to the topic.

Throughout training classes, audience-appropriate exercises are often used to ensure knowledge retention. Another method of demonstrating knowledge transfer and information retention can include combining pre-tests and post-tests that focus on specific technology skills or class objectives. Through these types of activities, participants are engaging with the technology as well as developing new skills. Pre/post-test skill evaluation can also provide the instructor with valuable feedback on how improved a class participant has become due to the training received.⁹ Using engaging activities that are designed to motivate the class while also developing new skills that target class objectives ensures that the class remains motivated and active with the topic.

CONTINUING TECHNOLOGY SKILL DEVELOPMENT AFTER TRAINING SESSIONS

For knowledge transfer and utilization of new skills to continue after any technology training session, class participants must be encouraged to further explore and develop new technology skills. Class activities and topics designed to open discussion about the incorporation of technology into everyday practice is one method for encouraging skill development outside of the classroom setting. Through brainstorming and idea sharing, class participants can begin to understand new ways that technology can be leveraged to benefit daily work and personal life.

In addition, recent discussion about the value of Personal Learning Environments (PLEs) or Personal Learning Networks (PLNs) also highlights the importance of continued use and development of technology skills outside of the class environment. According to EDUCAUSE, a “PLE describes the tools, communities, and services that constitute the individual educational platforms that learners use to direct their own learning and pursue educational goals.”¹⁰ Anyone can create a PLE for his or her own knowledge and skill enhancement. Unlike other more traditional forms of educational settings, PLEs are “learner-centric” and are developed by individuals to meet their unique learning goals.¹⁰ For technology topics, PLEs provide a new and personalized way for individuals to stay abreast of new developments and enhance their skill set.

EDUCATIONAL INITIATIVES – TECHNOLOGY EDUCATION IN MEDICAL LIBRARIES

Medical and health sciences libraries have taken on teaching and training roles that go beyond basic database and search instruction. Technology training puts the library in a unique position that is well suited to both educate and inform a campus body about technical skills. These new technical skills can be used in research and transferred across disciplines, into professional work environments, and even into personal lives. In some instances, technology training provided through the library has become an essential element of the library’s role in advancing the academic environment.¹¹

A brief unscientific review of ten medical libraries found that not only are medical libraries providing traditional educational sessions on topics such as library orientation, database use, bibliographic management systems, and the systematic reviews process, but many libraries now offer a variety of technology classes on topics including mobile devices, apps, online survey creation, poster creation, 3D printing, wearable technology, and many more emerging technology topics. Each of these technology-centric classes, taught by librarians,

works to provide class participants with knowledge and skills that fall into the growing realm of digital literacy.

Libraries continue to be information and learning centers for their users. Through state-of-the-art technology training, librarians are striving to meet the needs of new users and to change communities. Although incorporating technology training into a library's already robust training repertoire may prove a daunting task, the development of well-designed technology training events and classes is a benefit to library users and contributes to improved digital literacy skills. As technology continues to impact research, training, work, and everyday life, medical libraries are well positioned to provide educational opportunities that introduce users to new technology trends and help cultivate new technology skills in today's digital age.

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