Librarians as Threshold Guides:
Blazing the Trail with Competency-based Micro-courses

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At the University of Wisconsin-Madison Libraries, Teaching & Learning Programs assist in the coordination and curriculum development for the information literacy components of the campus general education requirements, consult with teaching librarians across campus for their teaching needs, and lead the Libraries' E-Learning efforts. Collaborating with faculty, instructional staff, and campus administrators provides us with a comprehensive map of the changing landscape of research assignments and the mode of instruction.

Our librarian instructors are teaching instruction sessions to nearly 30,000 learners each year to help them develop the skills, attitudes, and knowledge base needed to become efficient, effective users and producers of information. We have observed that the traditional research paper is no longer the predominant form of research assignment. Alternatively, there has been a rapid increase in being asked to help students prepare for their research assignments in developing a podcast, web materials, posters, etc. Students are asked to find credible mixed media sources, to find and represent all sides of the argument, and to create with an interdisciplinary lens. Literacies are the key to develop well rounded, prepared, and challenged learners. To assist with this process, Virginia Tech University Libraries have developed a Digital Literacy Framework to aid their students and community in digital environments. They define Digital Literacy as "a set of knowledge, skills, and attitudes that empower learners to engage with digital content, tools, and processes" (Digital Literacy, 2019). This is certainly true at UW-Madison, where both residential and online graduate students are being asked to communicate their learning and participate in scholarly communication using mixed media and digital pathways. While building a robust UW-Madison Libraries E-Learning portfolio, we have found that online learners are in some cases more proximate to the information and systems that require engagement with several spheres of digital literacy.

In 2016, the Association of College & Research Libraries Framework for Information Literacy in Higher Education migrated from a standards-based approach to threshold concepts pedagogy. In the Framework's introduction, its authors quote Wiggins and McTighe, who describe threshold concepts as "ideas in any discipline that are passageways or portals to enlarged understanding or ways of thinking and practicing within that discipline" (2004). Meyer and Land (2003) describe threshold concepts as:

> akin to a portal, opening up a new and previously inaccessible way of thinking about something. It represents a transformed way of understanding, or interpreting, or viewing something...As a consequence of comprehending a threshold concept there may thus be a transformed internal view of subject matter, subject landscape, or even world view (p. 412).

Like many other librarians across the country, over the past several years UW-Madison has explored, redesigned, and looked for opportunities for new curriculum approaches to meet this new pedagogical framework.

The shifting landscape of pedagogical norms and the digital literacy skills learners need can be advantageous for librarians looking for inroads into curriculum. John Bean discusses in the writing and research that the "process of moving from outside to disciplinary insider or from novice to expert is neither simple nor linear (2011, p. 228). Librarians are well positioned to become the threshold guides for learners at all levels (including emerging lifelong learners) to usher (and re-usher) them through the thresholds they need to be successful in a rapidly changing information landscape. This proceeding will discuss how librarians at UW-Madison have undertaken efforts to expand their online course offerings through campus initiatives and have had much success in ushering students through the information barriers using an online learning microlearning strategy.

Micro-learning

Micro-learning emerged as a clear method to guide students to cross the threshold barrier that will then (or continue to) aid them as lifelong learners. Micro-learning helps a learner achieve a specific, actionable objective through focused bite-sized assets (AllenComm, 2019). This pedagogical approach breaks down a traditional lesson plan or curriculum into easily consumable chunks of information that have no single format. These chunks of information are easily scalable, can be integrated into a multitude of learning environments, and can be personalized for each learner. Every learner brings their own unique experiences and knowledge to their learning. This approach allows us to respect the knowledge students bring to their learning and provide a pathway for learners to set their own learning goals and learn at their own pace (eNyota Learning, 2018).

Micro-learning is a natural fit for aiding students to grasp threshold concepts. As discussed, threshold concepts lead to a transformation in students related to their discipline or world view. A transformative learning experience will not occur for students simultaneously. Each students' learning journey is a unique experience and no two students would have the same transformational grasp of a threshold concept at the same time. Micro-learning presents natural breaks in complex material that allow learners to choose where they need to enter or exit based on their need and journey to understanding the threshold concept. Based on this research, we decided to develop an online micro-learning strategy of concept-based micro-courses. Developing concept-based micro-courses allows us as threshold guides to provide students opportunities to engage with a diverse array of concepts, offer pathways for learning that a student can personalize, and then support them in their journey across the threshold.

Leveraging Expertise through Partnerships

Our first step in developing concept-based micro-courses was for us to identify partners across campus who could lend expertise or resources. A campus initiative to expand the number of online graduate programs provided us an opportunity to collaborate with instructional designers, faculty, and program directors on supporting their curriculum, as well as helped us

forge meaningful partnerships. In collaboration with instructional designers from the Division of Continuing Studies at UW-Madison, we began to mark a new trail into the uncharted territory of competency-based micro-courses.

Collaboration

Our approach in leveraging the libraries' expertise is to focus on what the student learning needs are first and foremost. Interviews with program directors of online graduate programs, faculty members, and professional development staff in the Graduate School office aided in our identification of high impact topics for students that will help them succeed in their academic journey, as well as increase their value in the job market. Internally, we also consider which topics would let us work with strong and willing partners, already has existing content that could be used, or would allow the library to strategically assert expertise in an emerging or strategic area. This collaborative process of identifying student learning needs with an analysis of what we can teach allows us to identify topics for development. Collaboration is also essential in the development phase. Our collaboration with an instructional designer from the Division of Continuing studies allowed us to share resources, such as software, budgets, technical expertise, and student work hours. Collaboration allowed us to diversify our micro-course offerings and significantly accelerate our production timeline.

Diversification & Acceleration

The work of developing the concept-based micro-courses broke down silos between departments on campus, as well as internally within our libraries. Avoiding working in silos led to a production model that was agile and faster than normal course development. This is important because of the shorter shelf life of online instructional content. It has also increased our ability to develop customized and discipline specific micro-courses. Subject experts across the libraries were identified to aid in the creation of content for the concept-based micro-courses. For example, we worked with the Director of Scholarly Communication in the libraries as the subject expert for the "Copyright & Fair Use" micro-course. Collaborating with subject experts across campus allows us to diversify our micro-course offerings and highlight expertise in areas of strategic importance. The collaboration between subject experts, the E-Learning Librarian, and instructional designers also lead to more perspectives on a topic and aid in creating more interdisciplinary content. Lastly, by sharing resources and technical expertise across departments it allows us to create a more diverse set of resources within the micro-courses, such as Articulate Storyline 360 interactive tutorials, high-production animated videos, and assessment tools. Partnerships are essential in our development process.

Micro-Courses at UW-Madison

The Teaching & Learning Programs first launched our initiative of competency-based micro-courses in Fall 2017. We have developed four open-access concept-based micro-courses since that time, and one customized discipline specific micro-course. The open access micro-courses are: Copyright & Fair Use; Graduate Research; Introduction to Research Data Management; and Responsible Data Planning, Use, and Sharing (refer to Appendix for link to these micro-courses). The cus-

tomized discipline specific micro-course is Geospatial Data Resources (https://lo.library.wisc.edu/GIS_librarycourse/index.html). Our model as threshold guides in this initiative is to introduce a topical micro-course and provide the pathways and learning opportunities for the learners to have a transformative learning moment. The process of developing a concept-based micro-course can differ each time due to the need to collaborate with different partners each time, but a similar model is consistent throughout. This proceeding will now discuss the experience of developing a specific micro-course to provide an overview of this process of collaboration, analysis, and development.

The Graduate Research micro-course was selected as a topic through discussions with faculty and program directors of online graduate programs that were already receiving support from the libraries. Faculty felt that graduate students needed a baseline introduction to research at the graduate level, especially since many students are working professionals who may be returning to education after a long absence, arriving from different institutions, or other circumstance that may impact their knowledge of how to utilize library resources or conduct graduate level research. Graduate students may receive discipline-specific help later in their academic career, but previously a general introduction to conducting research was not available. This general introduction to the topic fits into our design and approach to how we as threshold guides are working with online graduate programs. We are developing discipline specific micro-courses customized for graduate programs that build upon the threshold concepts introduced in the Graduate Research micro-course.

The E-Learning Librarian led a team of Subject Matter Experts (SME) through a curriculum analysis project that led to the development of foundational core graduate level information literacy learning outcomes. First, librarians collected all current graduate level information literacy learning outcomes from the diverse array of courses/programs in each SME's disciplines or fields. Second, these learning outcomes were then analyzed and coded in order to find common themes among the wide breadth of disciplines. Third, the data analysis was used to draft and develop core learning outcomes. The ACRL Framework for Information Literacy was used as a guiding document in developing the outcomes. The following are the four identified core learning outcomes:

Learners will be able to:

1. Analyze and assess information resources for inquiry and discourse within and across disciplines to enter ongoing scholarly conversations.

2. Formulate original research questions based on information gaps or a reexamination of existing scholarship to innovate inquiry, discovery, and knowledge creation.

3. Design and adapt strategies for searching broadly and deeply using disciplinary and cross-disciplinary information systems.

4. Use discovery tools, collections, and institutional services appropriate for the discipline, program, or course.

Fourth, librarians with subject matter expertise were identified to assist in the development of the micro-course content. The instructional design and technical expertise was provided by the E-Learning Librarian and an instructional designer from our campus partner, the Division of Continuing Studies.

A strong instructional design focus allowed us to develop an informative and comprehensive micro-course that was also interactive and allowed students to choose their learning path. The ADDIE instructional design model was used to ensure the learning outcomes were met and that content met our quality standards. The micro-course is developed as an open-access inventory website, which allows for easy plug-and-play into the learning management system and other digital learning environments. Interactive components were developed with various technologies and programming languages, including: Articulate Storyline 360, Kaltura, After Effects, HTML5, CSS, Java Script, and PHP. Assessment data is collected through the use of quizzes built with PHP and Google Analytics tracking data is available for the micro-course. Assessment and Analytics data allow us to evaluate the micro-course content and to make regular changes to ensure learner success.

Conclusion

Since the pilot micro-course in 2017 the University of Wisconsin-Madison Libraries have earned a strong reputation on campus as online learning educator partners and as information literacy threshold guides. The educational innovation in this area has garnered invitations to instructional designer domestic and international conferences. The strong collaborations with academic departments and campus instructional designers have also resulted in the libraries being invited onto high-level administrative campus committees developing online learning strategy. Early analytics data from the micro-courses illustrate that learning outcomes are being achieved. As is best practice, analytics data and other forms of assessment data are informing iterative design for these micro-courses. In the upcoming years, micro-learning will be a key strategy for our teaching and learning online program in providing skills-based personalized student learning. We encourage librarians at other institutions to brainstorm how micro-learning may be of use to them and their learners.

References

ALLENCOMM. What is Microlearning? (n.d.). Retrieved from https://www.allencomm.com/what-is-microlearning/

Bean, J. C. (2011). *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom*. San Francisco: Jossey-Bass.

eNyota Learning. The Rise of the Microlearning Solution. (2019, February 12). Retrieved from https://enyotalearning.com/blog/is-the-microlearning-solution-the-new-black/

Meyer, J.H.F. and Land, R. (2003). *Threshold concepts and troublesome knowledge: linkages to ways of thinking and practising*, In: Rust, C. (ed.), Improving Student Learning - Theory and Practice Ten Years On. Oxford: Oxford Centre for Staff and Learning Development (OCSLD), pp 412-424.

Virginia Tech University Libraries. (2018). Digital Literacy. Retrieved from https://lib.vt.edu/research-learning/digital-literacy.html

Wiggins, G. P., & McTighe, J. (2004). *Understanding by design*. Alexandria, VA: Association for Supervision and Curriculum Development.