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LIBRARIANS AS ONLINE COURSE DESIGNERS AND INSTRUCTORS

Lucy Santos Green, Editor

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Librarians as Online Course Designers and Instructors

Edited by Lucy Santos Green

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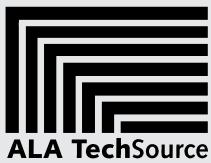

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About the Editor

Dr. Lucy Santos Green is an associate professor of library and information science at the University of South Carolina. Previously, she was an associate professor of instructional technology at Georgia Southern University, where she taught courses in instructional design and online pedagogy and design. Dr. Green earned her MLS at Texas Woman's University and a doctorate in instructional design and technology at Texas Tech University. She frequently researches and publishes on technology-enabled learning, librarians as instructional designers and instructional partners, and digital learning environments.

Abstract

In this issue of *Library Technology Reports* (vol. 55, no. 4), "Librarians as Online Course Designers and Instructors," the authors explore how librarians can apply research-based practices for instructional design and online pedagogy when designing and delivering instruction for fully online learning settings. This report explains the role of librarians in online learning—as designers, instructors, or co-teachers. Throughout this report, the contributing authors address various considerations of online learning—ranging from fostering community and integrating social media to dealing with issues specific to online K–12 learning and to assessment and evaluation. Throughout, resources and recommended readings are provided.

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Chapter 1

Online Learning in K–12 and Higher Education and the Library Professional

Lucy Santos Green

Every once in a while, my colleagues across the fields of library and information science and instructional technology debate the growth and application of online (or, as it is sometimes referred to, distance) education. For those of us who are passionate about high-quality online learning, it often comes as a surprise that anyone might still be hesitant or against the creation of a fully online course. Dr. Marshall Jones, director of Graduate Studies in the College of Education at Winthrop University, South Carolina, explained his perception of this continued hesitation:

> One of the reasons online learning has a bad reputation is that early iterations of it could be pretty crummy. And there are online classes today that are still pretty crummy. I like to point out that if you take an online class, and it is crummy, you don't have enough good online classes to balance out the bad one. So rather than just calling that one crummy online class a bad class, people tend to define the delivery mode as bad. We've all had bad face-to-face classes. But we've had enough good ones to help balance out our perceptions. We don't think of a bad face-to-face class as defining the whole delivery system. We just think of it as a bad class.[1]

Whether we laud its growth or fear its presence, online learning is here to stay. In its most recent report, the Babson Survey Research Group shared that enrollment for distance education students has steadily increased every year for the past fourteen: "The most recent year-to-year addition of 337,016 distance education students, a 5.6 percent increase, exceeds the gains seen over the past three years."[2] In its section describing on-campus students, the report emphasized the continued shift toward online learning: "The growth in the number of students taking only distance courses, coupled with the overall decline in the overall number of students enrolled, means that there are now over a million fewer students coming to campus in 2016 than there was [*sic*] in 2012. This decline has been present across all sectors of higher education."[3] Before you assume this growth is due to private, for-profit entities, I'd like to highlight one more data point collected by the Babson Survey Research Group: almost 69 percent of all distance education students are enrolled in public institutions.[4]

Distance or online education in K–12 settings is just as ubiquitous. Due to student needs for advanced placement courses, elective college courses, credit recovery, homebound placements, and homeschooling, online learning is now a part of K–12 school systems in all fifty states.[5] In addition, the growing popularity of technologies such as Schoology, Edmodo, and Google Classroom means that even in face-to-face K–12 classrooms, students must develop a comfort level with online coursework in order to fully participate and experience academic success.[6]

For the library professional, this translates into making sure we are present and involved in multiple learning settings—face-to-face, online, hybrid, blended, flipped, and any number of other setting combinations. Unfortunately, little evidence exists that coursework for library and information science prepares candidates to design and assess online learning.[7] Many library professionals either pursue training in instructional design in the form of additional degrees or certifications or amass professional development in these areas, trying to keep up with an ever-changing list of learning management system characteristics, web-based tools, adaptive and assistive technologies, and institutional regulations.

Library professionals and LIS researchers have also amassed a body of work that contextualizes librarianship in the world of online learning, with specific focus on the librarian's role as instructional designer and instructor. The *Journal of Library and Information Services in Distance Learning* claims that "the issues surrounding the delivery of library services to this population are sufficiently unique," requiring its focus on this area starting in 2005.[8] Interestingly, as one peruses the articles in the journal, beginning at 2005 and moving toward present day, it is easy to identify a shift in the librarian's attention, from a provider of resources to a collaborator and instructor:

> Librarians' roles have expanded from putting resources in students' hands to helping students engage, evaluate and apply information in a rich educational landscape, much of it not even library-curated. Librarians need to be out on the front lines with other faculty developing educational environments instead of merely reacting when assistance is requested. . . . Efforts to be visible and proactive will help faculty develop direct associations between information literacy/critical literacy pedagogy and collaboration with librarians.[9]

A parallel focus exists among school library researchers. In 2017, Lucy Santos Green, Stephanie Jones, and Panne Burke surveyed eighty-five school library preparation programs representing thirty-eight states, asking how these programs prepared candidates to deliver school library programs in fully online settings.[10] The national study concluded that while the preparation program coursework did not directly address fully online school librarians, graduate programs were aware of their importance and attempted to address the knowledge, skills, and dispositions needed through an emphasis on technology-enabled learning, web design, the teaching of digital literacy, and the development of candidates who continually pursued professional development after graduation.

In preparing this issue of *Library Technology Reports* on librarianship and online learning, I wanted to honor and continue the shift in focus from librarians as providers and curators of resources for learning to librarians as active designers and teachers in online spaces. Each chapter tackles an aspect of online pedagogy from this perspective, avoiding specific discussions of technology tools that might go away with next year's budget, and instead prioritizing an examination of the affordances of those tools and learning needs librarians are tasked with addressing, regardless of our title and user population.

In chapter 2, Jennifer Banas and Russell Wartalski use radical change theory and its three principles—connectivity, interactivity, and access—as a guiding framework for librarians discussing how best to foster community in online learning spaces. Not content with merely addressing the design of online materials, Banas and Wartalski make a strong case for why intentional development of community is a goal that is just as, if not more, important for instructor librarians. Their section of this report introduces you to an ideal learning community and the course elements necessary to support its existence and growth.

Supporting our profession's ethical and foundational belief in access for all, Heather Moorefield-Lang addresses accessibility in online course design in chapter 3 of this report. In a detailed look at the materials one might develop for an online space, Moorefield-Lang provides clear guidelines and suggestions for making each aspect of your online course accessible to all learners. Based on the principles of Universal Design for Learning, chapter 3 explains why accessible design benefits not only the fifty million individuals with learning differences, but all students on their learning journey.

Chapter 4 was written by Jered Borup and Leanna Archambault, two internationally recognized scholars on K–12 online learning and K–12 online teacher educator preparation. In a practical and resource-filled section, these authors describe the importance of personalized learning when online settings of any type or combination are designed and delivered to younger learners. Although many of the situations and resources discussed cater to K–12 educational settings, librarians in public libraries who work with children and young adults, as well as academic librarians working with incoming freshmen or first-generation college student populations, may also want to carefully review chapter 4.

In chapter 5, Tonia A. Dousay takes a library organization step-by-step through the process of selecting online settings and resources outside of expensive and official learning management systems. Prioritizing open educational resources, her chapter describes how online learning design needs can be met by both open source all-in-one solutions and build-a-system approaches. Using accessible terminology, Dousay discusses the importance of not only assessing needs, establishing goals, and selecting systems, but also selecting content and making linking decisions. For individuals who would like to develop online instruction but are facing limited budgets and resources, chapter 5 is an excellent resource.

Social media, in all of its glory, can be a wonderful platform or a librarian's worst nightmare. Considering the pushback and ethical conundrums companies such as Facebook are facing, it is no surprise that one might hesitate to include social media tools when

designing and supporting online learning. However, in chapter 6, Lucas John Jensen makes a strong case for why these tools, when appropriately selected and integrated, can lead to powerful learning experiences and community building among learners. His storytelling approach delightfully describes the best, the worst, and in-between of social media use in online teaching.

This report concludes with Ross A. Perkins's treatise on assessment and evaluation of online learning in chapter 7. Differentiating between assessment and evaluation, and detailing how the application of each impacts every step a librarian might take in the online learning process, Perkins guides the reader through a logical and systematic approach for considering the quality of one's design and its impact on student learning from a program perspective. For those who value evidence-based practice and data that supports instructional, as well as funding, decisions, his primer on assessment and evaluation of online learning is a must-read.

Online learning, whether in higher education, K–12, community, or work-training settings, is a unique learning venue with its own pedagogical and technological needs. It is my hope that you find this report to be informative and well-structured, enabling you to provide your constituents with well-designed and well-supported online instruction, filled with "opportunities for personal growth and participation on a global scale; opportunities to become agile, lifelong learners."[11]

Notes

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Chapter 2

Designing for Community in Online Learning Settings

Jennifer Banas and Russell Wartalski*

This chapter is for librarians seeking to improve learning outcomes among adult learners by fostering community in online courses. To help the reader learn how to do this, we make use of recognized community-focused frameworks and concepts, including communities of practice, dimensions of community, modes of belonging, levels of community, the community of inquiry model, and the expanded community of inquiry model.[1] Also relevant to the discussion are situated learning theory, self-regulation, and transactional distance.[2] We do not seek to be a primer on these models and concepts; instead, we use them to understand the traits of learner communities and to organize the practices that support them in online settings.

When it comes to online instruction, we expect readers of this chapter will have expertise spanning from novice to expert. As a guiding framework, radical change theory and its three digital-age principles—connectivity, interactivity, and access—can help librarian instructors to critically consider best practices in fostering virtual learning communities in an evolving digital landscape.[3] While initially a theory developed to describe the radical changes in children's and young adult literature, radical change theory can also be applied to other settings.[4] For example, Burns, Howard, and Kimmel contended that the theory helps to explain the contemporary changes in information behavior and resources and used it to examine collaborative learning among preservice school librarians in an online course.[5] At the end of this chapter, we will demonstrate how the three digital-age principles can be used to guide instructional decisions for online learning environments.

Community, Learning Communities, and Communities of Practice

Over the years, researchers and practitioners have provided different definitions focused on community and learning. *Community* is "a group of people who are socially interdependent, who participate together in discussion and decision making, and who share practices that both define the community and are nurtured by it."[6] *Learning communities* are made up of people, purpose, and a process that ultimately leads to reflection and transformation.[7] *Communities of practice* are "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and experience in this area by interacting in an ongoing basis."[8] In examining these definitions, we see that a common feature is people purposefully coming together and being transformed by

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the process. Since the communities of practice framework provides more insight into the role of community in learning, we expand upon it here.

According to Wenger, McDermott, and Snyder, the purpose of a community of practice is "to create, expand, and exchange knowledge, and to develop individual capabilities," and it is held together by "passion, commitment, and identification with the group and its expertise."[9] They suggested that such communities are made up of three structural elements: domain, community, and practice. The *domain* is a shared learning need that inspires members to participate and gives purpose to their actions. Within this domain are a common ground and a sense of shared identity. *Community* refers to the interactions and relationships that develop based on respect and trust, with the outcome being a sense of belonging and mutual commitment. Finally, *practice* is a set of frameworks, ideas, tools, information, styles, stories, documents, and language shared within a community. In an online learning environment, the domain is the topic on which learners focus and usually is set by the instructor, but community and practice, as will become apparent later, are the shared responsibility of the learner and the instructor.

Why Is Community Important?

In their research on adult learners, Knowles, Holton, and Swanson noted, "Adult learners like to share their knowledge."[10] It is the sharing of knowledge that leads to the first step of cultivating community. Lave and Wenger also expanded on the essence of community and learning in situated learning theory.[11] Specifically, according to their theory, learning is a process requiring both social interaction and collaboration. Wenger, McDermott, and Snyder pushed the idea further and noted, "Learning is a matter of belonging as well as an intellectual process."[12] As a result, content alone cannot be the basis for instruction. "By learning together in a learning community, students have the opportunity to extend and deepen their learning experience, test out new ideas by sharing them with a supportive group, and receive critical and constructive feedback."[13] One begins to realize that adult learners look for ways to purposefully enhance their learning and to expand their connection with other individuals. With these points in mind, librarian instructors can take steps to create community in online learning environments.

In online settings, planning for and nurturing a learning community is almost as important as planning the curriculum.[14] Boling and colleagues found that when a sense of connection was lacking, learners described their online experiences as being less enjoyable, less helpful, and more frustrating.[15] Rovai found when a sense of connection was established, learners were more likely to persist, and there was greater potential for commitment and cooperation among learners, as well as satisfaction with group efforts.[16] To some degree, this is because communities provide learners with the opportunity to extend and deepen their learning, to test out new ideas in a supportive setting, and to receive critical and constructive feedback.[17]

Since there is a transactional distance between learners and their peers and between learners and their instructor, the potential lack of community in virtual settings is greater than in face-to-face settings. Moore noted that this distance is both psychological and physical and is a function of dialogue and structure.[18] To bridge this distance, instructors must provide ample opportunities for learners to interact with them and their peers in meaningful ways that promote feelings of connectedness. In the next section, we describe an ideal learning community and the course elements necessary to support its existence.

Fostering a Community of Learners

What Makes for a Good Community?

While the need for community may vary from one learner to the next, the characteristics of an ideal community are more commonly accepted. Rovai posited that a classroom community is made up of four dimensions: spirit, trust, interactions, and shared expectations.[19] *Spirit* recognizes the concept of membership and the feelings of friendship, cohesion, and bonding that develop among learners as they enjoy each other's company. According to Rovai, this spirit allows learners to challenge and nurture each other, thus creating a supportive environment for learning. *Trust* refers to the feeling that members can be relied upon for support. This trust is predicated upon members' credibility and benevolence. *Interactions,* high-quality activities that focus on tasks, can contribute to a community. Relation-building exercises can serve to enhance connection among community members. Finally, there should be common *expectations and goals*. In an online learning environment, the learning goals serve as a common purpose, and the instructor establishes expectations for learners.

Offering another perspective, Wenger and Wenger-Trayner contended that community requires various modes of belonging: engagement, alignment, imagination, and identification.[20] *Engagement* refers to opportunities to form relationships and purposefully interact with others. *Alignment* assumes that there are opportunities to organize and produce a product socially. *Imagination* allows members to experience and explore others' perspectives and roles. Lastly, *identification* is the relational process between an

individual and their environment. Collectively, these modes help to form community and help learners feel part of it. As a result, librarians teaching in online learning environments should consider the ways in which their instruction nurtures these modes.

What Course Elements Foster a Community of Learners?

While an instructor might value community, forming it can be an elusive goal in online settings where learners do not have the opportunity to engage with each other or the instructor face-to-face.[21] However, according to Wellman, when the concept of community is perceived as what people do together, rather than where they do it, then the geographical and spatial differences become less important.[22] That means there is hope for forming community in an online setting!

According to Garrison, Anderson, and Archer, an instructor can and should take specific actions to foster community in online settings.[23] They organized these actions into the community of inquiry model, a model that describes and explains the behaviors and processes required to nurture knowledge construction by cultivating three forms of presence: teaching, social, and cognitive. *Teaching* presence refers to the instructor's role in the organization of content, the design of activities, facilitation of discourse, and direct instruction and how these decisions promote a productive community of inquiry. *Social* presence refers to activities that support a functional collaborative environment based on positive affect, interaction, and cohesion. *Cognitive* presence stems from a cyclical process of critical inquiry within a community of learners. This kind of inquiry stems from instructional activities, including a triggering event (e.g., a problem to solve), exploration (e.g., locating and evaluating information about the problem), integration (e.g., applying collected information to the problem), and resolution (e.g., presenting a solution to a problem and reflecting on the outcome).[24]

Though perhaps its presence within the community of inquiry model is implied, Shea and Bidjerano advocated for the explicit naming of a fourth presence, *learning*, rooted in self-regulation theory.[25] In this context, the learner must demonstrate both self-efficacy and effort, as well as time- and task-management skills.[26] Shea and Bidjerano argued that without this presence, the original model, made up of interdependent components, neglects the role of learners in their own learning and within their community.[27] With or without this fourth presence, the community of inquiry model promotes a learning environment in which learners feel comfortable and confident in communicating with each other and their instructor about important and relevant topics in ways that promote knowledge construction.

Designing Course and Learning Experiences That Foster and Sustain Community

Brown theorized that community formation occurs at three levels.[28] At the first level, learners make online acquaintances with others like themselves. At the next level, community conferment occurs, and learners feel a sense of membership and kinship. At the third level, learners experience camaraderie, but only after long-term and intense association with others involving personal communication. If deeper levels of community are desired, at what points in a course does a librarian instructor foster them? In this section, we offer practical instructional design suggestions to foster and sustain community at various points throughout a course. To do this, we turn to radical change theory and Boettcher and Conrad's step-by-step directives for building online courses.[29]

As indicated in the introduction, radical change theory is rooted in three primary digital-age principles: interactivity, connectivity, and access.[30] According to Dresang and Koh, *interactivity* refers to dynamic, nonlinear, and nonsequential learning and information behaviors that occur with an increasing sense of control by end users.[31] *Connectivity* refers to the sense of community that emerges from changing perspectives and expanded associations. And *access* refers to the breaking down of information barriers, allowing for a wide diversity of formerly inaccessible opinion. These principles could be used by librarian instructors who are more familiar with face-to-face instruction to make instructional decisions specific to the online setting.[32] For example, in what new ways does online instruction afford access to information and broader opinion, and how could an instructor capitalize on that as a learning opportunity? Or what new digital tools could promote connectivity between learners, with their instructor, and with expertise outside of the formal course setting? Or how does online instruction support new ways to interact with information and put learners in the driver's seat to explore it? When combined with Boettcher and Conrad's stages of an online course, these three digital-age principles also can help instructors to purposefully create online learning environments that support and sustain learner communities in what we now know to be a forever-evolving digital landscape.[33]

Boettcher and Conrad divide online courses into four stages: course beginnings, early middle, late middle, and closing weeks or course ends.[34] Borrowing concepts from the community of inquiry model, levels of community, and dimensions of community,[35] for each stage Boettcher and Conrad offer specific tips to accomplish course goals. In table 2.1, we highlight some of those tips as they relate to building community and offer some of our own. We also demonstrate

Table 2.1. Fostering and Sustaining Community throughout a Course

Course Phase and Goal	Digital-Age Principle Emphasized	Related Instructor Activities
Course Beginnings **Goal:** To lay groundwork for a learning community in which learners and instructors support one another as they move toward course goals.	Connectivity Access	Help learners to get to know each other, to understand the course structure, and to locate course resources. • Post a getting-acquainted discussion question before the course begins that relates to the course topic, and ask learners to both introduce themselves and connect with each other. • Model desired communication practices. • Include a forum in which learners can engage with each other informally during and outside of the course. • Provide learners with online access to essential course materials, including those used during direct instruction and independent practice. Designate all other materials as supplemental.
Early Middles **Goal:** For learners to become deeply engaged in the content, thus laying the foundation for more complex learning (e.g., projects) and the development of learning communities.	Connectivity	Promote learner interaction with each other, with you, and with the course materials. • Assign small-group work project. • Provide supportive and corrective feedback. • Help learners to understand the course materials and to connect ideas. Do this by designing and participating in meaningful discussions that support critical inquiry. • Introduce major course projects and guide learners in making those projects (or other multistep independent practice) personally relevant based on their skills, interests, and needs.
Late Middles **Goal:** For learners to begin applying learned concepts to scenarios, case studies, issues, etc. with their community.	Interactivity	Boost interactivity as a way to keep learners motivated and promote higher levels of community. Examples: • Have learners, in groups, propose discussion questions that dig deeper into the course content and require the use of resources outside of the course. • Allow learners to reply to discussions using text, photos, and videos. Then, have groups lead or monitor class discussion or submissions about their question. • Assign a discussion or activity that requires learners to adopt different roles within their groups to collectively and successfully accomplish a task. • Have learners share (or construct) their course project (or other multistep independent practice) in a discussion thread for other learners to see and comment on. • Incorporate other social networking tools (e.g., Facebook, LinkedIn, YouTube, Instagram, etc.) as part of the course.
Course Ends **Goal:** For learners to have a positive experience and to identify the knowledge and skills they have gained while supporting both the community's and personal goals.	Connectivity Access Interactivity	Help learners meaningfully integrate what they have learned and obtain the highest level of community. Examples: • In discussions, and as a class or in small groups, have learners grapple with a real-world issue or problem related to the content. Encourage brainstorming, and have learners respectfully challenge others' ideas. Guide them toward solutions or resolutions. • In discussions, have learners share relevant experiences that support future networking and professional collaboration. Supplement these discussions as needed.

how these activities align with radical change theory's digital principles to help instructors to critically consider which activities to implement during course beginnings, middles, and ends as a means to support and sustain learning communities.

The activities listed in table 2.1 are not intended to be exhaustive, but merely an introduction to how librarian instructors can foster community at different stages of an online course. We suggest that the reader refer to Boettcher and Conrad for additional suggestions and more detailed descriptions.[36] Also, we recognize not all librarians will be teaching multisession courses; therefore, instructors would have to modify activities accordingly, as well as expectations about the level of community to be reached.[37] Whatever the course length, Boettcher and Conrad remind instructors that the goal of community in an online course should be to build knowledge and competency

by way of a network of mutual respect and the sharing of ideas and perspectives.[38]

In Closing

According to Wenger, McDermott, and Snyder, a community is the social fabric of learning. Communities help "to create, expand, and exchange knowledge, and to develop individual capabilities."[39] Attempting to foster community is particularly important due to the transactional distance both learners and instructors may feel in virtual learning environments.[40] When online learners are part of communities built on spirit, trust, interactions, and common expectations, they are more likely to persist, to cooperate, and to report satisfaction.[41] As a result, "nurturing a learning community as part of a course is almost as important as being present for your learners."[42]

In this chapter, we shared recognized course elements associated with the promotion of learning communities and a critical lens through which librarian instructors can make instructional decisions as electronic forms of instruction continue to evolve. By exploring different theories and frameworks, particularly those known to maximize knowledge construction through social connection, we allow for equal opportunity for learner engagement.[43] Through such practices, we not only attend to the needs of adult learners, including their need for professional identity, but we also allow them to experience others' perspectives and to explore other roles.[44] In doing so, the librarian instructor is not only a director of content, but also a facilitator of learning.

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Chapter 3

Accessibility in Online Course Design

Heather Moorefield-Lang*

As online instruction continues to grow in popularity, addressing the needs of all participants becomes crucial. Whether the online instruction is a full course for K–12 or higher instruction, a YouTube educational video, professional development training, or a webinar, it is imperative to design teaching for all learners. The Universal Design for Learning (UDL) framework was developed to offer equal learning opportunities for students in face-to-face courses. The framework looks at how learners experience, interact, and engage with course content. The idea of UDL has now been adapted for a wide range of learning situations in face-to-face, online, and hybrid environments.[1] Online instruction offers a variety of learning opportunities to students, but there can be challenges if the course designer fails to include all learners in the instructional design.[2] This chapter will address accessibility in online course design. We will look at techniques, tips, technologies, and rubrics for designing an accessible, universally designed course.

Background

Offering courses or instruction online eliminates barriers to education such as location, transportation, and social environments, to name a few.[3] By providing accommodations, online learning creates learning paths to accessibility. Options include closed captioning for students who are deaf or who have hearing impairments, alternative text (alt-text) offering descriptions for images and graphics in presentations, and documents available in PDF and Word formats for screen readers. According to United States Census data, fifty million people, or one in five, have a disability. One in seven people has a learning disability or learning difference.[4] Learning differences represent the largest group of students with disabilities. Proactively engaging in accessible course design addresses the needs of students with disabilities.[5]

Designing an Accessible Course

Overall Design

Choice is important for students, professional development attendees, and a learning community. When putting together an accessible course, know you have options available to aid you in making your course accessible for all. It is central to think through the course. How will this course, webinar, instruction, or professional development be delivered? The first thing to remember is consistency. Having similar page structures, layouts, and design makes for continuity for students. Consistency sets up a standard for the course layout and lets students know there will be few surprises throughout the semester. If students are visually impaired, they will know that headings, videos, instructions, assignments, and so on will always be in the same places. Those who have hearing impairments will know where videos are located and that these are closed captioned.

Documents

A document is a page or item read independently from a course management system (e.g., Blackboard, Moodle). The key to documents is also consistency. Use

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uniform headings and titles. As you build documents in Google and Microsoft Word, check accessibility throughout (see the next section, "Tools for Accessibility"). If your documents include images, charts, or graphs, include alt-text. Alt-text is simply alternative text that provides short descriptions of images—think of it like Twitter posts. There isn't a standard length for descriptions, but make sure image descriptions are comprehensive for your students. Think through what is in the picture when you write the alt-text. If longer descriptions are needed—for example, for charts and graphs—include descriptive text in the document below the image, figure, or chart.

Presentations

Presentations are slides in programs like PowerPoint and Google Slides. The key to accessibility in presentations is alt-text. As with documents, make sure to check the accessibility of your presentation as you are creating it. Images need to have alt-text embedded into the presentation so that screen readers can present the information to students with visual impairments. Charts and graphs that require longer descriptions will need the textual information included in the slides or within the narration of a recorded class talk or lecture.

Videos

With videos, it is often about captioning. If you are not keen on captioning, you can provide transcriptions of your videos. There are a variety of tools and services to aid in video captioning and transcriptions. YouTube (see the next section, "Tools for Accessibility") will caption videos for you, but typically the captions must be edited. Subscription services such as Rev and 3 Play Media can aid with transcriptions. Final note on videos: provide recordings of any video. If you teach synchronously, record for those who might miss your class or for those who like to return and review content. If you teach asynchronously, your videos are already recorded for students to review, rewind, and return to as needed.

Embedding Links

When adding a link, don't paste the URL directly onto your course, page, or course management program (e.g., Canvas, Edmodo, Blackboard). Instead, attach the link and use words to describe the link's destination. This concept helps all students and users regardless of ability, and it is more attractive to the eye. For videos, you have the option to embed these into your course or link to them with the descriptions, or you can do both. Whichever way you choose to offer your videos, remain consistent throughout the course.

Tools for Accessibility

YouTube

If you have a Gmail account, you already have a YouTube account. Videos for instructional purposes can be housed in your YouTube account. This is particularly useful for asynchronous, not-in-real-time viewing. For accessibility purposes, YouTube offers automatic captioning once video files are loaded. The automatic captioning can contain mistakes. However, it is easy for an instructor to go in and edit the captions, a process much simpler than creating original captions and transcripts. If you are concerned about privacy for your educational content, know that YouTube videos can be posted as public, unlisted, or private. Depending on the type of instruction delivered, you can also select from options for Creative Commons licensing, downloading permissions, and embedding permissions.

Google Accessibility

When you visit the site for Google Accessibility, you are offered a list of links, products, and features offered to users throughout the Google universe. This list is continuously growing and changing as Google adds accessibility features. Some examples include accessibility features in the Chrome browser (e.g., keyboard shortcuts, low-vision features), buttons as text, screen reader aid in a variety of Google tools, Braille support in Google drawings, videos instead of text for using Google Tools, and voice and video chat help within Google Hangouts. Keep this accessibility list in your favorite bookmarking tool to track regular updates and additions.

Google Docs

Creating, linking, and editing Google documents for online instruction is simple. There are a variety of accessibility features in Google Docs as well, including screen reader and keyboard shortcuts. A personal accessibility tool in Google Docs is voice typing. When opening a new Google document, click on Tools > Voice Typing, and a microphone will appear. When you are ready to talk, click on the microphone. While you talk, the words will be typed out, including punctuation. This is a handy tool for dictation, typing, note taking, and much more.

Adobe

It is important to provide information, instructions, and documents for any online course in an accessible format. Adobe offers tools through Acrobat Pro Suite to help make documents accessible and check on the accessibility of existing documents. To make

a PDF accessible, choose Tools > Action Wizard, and from the Action List, click Make Accessible. If you are checking on the accessibility of a document, choose Tools > Accessibility and then click Full Check. Offering course, webinar, and other instructional documents in both Adobe and Microsoft Word is best to allow for choice when it comes to screen readers used by visually impaired students.[6]

Microsoft

For presentations and documents, Microsoft offers a wide range of options for accessibility. Choices include alternative text for images, built-in headings and styles for screen readers, an accessibility checker of documents once work is done, and recommendations for better accessibility options within the document.

Evaluation of Course Accessibility

There are a variety of ways to assess the effectiveness of accessibility within an online course or instruction. Some instructors look toward the tenets of the UDL framework, while some universities create their own rubrics.[7] One of the most popular rubrics for accessibility in online instruction is the Quality Matters framework.[8] This particular rubric is designed for those who teach predominantly online and provides eight general standards. With Quality Matters, instructors can review their courses in full. The eight standards are Course Introduction, Learning Objectives, Assessment, Instructional Materials, Learning Activities, Technology, Learner Support, and Accessibility. Quality Matters is a fully comprehensive rubric available in multiple languages to aid professors, instructors, and their students in having well-designed, accessible online instruction. Please note that Quality Matters is a product available for purchase and is not open source.

Conclusion

When designing online instruction, whether it's a course for K–12 or higher education, a webinar, a YouTube video for education, or professional development training, accessibility is crucial to the conversation. Not only does accessibility open your content to all students, but it also opens communication. Through captioning, alt-text, transcriptions, embedded links, and more, you are making sure all students and users of your course content have access. No one is being left out. Coming into an online learning environment with a plan is always a good idea. Knowing the tools and methods for making a course accessible is also critical. Online learning environments provide a wealth of opportunities for our students regardless of their location. Making their learning experience fully accessible and universally designed creates a user-friendly learning environment where all students can grow.

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Chapter 4

Designing for Young Learners

Jered Borup and Leanna Archambault*

K–12 students are increasingly enrolling in fully online courses.[1] Even in face-to-face courses, students are commonly provided with online learning activities, especially in school districts that have adopted one-to-one initiatives that provide each student with a laptop.[2] Most school districts expect that teachers will leverage available technology to create activities that strategically combine in-person and online learning activities, a method commonly referred to as *blended learning*. However, simply providing teachers with a room full of laptops does not guarantee that those laptops will be used to provide students with meaningful online or blended learning opportunities.[3] In order to effectively design and facilitate students' online and blended learning, librarians and teachers have to adapt their practices and develop the skills required to do so. However, skills are not enough in and of themselves. Teachers and librarians also need to develop the attitudes and beliefs that will drive them to actually apply their skills in ways that change their practice.

Furthermore, students who are new to online learning require a high level of support. Lowes and Lin explained, "Students not only need to learn a subject online but need to learn how to learn online."[4] Similarly, teachers need to learn how to teach online. Boyer and Kelly explained that "libraries have always been centers of learning how to learn."[5] This is especially true in online and blended environments, and school communities have commonly turned to librarians for guidance in how to learn and teach in online and blended environments. As a result, current and future librarians should develop a clear understanding of online and blended teaching and learning so that they are prepared to support teachers and students in those environments.

Using the Online Technologies to Personalize Learning

One of the primary advantages of online technologies is that they allow students to have a learning experience that is more tailored to their needs. The goal of providing students with a more individualized learning experience is actually explicitly stated in the most widely accepted definition for K–12 blended learning: "Blended learning is any time a student learns at least in part at a supervised brick-and-mortar location away from home *and* at least in part through online delivery with some element of student control over time, place, path, and/or pace."[6]

Graham and colleagues explained that different agents (e.g., students, teachers, and software) can

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make decisions regarding students' learning goals, time, place, pace, and path.[7] There are several terms to describe learning models based on the agent that is making the decisions:

- *Personalized learning* commonly describes the situation when students are provided with control and choice over their learning goals, time, place, pace, and path.
- *Differentiated learning* is similar to personalized learning, except that it is the teacher who is using student learning data and interests to adjust the learning experience for the student.
- *Adaptive learning* is when software uses a student's interests, responses, and behavior to adapt the learning path and scaffolds.

While there are important distinctions among these learning models, there is also considerable overlap. Teachers commonly combine the different models of learning throughout a course and even a single lesson. We have also found that teachers, librarians, and administrators commonly use the term *personalized learning* to describe any learning environment where students' learning experiences are customized to their needs and interests regardless of the agent driving that customization.

The nature of the internet allows students to access any of the learning materials, activities, and assessments that teachers make available online anywhere they are so long as the students have an internet-enabled device with an internet connection. This alone provides students with some flexibility in their learning time, place, and pace. Online content can be static or dynamic. Static content, such as text and videos that are placed online, allow students to adjust their learning time, place, and pace, but what is actually presented does not change based on students' needs. Dynamic content such as games, simulations, and adaptive-learning software can actually personalize students' learning paths by changing what is presented to students based on their behavior, understanding, and interests. Furthermore, librarians and teachers can create and curate content "playlists" that teachers customize for individual students or that allow students to select the resources that they use to achieve mastery. When assessing students' understanding and skills, librarians and teachers can provide them with a choice board containing a menu of options from which students can select. Online and blended learning can also be paired with other more constructivist-driven learning models—such as problem-based learning, project-based learning, and guided inquiry—that provide students with personalized learning opportunities in their learning path.[8]

Designing for Online Interactions

Moore explained that courses are made up primarily of three different types of interaction: student-content, student-teacher, and student-student.[9] All three types of interaction are important for young students' learning. To help facilitate online learning interactions for their students, school districts commonly provide teachers with an online learning management system (LMS), such as Blackboard, Canvas, Desire2Learn, or Schoology. LMSs are increasingly providing *free-for-teacher* accounts that enable teachers to freely access and use an LMS even when it is not provided to them by their school districts. Robust LMSs will contain content pages, assessment tools, gradebook and feedback tools, teacher announcements, and forums where students can interact and discuss course topics. While not as robust, other web-based platforms, such as Google Classroom, Google Sites, and Edmodo, have become popular online platforms for K–12 teachers.

In blended environments, course content can easily be presented either online or using paper. Likewise, student-teacher and student-student interactions can occur online or in person. Because there are advantages and disadvantages to in-person and online learning, the goal of blended learning is to combine the best of both worlds. However, when done poorly, blended learning can actually combine the worst of both worlds. It is important that online activities be blended with in-person activities so that each informs and is dependent on the other. When activities are not blended together, students can become overwhelmed and may feel as if they are actually taking two classes—one online and one in person.

The remainder of this section explores curating and creating online content, followed by a discussion of students' online interactions with other students and their teacher.

Curating and Creating Online Content

Just because content is made available in an online LMS does not mean that it is high quality. When designed poorly, online content can be overwhelming, confusing, and boring. When creating content pages for young learners, Graham and colleagues recommend that teachers and librarians

- chunk longer content into separate, more manageable pages
- use headings and white space to further chunk information on individual pages
- use bullet points or numbered lists when possible
- left-justify paragraph text
- use icons and symbols to cue students' attention to tasks that are commonly repeated
- embed video directly into the page so that it can

be viewed without leaving the LMS
- use at least 12-point type, and larger type when designing content for younger students
- use images purposefully to support the content and engage students[10]

When beginning to blend online and face-to-face activities, often the curation of online content can be a significant first step. One approach is to first search for what may be available for educators to freely use. Material or content that is freely licensed through Creative Commons is also known as open educational resources (OERs). According to Creative Commons, "Open Educational Resources are teaching, learning, and research materials in any medium that reside in the public domain or have been released under an open license that permits no-cost access, use, adoption, and redistribution by others. OER can consist of entire courses, course materials, textbooks, course modules, videos, software applications, among other resources. Such resources are clearly marked with a Creative Commons license."[11]

There are many existing OER repositories. OER Commons, one of the largest collections, is supported by the educational nonprofit ISKME. It provides "Curated Collections," which are developed by digital librarians, specialist librarians who manage and organize online resources. They work to provide an organized array of OERs arranged by topic areas including, for example, Career and Technical Education, Game-Based Learning, Next Generation Science Standards, and many more. OERs can also be searched by subject area, grade level, and type of material. Other OER repositories are more subject- or content-specific, such as the Encyclopedia of Life. This resource seeks to provide open access to information and resources about life on Earth and living nature that are freely accessible and reliable. In addition, some OER databases provide access to peer-reviewed journal articles, such as PLOS, an archive of over 215,000 open access articles focused on science and medicine. These are just a few examples of OER repositories. There are also Creative Commons search tools that allow users to search for open images. They can be particularly helpful for students creating multimedia presentations. This feature also exists within Google, with a few simple steps:

1. Go to Google Advanced Image Search (https://www.google.com/advanced_image_search) for images or Google Advanced Search (https://www.google.com/advanced_search) for anything else.
2. Enter your search terms.
3. In the Usage Rights section, use the drop-down menu to choose what kind of license you want the content to have.
4. Click Advanced Search to view results.

OER Commons
https://www.oercommons.org

OER Commons Curated Collections
https://www.oercommons.org/curated-collections

Encyclopedia of Life
https://eol.org

PLOS
https://www.plos.org

Creative Commons search tools
https://ccsearch.creativecommons.org

Although there are a myriad of resources made available online, copyright rules and fair use guidelines need to be taken into consideration prior to their use, even for educational purposes. Teachers may inadvertently assume, like many students, that if materials are online, they can automatically be used. To help with this issue, a useful checklist to assess fair use is available from the University of Chicago.

University of Chicago fair use checklist
https://www.lib.uchicago.edu/copyrightinfo/fairusechecklist.html

Librarians are instrumental in guiding educators and helping them locate OERs that are made available under Creative Commons. When necessary, teachers and librarians can easily create content video presentations using free online tools, such as Screencast-o-matic, that allow them to record audio combined with either a webcam video of them talking, what is being shown on their computer screen, or both. While these online tools can be simple to use, it's more difficult to actually create videos that students will watch. Guo, Kim, and Rubin found that students are most likely to view videos that

- are shorter than six minutes
- combine video of the narrator with the slides
- show the teacher writing or drawing
- show the narrator in personal settings
- contain a narration that is enthusiastic[12]

Screencast-o-matic
https://screencast-o-matic.com

For generations, teachers have used narrative and storytelling to engage learners, make learning

relevant, and connect new concepts to prior knowledge and experiences. Video allows this approach to be even more engaging, illustrative, and accessible. The use of video is ideal because it requires limited technology expertise and can be done with existing technology resources. It can also be used to cultivate personalized learning to the extent that the teacher is able to build meaning from situations through videos that are relevant to students' personal interests, motivations, and existing prior knowledge.[13]

When creating online content, educators also need to be aware of universal design principles that aim to reduce accessibility barriers for all learners, regardless of whether or not students have disabilities. Although it is beyond the scope of this chapter to go into great depth on universal design principles, two relatively easy considerations include using alt-text for images so that they can be described by screen readers and adding captions to any videos that are created. There are free online tools, such as Subtitle Horse, that will create captions for uploaded videos, and YouTube can also automatically add captions. However, with any automated tool, accuracy should be double-checked, as errors can occur due to mispronunciations, audio quality, accents, speaker pace, or background noise. For additional information about Universal Design for Learning in an online setting, please see the chapter on differentiated instruction by Keeler and colleagues in *What Works in K–12 Online Learning*.[14]

Subtitle Horse
http://subtitlehorse.com

Online Communication

Online technology can help to customize students' interactions and feedback. While face-to-face communication can be especially engaging and synergetic, not all students can participate equally, especially those who might be more introverted, who are learning English, or who have disabilities. In contrast, online students can communicate asynchronously, providing students with an equal opportunity to participate. The flexibility that the online environment provides also affords students time to reflect and formulate their ideas before they share them with others. Furthermore, online technologies are increasingly providing students with choice in how they want to communicate. For instance, Flipgrid is a popular communication platform that allows participants to easily post video comments for others to view and reply to. Other tools, such as VoiceThread and Padlet, actually provide participants the option to post text, audio, or video comments.

Flipgrid
https://flipgrid.com

VoiceThread
https://voicethread.com

Padlet
https://padlet.com

Teachers and librarians can also provide students with more targeted support and feedback using audio and video recordings. For instance, LMSs such as Canvas have integrated audio and video feedback communication into their online gradebooks. Teachers and librarians can also use screen recording tools if video communication is not supported by their LMS. Following several research articles examining online and blended teachers' video communication and feedback, West and colleagues provided the following guidelines:

- Type out ideas before making the video. The text summary can also be provided to students.
- Avoid rerecording your videos by embracing imperfections. Students have reported that they prefer it when teachers speak naturally as they would in person.
- Keep the videos relatively short (under ten minutes).
- Provide whole-group as well as personalized communication and feedback. For instance, a teacher may choose to post a video announcement for the entire class.
- Be authentic and personable in the recordings.
- Use video communication strategically. For instance, video screen recordings are probably best when students require detailed or extended feedback on their online projects, but a video is unnecessary when the feedback is relatively straightforward.[15]

It not uncommon for teachers to feel uncomfortable when creating video messages for students at first, but they find that they quickly become more and more comfortable with experience.

Conclusion

The expansion of blended and online learning in K–12 schools has the potential to dramatically change how teachers teach and learners learn. With all of the disruption beginning and continuing this shift represents, one thing is clear—libraries will remain "centers of learning how to learn."[16] Now more than

ever, students and teachers will turn to their librarians with questions and requests for assistance as they move to blended and online environments. As a result, librarians are in a prime position to help teachers and students gain the knowledge and skills required to be successful. In this chapter, we highlighted only a few strategies, principles, and resources to assist along the way. We encourage librarians to use their expertise to research these topics further and to connect with other librarians and teachers so that they can continue to support one another along this important journey. As online designers, librarians play a pivotal role in educating students and preparing them to meet the challenges of the highly connected society in which we live.

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Chapter 5

Existing Outside of the Learning Management System

Tonia A. Dousay*

The process of providing online services for learners brings with it inherent challenges that guide decision-making and impact delivery. As you evaluate tools for suitability, you enter into an analysis that guides your decision-making, establishing criteria for inclusion or exclusion and laying a foundation for a systematic framework to support your efforts. Most of the available tools will comply with legalities like the Children's Online Privacy Protection Act (COPPA); however, this does not absolve you from knowing and following guidelines. Additionally, equitable access remains a high priority for all educators and requires carefully weighing the benefits and challenges of the decisions you make.

When thinking about opportunities for libraries to serve learners in online spaces, what comes to mind? Do you envision a website with basic information such as policies, hours, and links to resources such as online tutorials? Or do you see an interactive, dynamic collection of curated and designed content organized into a virtual library?

Whatever your vision, prioritizing these opportunities should begin with asking questions to create a needs analysis that accurately captures the goals of your organization and represents the needs of your patrons. Answering questions related to your needs triggers an evaluation process directly aligned with selecting tools and mitigating challenges. Further, this analysis helps you determine if an all-in-one approach will work or if a custom-built solution of multiple tools will better meet needs. Using this framework will help you navigate the constantly evolving educational technology marketplace and provide a rich opportunity to design and share resources for your patrons.

Identifying Needs

The first phase of addressing any instructional problem requires analysis. The focus of analysis in this phase rests on identifying and analyzing learners and local context to help guide decision-making and prioritization. This process benefits from generating an organized structure, such as creating a concept map that clearly illustrates the learners, stakeholders, content, and other relevant components as you work through this phase. As shown in the example in figure 5.1, the concept map might have a branch highlighting the fact that your library works most often with younger learners. You might use this information to determine that online resources should support both the learners and their parents, such as including the link to a Common Sense Media review of a particular app or recommended book or movie.[1] The goal of the map is to create a visual representation of the different factors that contribute to and shape your library's needs.

To help generate a concept map, draft a variety of questions related to your patrons, collaborations and

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partnerships, content sourcing, and learning goals. Questions you ask should initiate conversations and discussions that directly contribute to the concept map you create. Some examples might include the following:

1. Who are the learners we most commonly serve?
   a. What are their ages?
   b. What types of content do learners need access to (e.g., video, audio, e-books, tutorials, references, apps, etc.)?
2. Do we cooperate with other institutions and organizations to support programming?
   a. Do partners provide online resources we should be using? If yes, what formats are resources provided in, or how are they made available for sharing?
3. What types of open education resources might we curate from popular open education resource (OER) platforms to support our learners?
4. Does the content we supply or provide access to support formal learning, informal learning, or a blend of both?

Note that there is no right or wrong way to approach this analysis or the concept map you generate. During this process, you may find that you create more than the four main themes described above, and you may find that subsequent questions arise as a result of the process. Be sure to also clearly identify available resources like personnel, supplies, technology, and funding to help with the second phase of this process. Use the opportunity to refine your needs and identify dilemmas that may emerge as a result of constraints, such as limitations on funding or internet access, and refine needs. With a complete needs analysis, you are now ready to generate and prioritize goals.

Prioritizing Goals

The second phase, generating and prioritizing goals, takes place through four steps modified from traditional instructional design practice:[2]

1. generate goals
2. determine feasibility
3. revise goals
4. prioritize goals

The first step serves as an opportunity to generate a wide variety of goals that emerge from the needs analysis. The focus here is to deduce as many goals as possible, ignoring constraints like feasibility. During the second step, feasibility becomes a greater concern, grouping goals into feasible versus unfeasible. Factors contributing to feasibility might include funding for materials, access to expertise or other resources, time constraints, and so on. In the third phase, you might eliminate a goal from consideration or revise phrasing for it. Revising a goal statement might be done to reduce or eliminate constraints or combine similar goals that may require the same resources. Finally, the fourth step invites you to prioritize goals in order to focus development efforts. Prioritizing might involve identifying those goals that can be met within a particular time frame, determining the order in which goals will be addressed, or eliminating a goal from consideration entirely.

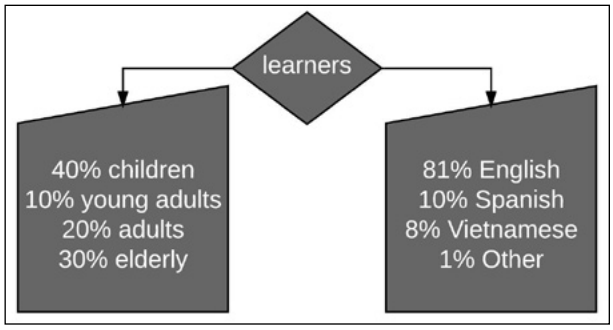

Figure 5.1
Example concept map of learner demographics on age and language.

Returning to the example concept map in figure 5.1, one goal may be "Provide English language learning curriculum to support your multilingual learners." However, that goal might be revised in steps two and three to "Curate OER content to assist English language learners and recommend relevant apps," such as Duolingo or Memrise. You can now begin to identify and select the tools you need to carry out your prioritized goals.

Selecting Tools and Alternatives

Selecting tools, the third phase of the process, begins with identifying the specific types of tools necessary to meet your goals. However, cost considerations almost universally take priority; the rapid age of technological development we live in brings with it sometimes volatile markets, resulting in widely fluctuating prices, features, and tools that fade from use as quickly as they gained popularity. Thus, the guidance in the following sections should be considered general. Specific tools are mentioned only as examples.

All-in-One

While access to a traditional learning management system like Blackboard may not be feasible, there might still be all-in-one solutions that will meet your needs. If you decide that the best approach would be

a virtual classroom configuration with sections for specific topics, grade levels, or other programmatic themes, consider Edmodo or Google Classroom. Either tool allows for flexibility in creating closed classes wherein a librarian might curate resources and activities for book clubs, problem-based and inquiry learning projects, research or other reference tutorials, virtual field trips, and more.[3] Accounts with either platform are free, and it may be possible to take advantage of tools for communicating with parents or guardians when working with younger learners. These tools are suited for working with adult learners, making these all-in-one solutions attractive to many organizations.

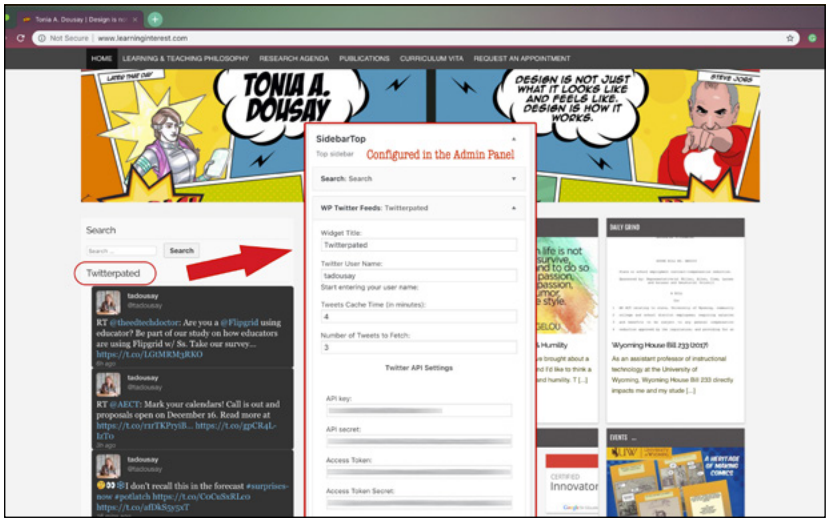

Figure 5.2
Example Twitter widget in WordPress

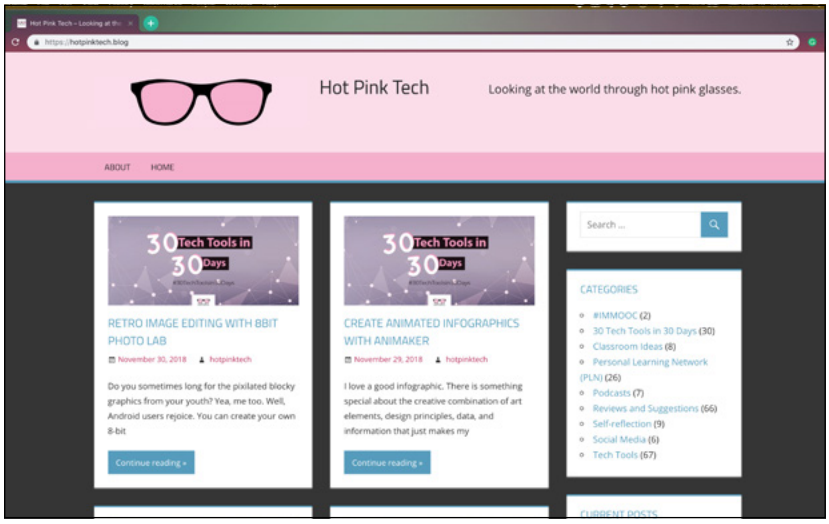

Figure 5.3
Example blog-style layout for dynamic content

Build-a-System

Returning to the needs analysis, some goals identified on the concept map may not lend themselves well to an all-in-one solution, necessitating an approach that brings together networked tools. For example, if a library determines that web-based guides of themed resources are a priority over programming like a book club, then presenting information may benefit from using a wiki, blog, or microblogging approach.[4] If custom content and open access emerge as goals, you must decide how to share and engage around content.

PRESENTING

The first step in creating a networked system involves presenting or sharing information. To provide a single point of access, organizations most often use a website as the container that brings together or embeds other tools. Using a free content management system (CMS), such as WordPress, to create a website is the easiest approach, though others may prefer services like Google Sites. However, designing and hosting a website also means distinguishing between static and dynamic components. A website's static content, such as policies and general details, require little maintenance and simple webpage templates. Dynamic components, on the other hand, can be managed through embedded plug-ins, styled webpage templates, or external links.

There are different options for presenting different content. For example, if your institution maintains social media accounts, you can enable plug-ins that allow you to embed these posts on your website. Figure 5.2 illustrates how the Codium Grid theme on WordPress displays tweets using the WP Twitter Feeds widget. Widgets and plug-ins are small applications that act as an interface on websites to connect different services and display content from these services. Other examples include tools to embed documents (Scribd on WordPress; Google Docs on Google Sites) or

display photo albums hosted on social media or photo services (Instagram on WordPress; Google Photos on Google Sites).

Similarly, website templates help with displaying dynamic content such as tutorials, guides, or regular announcements. On WordPress, this approach often takes advantage of blog-style pages that automate organization, navigation, and structure of content. Figure 5.3 illustrates this approach used by Hot Pink Tech, a website managed by Dr. Kristin Brynteson of Northern Illinois University to share tutorials and informational content related to educational technology. When creating these types of pages, you can assign a variety of tags that facilitate easy searching and assign categories to content to organize posts into themes. Examples of categories might include "tutorials," "maker activities," "recommended readings," "events and exhibits," and so on. The name and structure of categories are entirely up to you and should reflect the programming, resources, and activities offered by your library.

While plug-ins and templates may help with a variety of internally curated or created content, external links will likely still be necessary. If you opt to use an all-in-one LMS such as Google Classroom, it is unlikely that you would use the service to also host other content. Thus, you would want to include the link to Google Classroom, individual courses, and the join code with instructions on how to add a course. Similarly, you might direct patrons to different learning resources, such as Code.org, Khan Academy, or Instructables. Regardless of the website hosting platform, inserting links on any website is fairly easy, using built-in interfaces that mimic word processing applications common among the tools already mentioned.

Code.org
https://code.org

Khan Academy
https://www.khanacademy.org

Instructables
https://www.instructables.com

CREATING

A website can use a variety of approaches to creating content for presenting to patrons. If you generate images to support tutorials, these images can be uploaded to WordPress or Google Photos for embedding on a page. Marketing and event pictures might be hosted on Google Photos or Instagram and embedded on pages through a plug-in. For more advanced, dynamic approaches to content generation, consider the use of wikis.[5] A wiki is a simple authoring system that allows users to create and display content for peers to then read, edit, and update around virtually any topic. Generally speaking, wiki functionality organizes content into articles with a prescribed hierarchical structure, including links to other relevant articles and simplified editing functionality. The permission structures control who can create or modify content and keep users informed of all editing history on articles. Some libraries may find value in using wikis to curate and share content on particular topics or engage learners in coconstructing content related to educational programming—for example, engaging summer readers in writing book reviews.

If integrating a wiki, libraries will want to consider a few options. First, a wiki can be a plug-in activated within a CMS like WordPress (e.g., Helpie WP, Wiki WordPress Plugin). In this approach, all content continues to be managed within a single platform and login. However, if your web hosting service allows you to easily install external tools like MediaWiki, the platform behind Wikipedia, this may be another option to consider. It requires an external link from the primary website to facilitate use and access by patrons. If hosting the main site on Google Sites, incorporating a wiki requires separate hosting and an external link.

SHARING AND ENGAGING

Finally, do not forget planning for how to share created and hosted content as well as engage patrons in using these resources. A deeper look at this particular issue can be found in chapter 5 of this issue of *Library Technology Reports*, which covers embedding social media in online instruction. However, simply stated, the primary goal here involves connecting websites and social media networks together to facilitate "pushing" new content to social media as a form of marketing as well as directing social media users to the website. For example, the WP Twitter Auto Publish plug-in for WordPress allows you to easily share new pages and content as a tweet on a connected account. This approach helps patrons connect directly with the content most relevant to them.

Mitigating Challenges

Legal Policies

There are two major legal challenges that may arise when working with learning resources. The first is the Children's Online Privacy Protection Act of 1998, more commonly known as COPPA. The legislation outlines what data can be collected by websites or other online

services directed at children under thirteen and how they can collect it.[6] This policy primarily affects decisions related to incorporating external websites or installing plug-ins that may ask younger patrons to create an account or otherwise collect data about their online use. The majority of commonly used tools, like Khan Academy, will comply with COPPA, but libraries would do well to investigate tools prior to integrating them to make sure they are in compliance. The second legality to consider is photo releases.[7] When you take photos of events or capture workshops to create tutorials, pictures provide rich content for libraries to share, but some patrons may not want their photo, or photos of their children, taken. Obtaining permission prior to using images is an absolute necessity to prevent problems and help protect the privacy of patrons.

Access

Access to resources rests at the heart of the conversations around distance learning, regardless of context. The two primary considerations during the needs analysis are internet access and bandwidth limitations. Depending on the locale and how patrons access the resources, access to high-speed internet may be limited, or the services used by patrons may limit bandwidth. For example, patrons in rural locations using satellite internet access may find that their provider restricts data to 20GB per month, after which time access is throttled or limited to lower speeds. This means that high-bandwidth media such as videos may be problematic. If resources absolutely must include large amounts of data, you should ensure that autoplay features are disabled to prevent potential issues. All questions related to how and when patrons access resources should be included in the concept map described earlier in this chapter.

Conclusion

Providing online learning opportunities for patrons helps further the goal and mission of libraries. However, few institutions have access to a formal learning management system to assist with organizing and presenting content. Thus, navigating free alternatives or building a system by networking multiple tools requires careful consideration and planning. In this chapter, I have shared four primary areas for scrutiny in this process: identifying needs, prioritizing goals, selecting tools and alternatives, and mitigating challenges. By taking a systematic approach to these opportunities, libraries will be able to effectively assess patrons' needs, design a potential solution, select the appropriate tools, and ensure equity in access.

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Integrating Social Media into Online Education

Lucas John Jensen*

Online education has a reputation for being insular and isolating, with low levels of participation, disconnected from the creative, discursive, and tumultuous world of social media.[1] Bringing social media into an online course might liven it up and burst the bubble, so to speak, of the learning management system and the online discussion forum, bringing the greater online world of social media into the classroom; inspiring richer, more authentic conversations; and giving learners greater access to outside resources. Today, every app, tool, and website has a social media component—from sharing videos on YouTube to sharing sandwich orders on the Subway app. It is only natural to want to bring that kind of functionality and technological cross talk to the online classroom. However, as both a researcher of social media in education and an educator who has implemented social media—successfully and . . . not-so-successfully—in blended and online classroom environments, I have found social media and online education to be compatible, but not an automatic fit. The integration of social media into online education, like all instructional design, is a challenge that requires planning, research, practice, and goal setting. This chapter will explore some of the challenges faced by librarians who attempt to integrate social media in online learning or are collaborating with educators who would like to add these tools to instruction.

Knowing Your Learners and Their Social Media Preferences

In 2014, I researched the use of Twitter as a means of discussion for five sections of an introductory undergraduate educational technology course at a large public university. The instructors and I hoped to replace typical online discussion forums, often seen as bereft of free-flowing and motivated conversation, with a social media environment.[2] After all, the world of social media is one of rampant discussion, while the online discussion forums typical of online courses are notoriously perceived as dull and lifeless.

The rise of hashtag culture helped us choose Twitter. By placing the pound sign before a word or phrase, a social media user can create an ad hoc group of other postings that use that same hashtag. This alleviated the rigmarole of students having to follow each other. By clicking on #techclass (the hashtag has since been changed), the students would see all posts using that hashtag.

The activity flopped. Over the semester, more than 100 students tweeted a little over 1,000 times, averaging around ten tweets per student for the entire semester. These were mostly short tweets about in-class activities, with a significant portion being pictures. This is the key statistic: not once did students hit the Reply button and respond to another's tweet. At the time, tweets were only 140 characters, hardly an insurmountable barrier to activity; yet, no one had the energy to respond to another.

This particular social media integration was chosen because it aligned with the notion of personal learning environments (PLEs), which support this kind of social media and Web 2.0 usage in education. In a PLE, the instructor—perhaps with the students—creates a learning environment built out of Web 2.0 and social media tools that resembles the manner in which students conduct their online life.[3] Students might even have autonomy to choose some of their

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tools and how they interact with these tools. For the instructors and me, the use of a Twitter hashtag to unite discussions seemed au courant, something that undergraduates would understand, as it matched our perception of their online behavior.

We should have known better. A poll on student social media usage conducted at the beginning of the class raised a serious flaw in our plan: only half of the class used Twitter on a regular basis, and later interviews with students confirmed this lack of interest in—if not outright antipathy to—Twitter.[4] Instagram, Pinterest, and the nascent Snapchat all featured higher student engagement and activity, and many students resented being forced to use a social media platform in which they had little interest.

An important factor in quality instructional design is learning the characteristics of your learner group, and this principle holds true when integrating social media into online education.[5] We failed our students by making assumptions about their social media use based on their age and undergraduate status, guided more by media portrayals and our biases than the actual data we had showing that Twitter was unpopular. Instagram was the most popular, so we should have pivoted to that as our source of discussion, especially given our students' propensity for posting pictures. In fact, we should have asked about that, too. Knowing learner characteristics is more than knowing what their favorite social media tool is. It means investigating how students interact online, what they choose to post, what technological affordances they prefer in a social network, and much more. It would be impossible, of course, to design a social media–integrated lesson that appealed to every student. Still, the research suggests that if they do not like a social media tool in real life, then they will most likely not like it in the classroom.

Building Relatedness

Self-determination theory (SDT) is a motivational theory that cites three human needs as being powerful intrinsic motivators: autonomy, competency, and relatedness.[6] Learners feel more internally motivated if they have more autonomy and control over their learning, if they feel competent while engaging in learning, and if they feel a sense of relatedness, of being understood. Perhaps so many gravitate to social media tools because the tools satisfy these three needs. Social media users can post what they want (autonomy) in a generally easy-to-use space (competency) and feel heard, while receiving feedback from others (relatedness).

Although learning managements systems (LMSs) often struggle to meet these three needs, the ability to generate relatedness most distinguishes social media from online education. In an online class environment, a student shares impersonal course materials with a small number of peers; on a social network, a student might reach thousands or even more. This relatedness deficit, combined with the perceived lack of autonomy on what can be shared in an online educational space, demotivates users; these may be factors in the oft-reported feelings of isolation in online learning.

A problem I have encountered is something I call—for lack of a catchy name!—the Personal-Educational Barrier, a reluctance on the part of students to mix their personal social media lives with their online educational lives. It is not difficult to see why students might want to keep their personal, autonomous profile separate, as their feed might contain information too intimate, or possibly too embarrassing, to share with the relative strangers in their online class. Even with social media integrated into a course, students might create new "professional" or "fake" accounts to interact with the course materials and each other. In the aforementioned failed Twitter activity, more than half the students created these blank accounts, which featured nothing but posts about the course, rather than the fully fleshed-out, human, relatable profiles of those who used Twitter in their personal lives. It would be difficult to relate to—or feel related to by—others when the social media profiles on the other end are relative blanks, thin on personal data. Students never checked the course hashtag because there was rarely anything new to read.

This lack of relatedness is a discussion dampener. Avoiding it means embracing the personal and encouraging sharing of student interests, goals, and feelings (within reason!), beyond the typical introductory posts that start most online classes. Make sure all discussions have a personal component. Find ways to intermingle personal content with the professional and instructional so that student social media profiles, even the fake ones, look vibrant and active. Encourage curatorial content usage—your retweets, shares, and repins, if you will—so that students can quickly and easily fill up their profiles with approved content. Even if it seems wholly extraneous or unnecessary, encouraging relatedness might have motivational effects in the long run. You might not break down the Personal-Educational Barrier, but you might increase the feeling of relatedness among your learners, letting them know that living, breathing human beings are on the other end of the screen.

Harassment and Privacy

One major problem with social media, however, is that there are living, breathing human beings on the other end of the screen. With that fact comes the dark side

of human behavior, in this case, cyberbullying and harassment. A recent Pew Research survey showed that 41 percent of Americans experienced harassment online.[7] Women and marginalized populations remain particular targets of ire.[8]

Educators are not immune to harassment. I interviewed an art education professor who attracted online trolls when she pinned an article about art and Trayvon Martin to the relatively drama-free Pinterest. The article was intended to spark in-class discussion, but because the board was public, outside actors were able to disrupt the dialogue, scaring students away. The Trayvon Martin case was controversial, to be sure, but these cyberbullies were explicitly seeking out people to harass and threatened the professor's job in the process.

To open up your online home to social media is to potentially expose students—and instructors—to these issues. This perception of harassment certainly had deleterious effects on student perceptions of Twitter. Over time, I have made my own social media–based lessons increasingly locked down, but there is an opportunity cost in this, as these lessons lose the reason for breaking out of the LMS bubble in the first place—that connection to the outside world, however volatile it might be.

Using social media also opens students up to privacy issues and the fact that their information is being sold and shared, often with little recourse, by social networks. The revelations about data selling via social media like Facebook are enough to give anyone pause.[9] Some students might object to using social media on these grounds, and alternative assignments might be needed in that case. Your institution might even be uncomfortable with exposing a class to public, data-mined social media environments. For both privacy and harassment issues, the key again is research. Find your students' comfort levels and preferences and where your institution stands. Then strike the appropriate balance between the benefits and openness of social media use and the greater protection of the controlled space within an LMS.

Data Gathering and Assessment: The Big Headache of Big Data

Even if you have social media firmly embedded into your online course plans, and you feel relatively good about it, you are faced with another hurdle: How exactly are you going to gather the data from the social media? After all, these sites were created to share cat videos, start fights with high school friends, and sell ads for things you would never buy. You need to gather data or find some way to assess student progress.

Unfortunately, there is no easy answer for the layperson. Social media sites *do* make their data available through their application programming interfaces (APIs), which is how apps and sites talk to one another, as when an Amazon advertisement is embedded in a website you frequent. These APIs can be used to gather data, but they change frequently, meaning the programs needed to gather the data also need maintenance. For Twitter and Facebook, I had to employ the talents of a computer science whiz to scrape the data from the sites, and the APIs changed so much that our algorithms needed constant maintenance. When I researched and assessed Pinterest, I applied brute-force methods, meaning I copied and pasted student responses into a spreadsheet, which was time-consuming and inefficient. Assessing social media or any online PLE is a bit like playing the proverbial whack-a-mole, as sites go through regular redesigns. As with all good instructional design, it is best to have your assessment plans lined up and tested before integrating social media.

More Than Just the Cool Tool

If integrating social media into online education seems daunting, along with the privacy and harassment issues, the need for relatedness, and the need to use social media that students will enjoy, then let me add one final challenge: not everyone uses social media for the same reason, so students' usage might vary, even within the same social network. This fact might make social media integration seem impossibly complicated, but it actually opens up a world of creative, interesting lessons connected to the vast wealth of knowledge outside the online education bubble.

One student I interviewed used Facebook for political discussions. Another used it to keep up with friends and family. Still another used Facebook as a storehouse for photos. Similarly, when I interviewed three other instructors who used the curatorial social media Pinterest in their classrooms, I found that all four of us used Pinterest in our courses in different ways. The art education professor used Pinterest boards to post supplementary and current materials for in-class discussions. The professor of gifted and creative education used pinboards in lieu of online discussion forums. The high school art teacher used Pinterest as the repository for class readings and resources, namely examples of art and artists. I used Pinterest as a place to share students' in-progress graphic design to garner peer feedback.

All of us deemed our Pinterest experiments successful and continued to use them. I have also seen virtual field trips and botany scavenger hunts conducted in Instagram and project management conducted in Facebook. The sheer variety of educational social media use cases on display appeared overwhelming at first, but after further reflection, I find

it liberating. Consider this: four different instructors were able to successfully use a social network—one not specifically built for educational purposes—to meet their instructional goals with high levels of student engagement. Social media platforms have more features and customizability than most instructional tools, offering the instructor opportunities to create engaging and creative instruction different from the offerings in an LMS or traditional classroom.

Treating social media as merely a "cool tool" might result in the Twitter failure described earlier. The most important thing to consider is that social media, while it has its own unique challenges and peculiarities, must still be approached like any educational technology tool: choose the best tool for the task. Find the affordances of the social media platform that make it distinct, determine what your goals are and how to assess them, investigate your learners, consider their privacy and safety, and then open up your online course environments to the weird, wild world of social media.

Notes

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Assessment and Evaluation in Online Learning

Ross A. Perkins*

Humans are evaluative by nature. It is quite likely one of the essential characteristics of our species that has allowed us to persist for hundreds of thousands of years. Despite what might be considered our almost instinctual inclination to assess or evaluate, we do not always do it well. There are any number of examples of the wrong questions being asked, or the wrong data being collected, or the wrong analysis being conducted, or the wrong conclusions being drawn. An aphorism, perhaps especially well known to readers of this text, warns, "Don't judge a book by its cover." The maxim concerns assumptions about almost anything *except* books. It carries with it the notion that features other than surface ones need to be taken into account when making decisions about something—or someone. This chapter addresses how to evaluate and assess online learning in particular and how to do so in a way that is systemic and systematic. This chapter is not about how to measure student learning within an online course, as that is a separate topic entirely; however, any evaluation of online learning may well include data on student progress.

Although internet-based courses have existed for over thirty years, and though distance education programs are ubiquitous, the history and spread of this innovation do not mean that the fundamentals of instructional design, the sine qua non of any effective course, have always been applied. Because those developing online courses are assumed to be committed to quality, how then can one determine if courses bear the marks of quality instruction? While the measurement of quality is, to some degree, context-dependent, general principles exist that allow designers, instructors, directors—or whoever might be a stakeholder—to both evaluate and assess online learning in a way that gives them confidence in their conclusions.

Evaluation and Assessment Defined and How They Compare to Research

The terms *evaluation* and *assessment* are sometimes used synonymously. At other times, a differentiation is made that specifies scale, target, or objective. Some may prefer to think of evaluation as large-scale, while assessment is small-scale. Others might assert that evaluation happens to people (in a job role), and assessment happens to programs or policies. However, in this present writing, *evaluate* will describe quantitative measures, and *assess* will describe qualitative measures. One should not assume that these distinctions apply whenever these terms are used, but they'll allow for clarity in our discussion here.

From a practical perspective, an evaluation emphasizes the collection of numerical or survey data that might include the number of times or times of day that students access a course, student demographics, count of times students participate in discussion boards, grades on assignments, survey responses from questions with Likert-type answers (e.g., Strongly Agree, Disagree, etc.), grades on assignments, and so on. In many cases, such quantitative data becomes part of what has become known as *learning analytics* and can provide unique insights into how students are best supported in online learning. As a simple example, if an evaluation finds that students with a particular grade point average tend to have lower overall

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course interactions after week 7 of a course, designers might create opportunities spurring involvement and, hopefully, success. It is common for advanced learning management systems (LMSs) to now have in place analytics systems that generate "smart reminders" for students who consistently lag behind in submitting assignments.

Assessment can happen alongside or independently of evaluation. Because the emphasis of assessment is qualitative (as we are defining it here), one focuses on collecting data such as content of posts on discussion boards, feedback that students give to each other on peer-reviewed assignments, open-ended responses to surveys about what users or instructors think about course assignments or alignment of goals to their learning needs, or transcripts of interviews with stakeholders about the online courses or programs. Both assessment and evaluation must be done—even if at different times and with different purposes—to help create a complete understanding of online learners or online courses or programs.

Evaluation or assessment, no matter how these are defined, should in most cases be thought of as different from research. To be sure, a well-designed evaluation or assessment can be part of research. The planning for either a research-driven measurement or one that is evaluation-centric includes carefully planned data collection and reporting. In the end, the motivation behind doing each one is different, and so is the end point. The purpose of evaluation and assessment is to make ongoing changes or to account for experiences after a course has been run; no other justification for the evaluation is needed. Dissemination tends to be internal, and the conclusions have practical implications. Research instead starts with a literature-based rationale for the questions and, in the end, relates what has been found back to those questions. It tries to align with, contradict, or help evolve theory. The readership of research is wider. An important caveat must be noted: a very good evaluation or assessment of online courses might be done in parallel with research goals. Given that all who produce or consume online courses need continuous examples of their production and implementation, it behooves librarians who are designing online instruction to think about how an evaluation might help inform a wider audience.

Systemic and Systematic Approaches

Librarians who are involved in course design should approach evaluation and assessment both systemically and systematically. A *systemic* approach refers to appreciating the fact that any online course is part of a system of people, tools, technologies, goals, and so on; all aspects are interrelated with varying levels of connection. A *systematic* approach refers to approaching evaluation and assessment in a well-planned way that follows a series of steps to lead one toward the formation of useful questions, the collection of useful data, and analysis and reporting that take into careful consideration the process itself.

The Systems Perspective

A systemic approach takes into account as many elements that impact online learning (specific to one's context) as possible. The perspective one must take is that any formal online learning opportunities are part of a system, which means a number of interrelated parts, processes, policies, and personnel are attached to the effort. In many cases, the online learning opportunity cannot take place or be sustained without the other elements functioning. In other cases, even if parts are not *dependent* on one another, changing or adjusting aspects of the online system affects the other parts. *Here's the recast:* If one carefully takes the entire system into account, the impact of the evaluation or assessment may well be positive. If evaluation or assessment is done without planning, or based on pressures that do not take into account the system relationships, the impact can be irrelevant at best, and misleading or invalid at worst.

As an example, consider a series of online modules for high school students that teach them about library resources, makerspace policies, checkout procedures, citations, copyright laws, and so on. The modules have been set up via the school's LMS with the intention that students can access the material on a school computer, on their home computer, or even on their mobile devices. However, due to scheduling, students almost never have time to use school computers to explore the modules, 30 percent of students are without consistent access to a computer or the internet at home, and although many use phones or tablets, the courses are not really designed to be mobile-friendly. On top of that, parents are not paying for data plans that allow students to download or stream instruction. As school personnel try to determine why the content is not being disseminated, an evaluation that examines all aspects of the system shows the logistical access challenges as a major cause.

Understanding system impacts is a major step toward conducting a good evaluation, but it is not enough to simply evaluate or assess the connected elements. Indeed, considering the system also requires one to be cognizant of the stakeholders as well and what impact a closer inspection might mean to them. People who have put a good deal of time and energy into creating an online learning experience are generally biased (understandably so), convinced that their product has many positive elements. While it may be true, the point of evaluation and assessment is not

merely to generate a report applauding the efforts, but to investigate what might need to be improved. How will that news be interpreted? If you are doing an evaluation, what data is available? If you are doing an assessment, is it possible to conduct interviews, and if so, who will be conducting them? Will the interviewer be perceived as someone who might impact the interviewees' grade or have influence over their workplace performance? Even if one finds what appears to be "the truth" through an evaluation, it is important to think about who will be reading the report and how it will be disseminated. This is not at all to suggest that an assessment should be avoided; rather, it is a caution that one must sometimes be "as wise as a serpent and as innocent as a dove" when navigating evaluation initiatives.

A Systematic Approach

Adopting a systems view and being wise when approaching an assessment or evaluation also means being systematic. Using a systematic approach means that one follows a carefully considered, reiterative plan, implementing research-based tools, to conduct evaluations or assessments of online learning. Being systematic is important whether one is looking very specifically at a single unit of content within a standalone course, or if one is trying to assess the impact of a multiple-course program such as a certificate or degree. It is instructive that the instructional design process itself, often described with the acronym *ADDIE*, begins with *assessment* and works toward *evaluation*. The assessment part of the process often relates to needs assessment, learner assessment, task assessment, context assessment, and so on. Although the last letter of ADDIE represents *evaluation*, it is by no means the last thing one does. In fact, evaluation should be among the first things planned when creating a course, a program, or a new policy. It is important to keep in mind that planning to measure the quality of online instruction is an activity that should happen at multiple points during a course or program and that data should be used for continuous improvement. Thus, assessment and evaluation are part of a reiterative cycle—not one-offs with information that never is used to ameliorate whatever has been examined.

To successfully conduct a systematic evaluation and assessment, those involved with the planning must consider the questions *why*, *who*, *what*, *where*, *when*, and *how*:

- *Why?* Likely the most critical question is the *why* of evaluation and assessment. To be sure, no online learning should go without a closer look into its reception, use, and impact. Yet, if the data is never going to be used, or if it is ignored altogether, is the energy involved in developing the means to measure elements of a course worth the time? The question *why* must be answered *first*, rather than on a post-hoc basis. The answer may be very straightforward: "We are doing this evaluation because we want to know if students have used the course to achieve the following goals . . . ," or "At least one end-of-unit assessment will happen after each unit so that designers can better determine what is and is not clear to the learner." If one does not have clear answers about the *why*, then why evaluate at all?
- *Who?* As noted above, the *who* of the task includes the designer and instructors of the online course, but are they the best people to do the evaluation or assessment? It is often a good idea, if logistically possible, to have neutral parties involved (or at least anonymous surveys) because the type of information one gathers may well depend on who is doing the gathering and how the participants feel their responses might be used. If a librarian asks a student in an online course, "Tell me about how you use the library," a nonanonymous user might extol the "nice" things about the library, while leaving out feedback that could make the person gathering the data feel uncomfortable.
- *What?* The *what* of evaluation and assessment entails asking good questions—well before instruction begins—about aspects of the online course about which one wishes to know more. The questions might relate to one specific part—for example, how an activity in a single unit is perceived or how the assignments follow (or do not follow) the instructions or examples provided. At the programmatic level, one typically examines the *what* of alignment of activities to certain standards of learning or performance outcomes. The data collected can be from usage statistics, results of student assignments, discussion board text, or feedback left on surveys or given in interviews.
- *Where? When?* The *where* (at what point in the instruction) and *when* of a systematic inquiry into learning might largely be the same; one must decide whether to use a formative approach (with data collected along the way to make incremental changes) or a summative approach (with data collected only at the end of the course or program).
- *How?* The *how* of evaluation or assessment of online courses requires a good deal of reading, quite honestly. Any number of texts and articles exist that guide one through a systematic process. These texts or websites may even include rubrics that pose important questions and list research-based criteria. For-profit entities exist that, for a subscription fee, provide training to institutional personnel on use of a proprietary evaluation systems. The advantage of using a commercial product is that the work of developing the rubric,

testing it, training on it, and so on has already been done. In other cases, organizations or institutions develop their own rubrics that guide people in the process of looking more closely at online learning. At the very least, the *how* of evaluation and assessment should include aspects such as a logic model to determine what questions will be asked, how the data will be collected, and how the data will be analyzed.

Evaluating the Evaluation

A final thought: As part of the planning process, it is also important to be "meta-," by which we ask others to help take a critical perspective on the evaluation plan to see if it contains appropriate questions, data collection schemes, time line, analyses, implementation, and reporting approaches. Since the goal is ultimately to be able to do far better than simply "judge the cover," it is helpful to establish people, processes, and procedures to ensure that assessments and evaluations provide the full measure of worth possible. To get a deeper understanding of evaluation, here are some texts you might consider:

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- J. Michael Spector and Allan H. K. Yuen, *Educational Technology Program and Project Evaluation* (New York: Routledge, 2016).
- Jody L. Fitzpatrick, James R. Sanders, and Blaine R. Worthen, *Program Evaluation: Alternative Approaches and Practical Guidelines*, 4th ed. (Upper Saddle River, NJ: Pearson, 2010).

Notes

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