

In 1999, Nancy Dewald analyzed online library tutorials and examined whether they offered students effective learning opportunities. In her research, she identified several characteristics for what makes for effective, meaningful online instruction and around these characteristics, much of the subsequent scholarship on online library tutorials has developed. These criteria serve as benchmarks for academic libraries wishing to assess their online instructional presence and develop practical workflows, just as Oakland University Libraries did in 2012-2013. Despite having close to 100 online library tutorials and providing a link to these resources on the University Library home page, the Tutorials page ranked 37th in views with just 768 unique and 1,008 total page views from January-August 2012. Consider these figures in the context of the broader site's unique (424,041) and total (614,602) website visits; this equated to approximately 0.1 percent of all web traffic. While spiders, web crawlers, and bots must be factored into these totals, the numbers suggest that the library's online tutorials were underutilized, and a reconsideration of how to serve users more effectively was necessary. Dewald's foundational work and subsequent related research gave this process its scholarly structure.

1. Effective Online Library Tutorials: The research

First, Dewald found that relating a tutorial to a specific course or, if possible, course assignment, situates the online learning tool's meaning in a student's learning experience. Implicit in this criterion is the assessment or determination of student need, and the desire to meet that need (Holliday, et al., 2006). While Su and Kuo (2010) assert that tutorials can be used as standalone learning resources, there are many instances of effective online library tutorial integration into broader student learning experiences. By embedding or situating online library tutorials at *some* point of need, the content becomes more widely used because students have the ability to access and use these resources when convenient or when needed (Grant and Brettle, 2006), and find this option useful -- and even desired (Baker, 2006). Online information literacy tutorials have been effectively used when fully integrated into online courses and lectures (Buchanan, Luck and Jones, 2002; Bracke and Dickstein, 2002; Grant and Brettle, 2006; Kimok and Heller-Ross, 2008), as online help sites (Kimok and Heller-Ross, 2008; Arnold, et al., 2002; Stubbings and Brine, 2003), or as ready-made resources for embedding in diverse academic settings (Baker, 2006; Anderson and Mitchell, 2012). In these instances, the online library

tutorial is situated to provide meaning for discipline-focused student learning while also allowing students to demonstrate proficiency in information-seeking behaviors.

Dewald also indicated that active learning strategies and engaging students in the content, particularly through collaboration, was another hallmark of quality online library tutorials. Such strategies can take an abstract concept and make it concrete, particularly in teaching students domain- or concept-specific critical thinking skills (Reece, 2005). In online library tutorials, such activities may include interactive quizzes, fill-in-the-blank responses, and dual-window design, where there is space for both demonstration and independent knowledge construction (Hrycaj, 2005; Donaldson, 2000; Sult, et al., 2013). Interactivity allows for online learning to become meaningful through tasks such as the linking of concepts, comparing of alternatives, reflecting on their own learning and the learning process, and offering critique of ideas; these types of activities can affect students' engagement and adaptiveness in online learning situations (ChanLin and Chang, 2003). Such activities are particularly important for distance learners, who may never set foot in the campus library. Moving beyond basic library skills and into rich conceptual understanding is essential in developing distance learners' information literacy skills (Viggiano, 2004). Whether distance, on-campus, or blended in their learning, students who engage in activities that ask them to learn by doing online can demonstrate competency in the ACRL standards of assessing their need for, finding, evaluating and using information ethically (Buchanan, Luck, and Jones, 2002).

Furthermore, offering the information presented in different media -- through video, print, audio, and other media formats -- is another indicator of strong and effective tutorial design (Dewald, 1999) because it addresses learners' different needs. This may take shape by providing unique tutorials for beginner, intermediate, and advanced learners (Oud, 2009) or using multiple modes of instruction to strengthen the student learning experience (Zhang, 2006). The unique affordances of learning online (i.e., captioning a video) can help librarians offer multiple modes more easily. Considering *what* needs to be taught should affect *how* the information is best conveyed in the appropriate media (Bianco, 2005; Mestre, 2012).

Dewald also noted that the use of clear and relevant educational objectives is an essential component of high-quality online tutorials. From a library instructor's perspective, these objectives need to guide the design and implementation of any online library tutorial (Blummer and Kritskaya, 2009), and they often come from the ACRL *Information Literacy Competencies*

for Higher Education (Blummer, Luck, and Jones, 2002). Intra-library partnerships can help to best address these design/implementation standards while also setting meaningful student learning objectives (Lo and Dale, 2009). Such learning objectives help students chunk information, manage cognitive load, and provide familiar structures and hierarchies in which they can work (Brumfield, 2008). Building from these different levels of objectives use, assessment can be conducted at the individual student, programmatic, and institutional levels to determine an online library tutorial's effectiveness (Blummer, 2007).

Finally, Dewald's findings indicated that high-quality online library tutorials have options for students to seek additional help and contact a librarian. As technology learning options increase in scope and diversity, embedding this feedback becomes increasingly doable (Germain and Bobish, 2003), and tutorials with interactivity between learner and instructor are more highly rated by neutral professional library groups (Koh and Herring, 2007), and so increasing this interaction is important in effective tutorial design. Including contact mechanisms is particularly important because not all students desire to begin their information-seeking process with standalone online resources (Bowles-Terry, Hensley and Hinchliffe, 2010); by providing a means to contact someone or seek additional help via chat, phone, email, or face-to-face contact, the online library tutorial works as a supplementary, rather than supplanting, resource to face-to-face interaction (Ganster and Walsh, 2008). The communication generated from these online points of help can illustrate where additional online library tutorials are needed and can respond to expressed student needs (Kimok and Heller-Ross 2008). By building in communications options, librarians can also ensure distance learners have equitable access to library resources, which is recognized as a significant professional concern (Jurkowski, 2003; Li, 2013).

When Dewald considered web tutorials with these evaluative criteria, she found that the majority did not measure up. In a continued effort to improve online learning options for students, libraries and librarians have used her text as a foundation for best practices and additional scholarship. This includes examining virtual library instruction, in which the most effective instances respond to student interest, exist at the point-of-need, address information literacy standards, and address issues of time and resource constraints (Germain and Bobish, 2003; Nichols Hess, 2013). Also, as streaming video has increased in its availability and use, best practices including chunking information to reduce cognitive load, making information easily

findable, maintaining a consistent structural outline, and representing information in straightforward, easy-to-understand contexts have been identified (Bowes-Terry, Hensley and Hinchliffe, 2010; Nichols Hess, 2013; Oud, 2009).

While the literature on best practices in online library tutorials has grown, the field has also seen development in understanding how to construct support systems so these best practices can occur. As technology has continued to develop, an important consideration in tutorial design is that no longer does learning exist solely between the computer and the user, and so feedback mechanisms and built-in communication affordances need to be offered *within* tutorials (Su and Kuo, 2010). Within the resource creation process, librarians need to consider student motivation and use appropriate resources for tutorial creation (Nagra and Coiffe, 2010). At the departmental or institutional level, determining tutorials' objectives, identifying mission and policies for tutorials -- including keeping content current, developing a process and workflow and, within these constructs, engaging individuals of disparate skill to create resources (Ergood, Padron and Rebar, 2012; Nagra and Coiffe, 2010). Within this workflow, online library tutorials, once created, need to be embedded at students' points-of-need and marketed widely for use (Ergood, Padron and Rebar, 2013; Nagra and Coiffe, 2010; Nichols Hess, 2013).

2. The Wisdom Within: Gauging library faculty perceptions, opinions, and experiences

With this supporting scholarship in mind, Oakland University Libraries' e-learning and instructional technology librarian tackled refocusing the library's online learning objects in two ways. First, considering the actual *objects* and the best practices for the kinds of content librarians created and shared with the educational community was a crucial task. The library's existing tutorials presented instructional content in a wide variety of formats: some resources used screen recordings with limited interactivity, created with tools such as Adobe Captivate; other tutorials presented a series of how-to steps using text and screen shots; still others employed screencaptures or instructional videos created with resources such as Jing or Camtasia and uploaded to YouTube; and a handful used Web 2.0 tools such as Prezi to represent content relationships. Determining cohesive goals for the library's online learning objects at an organizational level while still affording librarians creative freedom and flexibility was an important initial step. To determine the accepted best practices for online library tutorials, the e-learning and instructional technology librarian performed an extensive literature review with Dewald's (1999) work as the foundation. The scholarship in this area offered standards around

which librarians' practice could be built, and through which the library's overarching goals for its web-based learning objects could be considered.

Offering the University's librarians the opportunity to share their thoughts about and experiences with the library's online learning objects was another important component of determining a set of best practices for tutorial format and creation. To collect feedback, the e-learning and instructional technology librarian offered an informal "Coffee and Conversations" drop-in time where **library** colleagues could come and discuss their opinions. **Participants were tenure-track library faculty members working in a liaison librarian model; as such, these librarians had experience in subject-specific and generalized instruction. Of twelve library faculty members, ten shared their thoughts either in person or via email about the existing online learning objects' effectiveness and use in library instruction, the content delivery system used to share web tutorials with users, and training and supports needed to create future online instructional content.** Because candid and informal feedback was sought from librarians, this data collection method was employed; it allowed for free-flowing discussions between the e-learning and instructional technology librarian and others, as well as between librarians in conversation together.

From these discussions, near consensus emerged: librarians were not happy with the current state of online library resources, and desired a structure in which they could work to improve these offerings. Several common themes also emerged from these discussions, and these helped guide the revision process. First, the librarians felt that creating and maintaining online learning objects posed an issue of time. At the outset, the content- and experience-rich tutorials created with tools such as Adobe Captivate require considerable time to create; once deployed, these resources also require continued review and modifications as database interfaces changed. The time requirements made tutorial creation and maintenance unsustainable. Also, librarians discussed the need for a structure or scaffolding around which they could create online learning objects. As a diverse group of professionals, they did not have uniform technology knowledge, and as such, needed a structure in which each individual could work to improve the University Libraries' online learning resources. This included both training opportunities to ensure all librarians were at necessary skill levels and the development of a workflow in which librarians could function independently.

Issues of quality also arose, with one librarian even noting that they did not send users to library tutorials for fear of the poor quality or out-of-date resources they might encounter. The lack of consistently strong online resources related back to the issues of time and structure expressed by librarians. And finally, issues of findability and access to online tutorials were widespread concerns. The existing tutorials access point was considered unsatisfactory for several reasons: it had no searching option; it organized content from a librarian's, rather than a student's, perspective; it presented users with a "laundry list" of seemingly independent or disconnected learning items; and it was not need-based, situated within students' learning environments, or connected to specific assignments.

These intra-librarian discussions also provided structure for analyzing the library's web tutorials at an organizational level. Constructing a broader framework in which librarians could work to effectively build, revise, and share online learning objects was the second critical consideration of the web tutorials redesign process. As aforementioned, the professional (but candid) conversations helped illustrate that an organizational-level system was needed and what components librarians hoped to have in such a system; a review also informed how similar scaffolding had been successfully constructed elsewhere in the literature. From these two points of information, an informal study of the other public university libraries in Michigan was conducted to determine how the University Libraries' peer institutions were structuring and offering their web tutorials.

3. The Wisdom of Others: Michigan's other public university libraries

In fall 2012, the e-learning and instructional technology librarian informally examined the fourteen other public universities' library websites from the perspective of a user, and looked for six criteria (for complete results, see Table 1: Examination of Michigan's Public University Library Tutorials). These criteria were developed from the review of the literature in the area and the feedback collected from library faculty through "Coffee and Conversations" sessions. While the literature informed best practices, faculty feedback suggested directions for the library's online learning objects; considering how other institutions provided web tutorials helped the e-learning and instructional technology librarian consider which best practices were widely implemented and which faculty suggestions were feasible or perhaps already in practice. The first criterion considered was whether the library had an independent web tutorials page, and not simply help guides or "how-to" tools embedded into library pages. While different libraries may

refer to this content in different ways (e.g. Tutorials, Research Help, Frequently Asked Questions), the important consideration was if the page contained content intended to help users with tasks, skills, or processes. While the literature suggested that learning objects embedded at points-of-need are more effective and widely used, OU Libraries maintained a freestanding tutorials page with limited embedded capabilities. An informal exploration of library websites found that thirteen of the other fourteen institutions also offered some sort of freestanding page where users could seek and find help. In these thirteen cases, the second criterion determined the number of “clicks” a user had to make to access the tutorials page. This speaks directly to findability and ease of access voiced both by the University Libraries’ faculty and the literature (Bowles-Terry, Hensley and Hinchliffe, 2010). Of the thirteen public university libraries with freestanding tutorials pages, eight libraries offered a link to the page displayed directly on the library home page; on four library home pages, users had to click once, either in a drop-down menu or on another page link to access the tutorials page; and at one university library, the tutorials page was accessible in two clicks.

Other important criteria included whether a library offered video-based online learning objects and, if video resources were offered, whether these were provided through a YouTube channel. This criterion sprung specifically from faculty suggestions. While the University librarians mentioned the issues encountered with creating and updating videos, the literature on online library tutorials discusses this particular instructional delivery method as a medium for instructional delivery (Small, 2010). The University Libraries had a (underused) YouTube channel and librarians voiced interest in offering more content there in the hopes of broadening the library’s instructional reach. In determining the University Libraries’ path forward, it was relevant to consider what others offered in the area. Eleven of the fourteen institutions offered instructional video within their tutorials interface; this does not necessarily speak more broadly to whether instructional videos were located at point-of-need in library course pages, but instead only considers video content at the general tutorial page level. Of those eleven libraries with video content on their freestanding “help” pages, four linked their videos through library-specific YouTube channels.

Finally, the informal assessment of other public university libraries’ online tutorials content considered whether these resources were searchable, and if any of the learning tools offered users interactive experiences. While the search interface relates back to the findability of

the information (Bowles-Terry, Hensley and Hinchliffe, 2010), interactivity in online learning objects is cited as a major component in making these learning experiences meaningful for students (Dewald, 1999; Hrycaj, 2005; Donaldson, 2000; Reece, 2005; Sult, et al., 2013). Findability was also a frequently discussed topic in the “Coffee and Conversations” sessions, and library faculty members put a premium on developing a search interface for users to find online learning objects. Six of the fourteen public university libraries offered tutorials with some levels of interactivity; this included freestanding interactive courses. Perhaps more significantly, only four of the fourteen library websites offered any sort of searchable tutorial interfaces -- those that provided their videos through YouTube and one institution which also housed content in a blog, where content could be searched externally.

Considering how other university libraries offered online learning objects informed the University Libraries’ tutorials redesign efforts in several ways. First, it illustrated areas where the library could further grow its services and better reach users. For instance, the four libraries with YouTube channels had substantially more video content available to users when compared with the Oakland University Libraries. Also, this informal examination confirmed areas in which the University Libraries served its users well, such as in the library’s online interactive tutorial offerings (e.g. Plagiarism and Copyright Courses). Finally, this informal evaluation demonstrated areas in which the University Libraries’ tutorials page could demonstrate technological leadership. Specifically, integrating a search feature into the library’s tutorials page for online learning objects could increase findability for users, simplify page design, and illustrate a user-centered focus.

4. Oakland University Libraries’ Best Practices: MAGIC

From the scholarship, informal interviews, and examination of Michigan’s public university libraries’ web tutorials structure and offerings, the e-learning and instructional technology librarian developed both a workflow and a set of best practices specific to the University Libraries’ goals and needs. These structures were framed using the acronym MAGIC (Nichols Hess, 2013). At the most basic level, content creation and management had to be **maintainable**. This meant that online learning objects were created with tools that allowed librarians to easily revise their content, and that these online learning objects were shared with users via an interface in which librarians could easily input content. This interface not only needed to be easily used by librarians, but it also needed to make content **available** to users in

multiple ways. At the most basic level, this involved increasing findability, specifically through a search interface. Upon this foundation, librarians needed to create content that could be embedded in an online course or course-specific library page as well as the library's freestanding tutorials page with ease.

Making this content available through multiple avenues of exploration helped it to be increasingly **geared at users**. By creating a system in which librarians created online instructional resources that can be easily integrated into learning experiences and at various points-of-need, the library's tutorials respond to specific needs. To be geared at users, though, these resources need to focus on being **informative**, specifically through the use of learning objectives (both in an object's creation and displayed within the object itself) and other information that can help the user determine if the resource is right for their use. And finally, throughout these best practices, online resources **can** best serve the user if they are **customizable**. This includes providing multiple means of instruction, whether in format or in content, for different levels of learners but it also encompasses accessibility and universal design considerations. Designing an organizational system and creating content within it that adheres to these practices better meets users' needs while setting a sustainable course for the University's librarians.

These guidelines, proposed in December 2012, were quickly put into action at the University Libraries. From these guidelines, a flowchart was developed to help librarians determine when to use externally created resources (i.e., vendor database demonstrations) and when to create their own learning objects; potential creation tools (e.g. Jing, Screencast-o-matic, Captivate) were also recommended (see Figure 1, Web Tutorials Creation Flowchart). While this was intended to serve as a guide for librarians looking to create new online learning resources, the library's existing tutorials needed to be reviewed and evaluated. Since the evaluation coincided with the creation of a new library website and learning objects would be migrated to it, only those tutorials that met the MAGIC best practices should make this move. Librarians who had authored existing content and those willing to lend a hand evaluated this content using the Web Tutorials Evaluation Rubric developed from the MAGIC framework (see Figure 2). This evaluative process helped librarians determine what content could be removed, what content could be migrated, and what content was important but needed to be revised or rethought.

4.1. MAGIC in Action

Once these workflow documents had been created, the e-learning and instructional technology librarian collaborated with the web services librarian to identify the best resource for housing and deploying online library tutorials. SubjectsPlus, the library's management tool for course guides and databases, offered librarians an easy-to-use backend interface for adding, organizing, and tagging tutorials of different content types (e.g. screen shots with text annotations, written instructions, embedded demonstration videos). This tool was also easy to implement, because librarians used it to create subject and course guides and were therefore familiar with its features. Perhaps more importantly, SubjectsPlus offered easy integration of tutorials into library course and subject pages, so online instructional content could be situated at users' points-of-need; it also offered users with a simple search box feature through which users could find needed content. The web tutorials librarian worked with the library faculty to develop a user-focused design for the new standalone tutorials web page and deployed this page in August 2013 (see Figure 1), while the e-learning and instructional librarian created additional workflow documents to help librarians navigate the work on the backend.

Since its deployment, the University Libraries' revised online tutorials page has been widely used, and librarians have adopted the workflows developed. Using the MAGIC guidelines, new content is added to the tutorials repository on a regular basis, and these additions frequently address faculty requests and student needs. Feedback from librarians has been largely positive; the repository of online learning objects has grown significantly since the new interface's development, and librarians have been able to manage their content with ease. User feedback has also been positive and, anecdotally, it appears the new tutorials interface and content is reaching users as intended. Librarians have also received inquiries from university instructors and faculty members about online learning objects that were *not* migrated into the new system; this has helped the University Libraries' content grow and respond to faculty and student need.

To continue to ensure online resources are user-centric, the e-learning and instructional technology librarian and web services librarian are tracking user data throughout the 2013-2014 school year and will examine search terms, search duration, location (on/off campus), and time of search at the conclusion of the school year. Examining this data will help inform future revisions and directions for the University Libraries' online learning objects. Some preliminary data, though, suggests the new tutorials interface is working. A review of terms entered in the

search box illustrates it was used more than 5,800 times through August, September, and October 2013. Furthermore, in just over two months, the number of unique (280) and total (370) tutorials pageviews represent a significant increase in user access to the library's online tutorials content. This suggests that, as the University librarians believed, the tutorial resources needed to be delivered in more user-centric ways to see greater use.

[Insert Figure 3 here]

5. Future Directions

In addition to this yearlong redesign process, ensuring the University Libraries' online instructional resources meet the needs of library users is a continual process. There are several areas for future inquiry that the University Libraries intends to pursue; these avenues also represent future directions for research in online library instruction more broadly. First, usability testing must be done to ensure that, truly, the library's tutorials repository and online content respond to students', staff, and faculty needs. This may also illustrate how the effectiveness of these online learning objects can, or should, be measured. Bottorff and Todd (2012) note that how we measure the effort put into, and effectiveness of, online library tutorials is critical as libraries move increasingly into the online instructional realm. In fact, in many libraries and in the community more broadly, there is no formal policy or accepted metric for measuring impact. Through user studies and with the MAGIC framework in mind, tools for determining impact can be developed and may be useful throughout the field.

From a pedagogical standpoint, the library's online tutorials embeddedness in authentic learning environments needs to grow. One of Dewald's (1999) key findings of her seminal study is that online learning content that is directly connected to a course, academic assignment, or specific need is more effective; since that study, students have consistently demonstrated satisfaction with learning via online library tutorials (Silver and Nickel, 2004; Lo and Dale, 2009; Armstrong and Georgas, 2006), but meaningful *learning* is a step beyond satisfaction. Although the library's tool for housing online tutorials allows for embedding content into library course pages, this is in its infancy. By continuing to create course-specific online learning resources and situating these resources in the context of assignments or expressed needs, the University Libraries can make learning more meaningful and address issues of student motivation (Lo and Dale, 2009). Findings and experiences at Oakland University Libraries can inform other libraries' practices.

Another area for future study is in pairing the library's online instructional resources with in-person, librarian-user interactions. From the outset, Dewald (1999) asserted that online library instruction should work in tandem with in-class instruction; Ganster and Walsh (2008) found that many students still prefer face-to-face library learning interaction to online instruction. So whether this means teaching the more mechanical skills via online tutorials while addressing conceptual skills in face-to-face learning interactions (Baker, 2006), or considering more broadly how to activate students' prior knowledge and adapt to learning needs (Somoza-Fernandez and Abadal, 2009), how online tutorials are used to connect students to librarians and library information is an essential consideration going forward.

Finally, the University Libraries needs to continue to work to keep librarians equipped with the technological and pedagogical knowledge to offer library instruction online. Librarians' technical skills and knowledge, particularly in terms of tutorial updates and revision, is important to consider when structuring a cohesive, overarching design strategy, because content dates quickly (Anderson and Mitchell, 2012). Continuing the training process will help to ensure that all librarians can continue to create meaningful learning objects within the system developed, and will monitor the system to ensure it fits librarians' and users' needs. Developing a scalable and sustainable model to be used elsewhere is a final goal for future development.

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