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ONLINE & BLENDED LEARNING:

SELECTIONS FROM THE FIELD

Routledge
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FOREWORD

Now in its twenty-second year of publication, *Online Learning* (OLJ) continues to provide scholars, practitioners, administrators, students, and policy makers with rigorous, peer reviewed research in the field. Published quarterly, "the journal promotes the development and dissemination of new knowledge at the intersection of pedagogy, emerging technology, policy and practice in online environments." (Online Learning Consortium, 2016). Oftentimes the publication schedule includes special issues that focus on pertinent topics in the field such as learning analytics, accessibility, and k-12 online learning, along with the annual conference edition which features papers from selected presentations at OLC conferences over the course of the given year. More recently, *Online Learning* has partnered with the American Education Research Association's (AERA) Special Interest Group, Online Teaching & Learning, to publish a special issue that features the top SIG papers presented at the annual AERA conference.

In the past five years, the journal has undergone a name change (formerly the *Journal of Asynchronous Learning Networks),* a merger with the *Journal for Online Learning and Teaching (JOLT)*, the flagship publication of the Multimedia Educational Resource for Learning and Online Teaching (MERLOT), and an expansion of the editorial board, including editor-in-chief Dr. Peter Shea, who continues to act in this role. Other members of the editorial board have a broad range of expertise in online, blended, and digital education which brings me to the focus of this eBook. Many of the *Online Learning* editorial board members are Routledge authors and, when we look at our great Online Learning Consortium (OLC) community of members, volunteers, and friends, we have additional Routledge authors in common. This eBook is a collection of the work of *Online Learning* editorial board members and OLC community members sourced from recent Routledge book publications.

Charles R. Graham, Professor at Brigham Young University, is an *Online Learning* associate editor. He is a co-author of *Essentials of Blended Learning: A Standards-Based Guide* (2014) and *Conducting Research in Online and Blended Environments* (2015). In *Essentials of Blended Learning*, Graham and his co-author, Jared Stein, provide practice advice for teaching in the blended learning environment. This eBook features "Chapter 1: Orientation to Online Learning," in which Graham and Stein provide an overview of blended learning including definitions, a rationale for blending, course design, and integration of technologies, among other topics.

In *Conducting Research in Online Learning and Blended Learning Environments* (2015), Charles D. Dziuban is joined by co-authors Anthony G. Picciano, Charles R. Graham

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and Patsy D. Moskal. Dziuban and Moskal are long time colleagues at the Research Initiative for Teaching Effectiveness at the University of Central Florida and longtime supporters of OLC; Moskal also serves as a guest *Online Learning* editor. Picciano is Professor at CUNY and Hunter College as well as OLC Board Member and *Online Learning* associate editor. The book provides in-depth information on how to plan research inquiries into online and blended learning. For this eBook, we selected Dziuban's "Chapter 6: Principles for Data Analysis in Online and Blended Learning Research.". In this chapter, the author describes data analysis techniques including a self-analysis rubric, computing resources, and discussions surrounding variables and statistical significance.

Robert Ubell, Vice Dean Emeritus at New York University's NYU Tandon School of Engineering, is a member of the *Online Learning* editorial advisory board as well as former OLC Board Member. In his recent book, *Going Online: Perspectives on Digital Learning* (2017), Dr. Ubell explores the world of virtual education with many well-known experts in the field. We chose "Chapter 4: What You Can Do Online, But Not On Campus" as the featured selection for this eBook. Ubell explores digital pedagogical strategies that are found online but not in the classroom, including the benefits of anonymity, learning analytics, writing, and reflection.

Now in its fourth edition, *Teaching Online: A Practical Guide* (2017) is a comprehensive guide for online teaching. Author Susan Ko, Director of Faculty Development at NYU School of Professional Studies, is a longtime OLC supporter and contributor to the digital learning field. This eBook features "Chapter 10: Preparing Students for Online Learning," which Ko wrote with co-author Steve Rossen. The chapter delves into the student side of online learning, including the perils and pitfalls that students encounter, many of which faculty can easily assist with given knowledge of these problems.

Michelle Pacanksy-Brock, Faculty Mentor, Digital Innovation at California Community Colleges, is the author of *Best Practices for Teaching with Emerging Technologies* (2017), now in its second edition. In this book, Pacansky-Brock explores the applicability of social media and Web 2.0 tools in learning environments. In "Chapter 1: Building A Solid Foundation," Pacansky-Brock discusses setting expectations for the use of emerging technologies, building a community, and empowering students, among other topics.

In Blinded Learning: Research Perspectives, Volume 2 (2014), Patsy D. Moskal and her co-author Thomas B. Cavanaugh, Vice Provost for Digital learning at University of Central Florida, contribute "Chapter 3: Scaling Blended Learning Evaluation Beyond

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the University." In addition to Moskal's work for OLC, Cavanaugh is an avid supporter of the organization. Their chapter focuses on the university's involvement in the Next Generation Learning Challenges (NGLC) program, a collaborative program focused on the unique needs of the adult learner in postsecondary education.

While Anthony G. Picciano has contributed to many Routledge books, he has authored several of his own. His most recent, *Online Education Policy and Practice: The Past, Present, and Future of the Digital University* (2017), includes "Chapter 5: The First Wave: The Past, Present, and Future of the Digital University." This chapter covers the advent of the Internet and its expansion, the Alfred P. Sloan Anytime, Anyplace Learning Program, as well as new financial and pedagogical models for institutions, among other topics.

We hope you find this collection of chapters from Routledge authors, all of them committed to the *Online Learning* Journal and the Online Learning Consortium, to a thought-provoking entry point into online and blended learning.

Dr. Jill Buban
Sr. Director, Research & Innovation

Online Learning Consortium

CHAPTER

1

ORIENTATION TO BLENDED TEACHING AND LEARNING

This chapter is excerpted from

Essentials for Blended Learning: A Standards Based Guide

By Jared Stein and Charles R. Graham

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ORIENTATION TO BLENDED TEACHING AND LEARNING

Excerpted from *Essentials for Blended Learning: A Standards Based Guide*

Immediate access to people and information through technology is increasing, and this is transforming our everyday lives. Using connected mobile tools such as smartphones, tablets, and laptops, we purposefully "blend" physical and online activities to create optimal experiences. This is what blended education is all about: situating learning experiences online or onsite based on the relative strengths and weaknesses of each mode.

Blended courses provide the opportunity for teachers to mix the best of onsite and online to create a new learning environment for their students. Research suggests that blended courses can have a positive impact on efficiency, convenience, and learning outcomes. By moving more of the learning to online environments, blended courses add flexibility to participants' schedules, provide learning benefit through automated and asynchronous online tools, and can tap into the modern, social Web to help learners venture beyond the traditional confines of the classroom.

To consistently achieve such benefits, teachers need to go beyond a simple "digital facelift." Instead, teachers should aim to create transformative blends through an intentional course redesign process.

1.1 • CHANGING WORLD, CHANGING LEARNERS

David Wiley, Professor of Instructional Psychology and Technology at Brigham Young University, describes six significant changes in our everyday lives brought on by the growth of technology, especially Internet technology (Wiley 2006). Wiley suggests we are moving from:

- **Analog to digital.** Information, media, interactions, and experiences are increasingly done online.
- **Tethered to mobile.** Wireless networks, laptops, smartphones, and tablets allow people to access the digital world anywhere, anytime.
- **Isolated to connected.** On the Web, we can connect to people around the world, however we want. Niche interest groups thrive, professional connections grow exponentially, and we never have to lose touch with family and friends.
- **Generic to personal.** No longer do we have to be satisfied with one view of news, one stream of information, or one type of community. Individuals can choose their own experiences, and can have that delivered to their personal devices.

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Excerpted from *Essentials for Blended Learning: A Standards Based Guide*

A DAY IN THE CONNECTED LIFE

Devlin uses his smartphone to start his day by checking his task list and calendar while eating breakfast. On his bus ride to work, his phone notifies him that his teacher has posted a new grade and given feedback on Devlin's latest blog post. Devlin quickly reads the feedback through a mobile app, and begins thinking about revisions he might make.

At work, Devlin quickly searches the Web for information to support an urgent project that his team has just been assigned. He quickly compiles the information into an online document, and adds his teammates as coauthors so they can collaborate digitally and share their plans with the entire company.

At lunchtime, Devlin reaches out to a friend in another department via text message, and they both use online social media services to get recommendations for a local restaurant. The restaurant turns out to be pretty good, and Devlin rates it on his favorite social network site so his friends and family can learn about it.

After work, Devlin loads his university's Learning Management System (LMS) on his tablet and watches a video explanation recorded by his teacher. This leads him into an online discussion forum, where he reads through many of his classmates' posts before his bus stop. He now has a head start on his course responsibilities, and will process what he's seen and read while he does some household chores.

Thanks to nearly constant access to the Internet, Devlin's daily life is blended with online services and information that allows him to accomplish more, efficiently and spontaneously.

- **Consuming to creating.** The modern Web makes creating and participating as easy as consuming—and vastly more fulfilling. The changes from analog to digital and tethered to mobile are reflected in our steadily increasing access to connected technology, and signal the others in this list. YouTube and Flickr exemplify social media by providing a space for everyone to share their own videos and photography. Blogs provide individuals with their own spaces for linked writing and showcasing of their work. Wikipedia is history's largest encyclopedia, crowdsourced by volunteer experts and amateurs from around the world.
- **Closed to open.** For better or for worse, citizens of the Web are increasingly open about who they are and what they do. This helps people find and develop connections and communities. Open sharing on the Web is also becoming the

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norm, where individuals recognize the value of contributing their efforts to the global network of information and ideas.

How well has education kept up with these changes? Some schools may have adapted to the first two or three by providing online education. But even then, many teachers tend to simply transfer what they've always done in the onsite classroom to the online environment. This kind of "digital facelift," as Gardner Campbell puts it (Campbell & Groom 2009), is insufficient to realize our learners' potential in the twenty-first century.

Learners growing up in our current technology-imbued environment are sometimes referred to as "digital natives." Mark Prensky first defined digital natives as the incoming generations of learners who are not only broadly skilled in the use of new technology, but also fully expectant that technology will be available in all aspects of their lives—anytime, everywhere (Prensky 2001). While this classification of learners' ability by generation has been the target of some criticism, it has drawn attention to an important and fundamental shift in learners' expectations. Susan Metros suggests that the one thing we can say about today's learners is that they'll go to the Web before the textbook or teacher (Metros 2011).

This is probably a good thing. The wealth and availability of information continues to grow at astounding rates, and the skills and knowledge that workers need to thrive in this twenty- first century are ever changing. Allan Collins and Richard Halverson argue that we are moving from an era of "universal schooling" to an era of "lifelong learning," learning continually, as new situations demand (Collins and Halverson 2009). To be effective, learning will be just-in-time, geared to the learner's particular and immediate needs. Most of the learning that happens in people's lives will not happen in the classroom, but in the workplace and via social connections. Jay Cross of the Internet Time Alliance suggests that informal learning is not the exception, but the norm: as much as 80 percent of our learning happens outside the classroom (Cross 2006).

We need to respond to this changing world by teaching and learning differently.

TIP!

Avoid the "course and a half" syndrome, where a blended course becomes more work simply by adding to—not replacing—onsite activities. Chapter 4 addresses this challenge.

1.2 • WHAT IS BLENDED LEARNING?

Though there is no single definition of "blended," this guide focuses on blended courses as a combination of onsite (i.e. face-to-face) with online experiences to produce effective, efficient, and flexible learning.

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Excerpted from *Essentials for Blended Learning: A Standards Based Guide*

If one imagines a spectrum of technology enhancement, with traditional onsite on the left and fully online on the right (**Figure 1.1**), a blended course could fall anywhere in between the two. Some institutions designate a certain percentage of the traditional onsite meetings be replaced with online activities, but these designations are generally arbitrary.

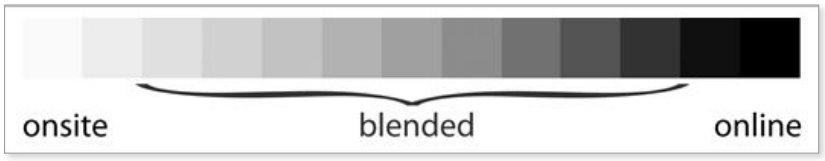

Figure 1.1 • A spectrum of technology-enhanced teaching or learning.

And they depend on your perspective: an online course becomes blended as soon as it introduces onsite, face-to- face meetings. Typically, an onsite course becomes blended when online activities are designed to replace onsite sessions.

Reducing the number of onsite meetings is one way that blended courses move beyond simply technology-enhanced or Web-enhanced courses. A three-credit course that meets on Tuesdays and Thursdays might, as a blended course, meet only on Tuesdays (**Figure 1.2**). In the space of the week, students may watch an online video, discover additional resources, engage in an instructor-led online discussion with their classmates, take an online quiz, or review peers' draft papers.

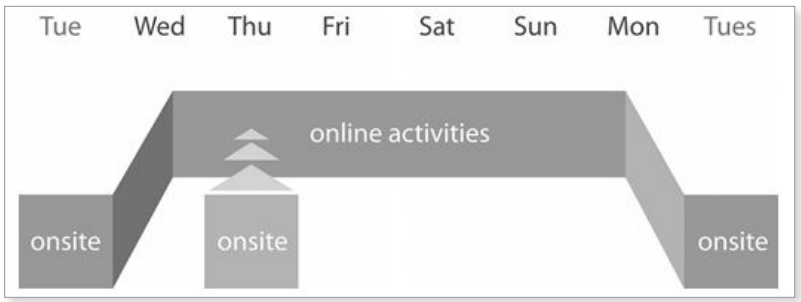

Figure 1.2 • Moving learning experiences online.

Another blended course design may have the class meet onsite just a few times throughout the semester. For example, a blended course may meet once at the beginning, and once at or just before the end of the semester. This sets the onsite sessions as a frame for the online experiences, which constitute the majority of the course.

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This guide focuses on the former blended model, where onsite and online experiences are interwoven throughout the term or semester. The latter model is still a blended model, but its design process is more closely aligned with fully online courses (see Vai & Sosulski 2011).

Blending is more than just replicating onsite activities in online environments. We think the aim of any effort toward blending should be transformative, resulting in better learning than previous modes of delivery.

> Hybrid versus Blended—The term "hybrid" is often used interchangeably with "blended," though blended is the more commonly used of the two.

1.3 • WHY BLEND?

We suggested that many people live their lives "blended," as a mix of physical and online activities and experiences. Blended learning not only fits into the modern, connected lifestyle, but can also provide specific benefits to students, teachers, and administration:

- increased access and convenience;
- improved learning;
- decreased (or more flexible) costs.

All of these benefits can be obtained if blended course design is done intentionally, with a purposeful course design process and adherence to standards.

INCREASED ACCESS AND CONVENIENCE

When done right, blended courses allow for increased access and convenience without giving up—and sometimes even enhancing—the things that many students associate with a satisfying, effective learning experience (for instance, building relationships with teachers and classmates).

The value of online courses for many students is that they no longer have to come to campus to take the course. For nontraditional students, who may work or have a family to care for, online courses can mean the difference between achieving goals and stagnating in a dead-end career. While still requiring some onsite attendance, blended courses provide more flexibility and freedom than purely onsite courses by moving a significant amount of onsite class sessions online.

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Excerpted from *Essentials for Blended Learning: A Standards Based Guide*

The simple use of technology to facilitate learning activities provides added flexibility, because now students and teachers can participate in the course when most convenient.

> The "hyflex" model of blended courses provides students with the option of coming to onsite sessions if and when they choose (Beatty 2010). This requires that teachers create a fully online course with optional onsite components that can substitute for online activities. This model is more intensive to create, but offers maximum flexibility and the power for individual students to choose what's best for them.

Smartphones and tablets can support online interactions during commutes on public transportation or whenever users have spare time, using the tools they already have.

IMPROVED LEARNING

Educational research suggests blended courses are more effective compared to both face-to-face and online. A 2009 US Department of Education report examined fifty-one empirical studies comparing online education with traditional face-to-face courses and concluded, "students who took all or part of their class online performed better, on average, than those taking the same course … face-to-face" (Yates *et al.* 2009, p. xiv).

The report also compared blended courses with fully online courses and found that "instruction combining online and face- to-face elements had a larger advantage … than did purely online instruction" (p. xv).

Why is blended as effective or even more effective than onsite courses? There are no complete answers, but some ideas include:

- **Improved instructional design.** Blended courses (like online courses) may be more intentionally designed than face-to-face counterparts, if only because institutional initiatives for blended courses often involve instructional designers or educational technologists who support the faculty in a scheduled redesign process.
- **Increased guidance and triggers.** Students working in a face-to-face class receive guidance from the teacher during class time and from a syllabus when working on their own. In a blended course, the course environment provides a clear path through resources, activities, and assessments with explicit guidance each step of the way.

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- **Easier access to learning activities.** Putting materials and activities online allows more of the class to engage with these on their own schedule, which may lead to more complete learning.
- **Individualized learning opportunities.** Because digital materials may be accessed according to students' individual needs, and reviewed upon demand, the provision of digital materials allows students to self-direct certain learning activities to fill their knowledge gaps. Automated assessments often used in online learning environments may also provide immediate, corrective feedback that directs students to revisit materials.
- **Increased engagement through social interaction.** Students in a face-to-face course may have limited opportunities to engage with each and every one of their classmates, and the face-to-face environment itself may inhibit some students from participating. Online environments that facilitate class discussions, collaboration, etc. may increase the amount of student- to-student interaction. This may, in turn, enhance their engagement with the subject matter and provide motivational benefits from the increased social interaction.
- **Time on task.** Blended and online courses tend to intensify student focus on more relevant work through the course website. This may be true because of increased guidance and access, and improved instructional design as described above. It may also be that time on task is simply more visible in a blended course because student activity in an online environment can be tracked on every page and every click.

DECREASED (OR MORE FLEXIBLE) COSTS

Blended courses can decrease costs to teachers, students, and institutions. Teacher and students can benefit from less travel time, transportation savings, and fewer parking costs.

From an institutional perspective, use of physical campus resources can be reduced. When a blended course cuts its onsite time by at least 50 percent, this reduction can provide significant resource savings to institutions challenged with maximizing physical classroom space. Using the example of a Tuesday/Thursday class referenced above (Figure 1.2), we can see that this opens the Thursday classroom slot for another blended course, essentially doubling the classroom's scheduling capacity (Figure 1.3).

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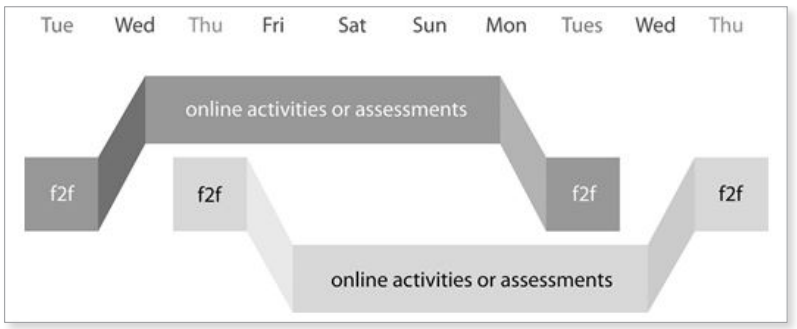

Figure 1.3 • Two blended courses maximizing a single classroom.

TRENDING TOWARD BLENDING

> Technology will not replace teachers. But teachers who use technology will replace those who don't. – *Christine Meloni*

As technology has advanced, we've seen more and more "traditional" courses adopt technology. This usually starts small, by posting a syllabus online, communicating via email, or posting slides or lecture notes. This has allowed traditional courses to take advantage of technology efficiencies without forcing faculty out of their pedagogical comfort zone, or without risking loss of some of the valued humanness factors commonly associated with face-to-face interactions.

As the capabilities of technology have increased, as more information continues to be created online, and as connections with other people around the world continue to be facilitated, we predict that teachers will adopt more and different technologies, moving them from the realm of simply technology-enhanced toward blended.

> It's not about technology, it's about learning. – *Stephen Anspacher*

As Neil Selwyn points out, "anyone who is studying education and technology … needs to steer clear of assuming that any digital technology has the ability to change things for the better" (Selwyn 2011, p. 33). Technology is simply a tool. The revolution—or, more likely, evolution—will be driven by teachers and learners who recognize that they are in the optimal position to improve education. By intentionally implementing new technology and tools for learning-centered purposes, we can not only adapt to the changing world, but also even increase our ability to both teach and learn.

Blended course development can provide compounding dividends for the institution. Teachers who redesign and teach blended courses can serve as mentors or advisers

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to other teachers, which can lead to sharing of innovative practices across campus. All of this can add to the institution's body of knowledge and experience supporting good practices in teaching and learning. And, by growing blended courses, an institution may increase its attractiveness to students who increasingly favor blended and online modes.

1.4 • CRITICAL CONCEPTS FOR BLENDED COURSE DESIGN

When a course is redesigned as blended, many new possibilities and challenging variables emerge. Among the most important are the concepts of mixing synchronous with asynchronous interactions, planning for learning time, and incorporating the right technologies.

WEAVING SYNCHRONOUS AND ASYNCHRONOUS INTERACTIONS

The Internet allows us to communicate with others and access information nearly anywhere and anytime. This facilitates asynchronous interactions, which simply means that interactions don't have to happen at the same time. For instance, I can send an electronic message or post comments to a discussion forum whenever I want, and you can read and respond to that in your own time. This provides significant flexibility to teach and learn together, but with different schedules.

The kinds of interaction that happen together in real time are called synchronous. In a blended course, synchronous interactions may happen face to face during onsite meetings, or they may happen online, through live chat or videoconferencing.

While any course can incorporate both asynchronous and synchronous interactions, a blended course design can easily choose either. Thus, the course designer should be particularly aware of the strengths and weaknesses of each. Chapter 3 addresses these kinds of interactions in terms of student engagement, and specific asynchronous and synchronous learning activities are explored in Chapters 7 and 8.

EXAMPLES OF SYNCHRONOUS AND ASYNCHRONOUS ONLINE TOOLS

Synchronous

- Web conferencing (e.g. Adobe Connect, GoToMeeting)
- Voice-Over-IP (e.g. Skype, Google Talk)
- Chat, instant messaging

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Asynchronous

- Discussion forums
- Email
- Wikis

Mixed

- Text messaging (SMS)
- Twitter
- Facebook, Linkedin, Google+
- Google Docs

PLANNING FOR LEARNING TIME

When a blended course reduces the number of onsite meetings, this opens up that meeting time for online learning experiences (**Figure 1.3**). For instance, if a Tuesday/Thursday class drops the Thursday onsite session, the teacher might ask, "How will I fill that hour online?" Let's look at that hour not simply as something that will be moved online, but as just another hour in the total learning time of the course. Total learning time includes the time spent in onsite class sessions as well as the time we expect students to use reading, completing assignments, studying, and so on.

A blended course design considers the reduced onsite hour not as an hour lost, but rather added to the offsite or online activities students can expect to work through each week. **Table 1.1** illustrates this using the standard learning time formula used by many U.S. colleges and universities: for each hour "in class," we expect two to three hours of "study time."

If you calculate the total learning time for your course, mixing both onsite meetings and study time together, the first question in designing a blended course is how often to meet onsite. Meeting onsite one hour per week in a three-credit course results in between eight and eleven hours to be assigned to online or learning activities.

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Course Credits	Learning Time per Week (Hours)		
	Onsite Meetings	Study Time	Week Total
3	3	6–9	9–12
5	5	10–15	15–20

Table 1.1 • Expected learning time for a three- and five-credit onsite course in a fifteen-week semester.

Note that learning time does not automatically equate to learning. While time on task is important, some students begin with more background knowledge and experience, and some students learn faster or more efficiently than others.

Indeed, this is one of the advantages of blended learning: online resources and activities do not have to be one-size- fits-all. They can extend beyond the needs of the average student, and provide additional instruction or remediation for students with less background knowledge. Teachers can construct frameworks whereby students engage with the teacher or their peers only as much as they need to. Blending allows students to take some ownership of their learning path, based on assessment of their individual needs.

Metacognition essentially means thinking about thinking. In education, it refers to a process in which learners reflect on what they have learned, identify their own learning gaps, and make plans to address those learning gaps in the future. Metacognition can be encouraged in blended courses in which past learning is made visible to students through their digital footprints in the online course environment.

A blended course is designed within the framework of total learning time. It is equally important to frame the blended course in the context of goals and learning outcomes that describe a successful learner at the end of the course. Assessments and activities will vary in a blended course, and will be based on the most effective use of online technology or onsite meetings, but learning outcomes should be identical to those of the onsite version.

Learning outcomes for a blended course are identical to those of the onsite version.

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BLENDING IN THE RIGHT TECHNOLOGIES

> edupunk, n. A teacher or learner who rejects standardized or corporate teaching tools and practices in favor of independent, individualized, and do-it-yourself methods. Coined by educational technologists Jim Groom and Brian Lamb.

A blended course requires an online learning environment to organize and supplement the onsite sessions. The online environment may be a simple website combined with email or discussions. Many institutions will have an LMS that provides a variety of out-of-the-box tools and features that are designed specifically for online activities. Many of the examples in this book illustrate different LMS tools or features; Table 1.2 provides an overview of common LMS tools.

The LMS is not the only toolset at a teacher's disposal. Indeed, technology-enhanced teaching predates the LMS, and many veterans of online education remember using basic websites, emails, and online discussion forums independent of an LMS. In the late 1990s, Web-enhanced teaching was necessarily a do-it-yourself (DIY) endeavor, but nowadays a new DIY ethos has emerged among teachers who wish to break free from the constraints and paradigm of the LMS.

The rise of easy-to-use, freely available Web-based tools for creating, collaborating, and sharing (e.g. blogs, video sharing, wikis, etc.) has introduced teachers to the idea that anyone can showcase their everyday learning in a space they own and are proud of. These open, online tools and services are authentic and reflect real-world interactions. For example, instead of having students submit assignments to the teacher's drop box via an LMS, students could post their assignments on their own blog or personal website. Teachers then visit that website when the work needs to be assessed. We'll explore this idea further in Chapters 6 and 8.

> Web 2.0 simply refers to Web-based tools, services, and websites that allow for user participation and creation of content. Now considered to just be the natural affordances of the Web, the central interest in Web 2.0 has been in the effects and empowerment that comes with freely creating, sharing, and interacting within open, global communities.

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Class Management	Communication and	Organization and Resources	Practice and Assessment
Class roster	Class announcements	Web page creation	Quizzes and tests
Grade book	Private messaging	Lesson sequencing	Surveys
Group management	Discussion forums	Outcome alignment	Online assignments
Peer review assignments	Live chat	File upload	Self-checks
Data tracking or learning analytics	Videoconferencing	Conditional release	Rubrics
	Multimedia comments	Collaborative editing	
	System notifications	RSS feed aggregation	
	Outgoing RSS feeds		

Table 1.2 • Common features in an LMS

Discovering new information, thinking critically and reflectively, and sharing through open, online networks is an emerging pattern of engaged, lifelong learning now bolstered by the Web. Blended learning can take advantage of real-world online tools and services to guide students toward habits and practices that will enable them to grow and thrive both within and beyond the boundaries of the classroom.

1.5 • TIME EXPECTATIONS FOR TEACHERS AND STUDENTS

Both teachers and students should plan to adapt their normal learning habits in order to succeed in a blended course. This doesn't necessarily mean that teachers and students will spend more time in a blended course; rather, time will be distributed differently throughout a week, depending on the course design.

HOW IS TEACHER TIME SPENT?

There is no "typical" blended course, but you might expect to adapt your time usage as follows:

Daily

- Check for communication from students or notifications from the LMS.
- Identify students struggling to achieve outcomes and intervene.

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- Respond to specific questions, either privately (e.g. via email) or for the whole class (e.g. via an online post).
- Read and contribute to online discussions or blogs.

Weekly

- Preview upcoming learning activities.
- Conduct onsite meeting(s) with specific lessons for face to face.
- Create, find, and share new material (as needed) for the course website.
- Provide feedback on student work.
- Enter scores into an online grade book or via assignment submission tools.
- Evaluate the blended design and online tools, and adjust settings as needed.

The constant availability of Internet communication tools allows us to work anytime and anywhere, but that doesn't mean we have to work all the time, everywhere. Throughout this book, we'll offer tips and advice on managing your time efficiently, and avoiding common teaching time sinkholes.

Every course redesign project is a time- and energy-intensive effort, and blended courses are no different. They may require more thoughtful planning than either traditional onsite or fully online courses, as blending allows for a greater number of possible activities. And while online and blended courses may require more upfront work, strategic development of resources and activities can actually reduce time spent once the course is up and running.

REFLECTION

You've decided to design a blended course, but how much time will it take? Spend a few minutes to realistically assess the time and energy that you can commit to your blended course project. Here are some questions to guide you:

When does the course begin? Figure out how many weeks you have before students will start. That gives you a sense of the timeline for development. You might subtract a week or two to give yourself some latitude.

When will you work on the course? Set aside regular blocks of time every week to devote to the blended course design. This will help you stay on schedule. We recommend blocks of 2–4 hours.

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How many lessons will you have to do per week? Focusing on individual lessons provides milestones that can shape your design process. Ideally, you'll be able to work on a single lesson over one or more sessions

When will you have colleagues, students, or others to preview the course website? This is an important step before the course goes live, since it can alert you to any major design gaps in a short amount of time. Do it when possible.

How much time can you spend on revising once the course begins? Some teachers will set aside time each week specifically for revisions. Others will make notes throughout the semester and make all revisions after reflecting on the overall success.

1.6 • SUMMARY AND STANDARDS

Continual advancements in technology and our connections to the Internet are changing our way of life to the point that we live "blended" with online information and services. Blended learning offers teachers an opportunity to take big strides forward by not just employing technology to fit the changing world, but in fact adapting and redesigning their teaching to produce transformative learning experiences.

A blended course replaces some proportion of onsite learning experience with online experiences. However, good blended learning is not just a digital facelift of the traditional onsite course. Blended learning can create opportunities to bridge formal learning to informal learning, and encourage lifelong learning habits.

Blended courses typically mix synchronous with asynchronous activities. Planning these activities—whether onsite or online— can be based on an estimation of total learning time, rather than merely replacing one or more class sessions with online sessions. This provides a framework for design, but time on task alone doesn't guarantee success. To this end, blended course design should be focused on the same learning outcomes as onsite or online versions.

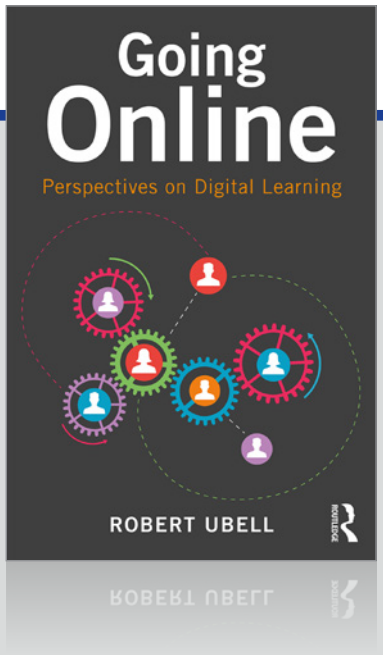
A variety of technologies can be employed to help learners reach these outcomes, from institutional systems such as LMS, to the real-world online tools and social media services that encourage creating, collaborating, and sharing on the open Web.

Learning outcomes for a blended course are identical to those of the onsite version.

CHAPTER

2

WHAT YOU CAN DO ONLINE, BUT NOT ON CAMPUS



This chapter is excerpted from

Going Online: Perspectives on Digital Learning

By Robert Ubell

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WHAT YOU CAN DO ONLINE, BUT NOT ON CAMPUS

Excerpted from *Going Online: Perspectives on Digital Learning*

Most of us believe that online education is far less accommodating and flexible than on-campus classes. From childhood, we know that classrooms bring us face-to-face with other students and our teachers, giving us direct access to how they look, what they say, how they think, and how we feel about them. Sitting at desks or moving about, our bodies and minds inhabit the classroom, often with the same ease and familiarity we find at home. Most of us assume it's the ideal learning environment.

But the classroom may not be as hospitable as we imagine. Looking at certain online pedagogical practices, we may discover there are other ways that may enhance learning beyond what is possible inside four walls. While at first, the schoolroom seems to allow us a full range of possibilities, unexpectedly, when we look inside, we may find there are ways it may inhibit learning. Despite our deep affinity with the schoolroom, it turns out that it can be unanticipatedly restrictive. Turning conventional wisdom on its head, let's consider digital pedagogical strategies, not commonly found in the schoolroom that may be highly productive online.

ANONYMITY

Stepping into your class on campus, you're on display—everybody sees you and can easily form an impression of who they imagine you are, perceptions based merely on how you look. Your classmates immediately know your gender, your race, and can make a good guess about many of your other attributes, based on what they see—your age, for example, and other obvious characteristics. They know whether you're tall or overweight, the color of your hair and eyes, or if you're physically challenged. Long before you speak, your presence presents your instructor and your peers with a complex, if quite limited, picture of who they think you are. As the semester progresses, you walk into your class each week as if you're a character in Cheers where everybody knows your name.

As you navigate remote domains on the Web, if you use a pseudonym, you can sink entirely out of sight, leaving hardly a trace, falling into complete anonymity. In an online class, however, your identity is only partially obscured, moving in and out of observation like a figure seen from behind a foggy glass. As a student enrolled in a virtual course, following the same protocols required of on-campus students, your name is automatically posted, visible to your virtual instructor and classmates. If you have a common given name—like Tom or Jane— everyone knows if you're a man or a woman. Some names are ambiguous. "Michael," for example, can be male or female and transgender students add another identity that may not fall clearly into a gender

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divide. Asian, Middle Eastern, African, and others around the world may possess names that cannot be identified easily. In some virtual classes, faculty ask students to mount their digital portraits and post brief biographies. In other online classes, video and other technologies unmask your virtual identity, displaying images of students participating in webinars and other real-time or archived activities.

Unexpectedly, in a digital course, despite the fact that your classmates may know your name, gender, and other things about you, because you are obscured from total view, you and others in your virtual class act as if you're anonymous. On campus, because you are fully visible, you are subject to the same attitudes people have outside of class about your identity—your gender, age, sexuality, race, ethnicity, and religion, as well as your political opinions, social and economic class, disability, language, nationality, and other characteristics.

"With an online course, nobody knows who you really are," recalled an African-American student who works for the Tennessee Board of Regents. "They don't know your ethnicity unless you have a picture on your profile. I felt like, I can do this. There is no one stereotyping me" (Haynie, 2014). As a 49-year- old single mother from Nashville, Tennessee, she was always aware of her race in college, feeling that others were judging her for her dark skin. But in her online class at a Tennessee university, she was comfortable with her digital classmates— and her skin color—in ways she never felt on campus.

Strikingly, partial invisibility online gives students a license to express themselves more openly than they would on campus (Suler, 2004). Known as the online disinhibition effect, it allows students to abandon conventional social restrictions commonly present face-to-face. According to psychologist John Suler, virtual students often feel more comfortable revealing private thoughts and feelings than they do in conventional classrooms. On campus, some students report that they often hesitate to communicate directly with faculty, but online they feel they can ask questions of their instructors far more easily. Students who avoid participation in class say they fear criticism or worry about making mistakes (Caspi, *et al.* 2006). The online disinhibition effect lowers common psycho- logical restraints that tend to regulate online behavior. Characterized by reduced inhibitions and a lowered regard for social boundaries in cyberspace, it can be expressed in positive or negative ways. Online, a few exploit partial invisibility by acting aggressively, with rude language, harsh criticism and other antisocial behavior, known as "cyberbullying." While more common in social media, cyberbullying in virtual classes can still be unsettling.

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Luckily, it is not often encountered in digital courses but should troublesome online students disrupt your class, faculty can manage things professionally and respectfully by issuing calm but firm warnings, alerting students to university rules that prohibit disruptive behavior. Rarely are serious repercussions enforced.

Visual anonymity can serve as a shield, allowing more equal participation, reducing hierarchical differences. In daily life, you can often tell who hold positions of status by the way they dress, how they carry themselves, the way they speak, among other easily acknowledged signs of authority. Online, however, nearly all these cues fall away. Since everyone online participates on an equal footing, no matter how influential some are, their authority in virtual space carries much less weight. "Everyone—regardless of status, wealth, race, or gender—starts off on a level playing field," notes Suler about the virtual environment. In your digital course, your communicating skills, competence, intelligence, and technical proficiency are what count; your standing elsewhere is of far less importance. "People are reluctant to say what they really think as they stand before an authority figure," observes Suler. "But online, in what feels more like a peer relationship— with the appearances of authority minimized—people are much more willing to speak out . . .." Online, anonymity and unidentifiability may reduce inhibitions caused by social anxiety, freeing shy students to enter into more frequent personal interactions, with a greater likelihood of forming closer relationships than they would on-campus. As Israeli scholars Noam Lapidot-Lefler and Azy Barak conclude, "The perception of anonymity and unidentifiability over the Internet gives the user a sense of control over the degree of self-disclosure, in terms of extent, time, and place, which leads to heightened intimacy and openness" (Lapidot-Lefle, 2015).

Secured behind a mask of concealed identity, anonymity has protected citizens for centuries, allowing people to act without worry. In an egalitarian society, it is also among our most treasured possessions, permitting us to participate in some of our most socially valuable institutions—peer review, whistle-blowing, voting. In virtual classes, "[a]nonymity may encourage freedom of thought and expression by promising people a possibility to express opinions and develop arguments about positions that, for fear of reprisal or ridicule, they would not or dare not take otherwise," (Nissenbaum, 1999) says NYU privacy scholar Helen Nissenbaum.

"Anonymity has played a central role in conflicts over freedom and individual liberty, but not until the introduction of the Internet has it become as widely acknowledged as a citizen's right," remarks Malcolm Collins, co-founder of ArtCorgi.com. "Without anonymity, Deep Throat would have been impossible as a check on corruption within

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the Executive Branch. The formation of the US government was heavily influenced by anonymous debates undertook via the Federalist Papers. Even the American Revolution was partially instigated by the anonymously published pamphlet, Common Sense. Without the protection offered by anonymity, the US would be a radically different country" (Collins, 2013).

On the Internet, most users expect your offline and online identity to be disconnected, with anonymity common in most online communities other than those—like Facebook and LinkedIn—that facilitate offline socialization. "Within almost all online communities, it is seen as offensive to demand even basic information on a user's real-world identity (such as sex, race, location, etc.)," says Collins. "Within online communities, anonymity has become increasingly associated with the maintenance of a free society. Anonymity is seen as allowing for discussion in environments in which a person's input is judged solely by its merit and untainted by other participants' biases with regard to that person's sex, formal education, ethnicity, income, age, or culture of origin."

Anonymity is closely linked to our notion of privacy in which a person has "basic rights to pursue one's own values free from the impingement of others (DeCew, 2015)." Privacy, according to UCLA political scientist Robert Gerstein, allows us to live our lives without intrusion or observation—to experience life spontaneously, without shame (Gerstein, 1978). Obscured by partial anonymity, online students escape the bright light of exposure in conventional classes. The student in a virtual environment is like a patient in psychoanalysis. On the couch, the patient's gaze is turned away from the analyst, with the doctor draped in a zone of anonymity—heard but not seen—freeing the patient to express herself in ways she might not when facing her therapist. Similar behavior is experienced by people who say intimate, often secret, confessions to strangers on a bus or air- plane. The disinhibition effect operates effectively in digital courses, permitting students to explore unconventional trains of thought they may be hesitant to pursue on campus—fearing conflict, rejection, even contempt, or worse, ridicule. We all know from our own unsteady feelings—vulnerability, competition, inadequacy—when all eyes turn on us in class, you can swallow your potentially risky thoughts, burying them in your throat in silence.

LEARNING ANALYTICS

Unless you videotape your on-campus class, what happens inside the schoolroom is rarely captured, except by frenzied students who take obsessive notes. Like water running from a tap down the drain, on-campus student data disappears at the end of

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each class, escaping the process of gathering and measuring what goes on. In most fields of inquiry, the goal of data collection is to capture quality evidence, allowing investigators to respond convincingly to questions that have been posed. While schools routinely collect vast amounts of data about course completion, graduation and retention rates, and other measures of student and school performance, reliable information about what actually happens inside the classroom is essentially missing. In contrast, online, nearly every action and interaction can be captured. Using learning analytic software, every moment can be secured, collected, and displayed, open to inspection and analysis.

As a field of inquiry, learning analytics emerges from data drawn from course management systems and other educational software that uncover digital evidence generated by students and faculty in virtual classes. Learning management systems—now almost universally installed in every class in the nation's universities—routinely track online student participation, monitoring discussion-board postings, following student access to digital materials, quiz results, assessments, and other elements (Picciano, 2012). The results can predict future student performance, provide students with personalized learning pathways, or intervene on behalf of students at risk or in need of faculty guidance. Some learning software display data visually on learning "dashboards," providing students and instructors with a graphical presentation of findings. As an interdisciplinary domain, learning analytics draws on such well-established scholarly areas as statistics, data mining, artificial intelligence, social network analysis, visualization, and machine learning, among other fields.

In astronomy, the object of study is knowledge of heavenly bodies. Focusing telescopes on the moon, for example, scientists collect data to gain insights into its characteristics. In education, the object of study is student learning, but until digital means of gathering data was introduced recently with educational software, little or no data emerged directly from the classroom, the very site where institu- tional learning occurs. For thousands of years, lacking proper tools to study what actually happens, the classroom remained a black box. "Before the advent of computers, exactly what materials students looked at, and how long they spent reviewing each item, was unknown to professors, and seemed unknowable," comments reporter Jeffery R. Young in The Chronicle of Higher Education (Young, 2016).

While lecture-capture technology is available at many schools, cameras record content delivered by instructors—classroom teaching—not student behavior, participation, outcomes, or other data reflecting student learning. On campus, you don't know if students have read the last chapter or how often they watched a video

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clip. Without substantive data, teachers cannot intervene until tests are graded or papers are read. Even then, faculty have no idea how students will fare on their next exam or how they will do in the course.

In sharp contrast to the empty data file on campus, online instructors have access to a continuous flow of student data. Campus Technology editor Mary Grush found that there are three main ways of forecasting how students will do—how often they log on to their course, how often they read or engage with course materials, and practice exercises, and how they do on assignments. Grush claims that faculty can predict, after the first week of a course, with 70 percent accuracy, whether students will complete the course successfully (Grush, 2011). By identifying level of risk for every student, learning analytics allow instructors, advisors, and support staff to move in quickly to help those most at risk. To avoid being overwhelmed by a flood of data, my colleague, John Vivolo at NYU's Tandon School of Engineering, proposes that online instructors focus on limited patterns of student behavior, say, in a single virtual course, rather than digging through large-scale data sets. Vivolo recommends that faculty can get a good idea of learner performance by examining student data during a targeted period, perhaps over a week, exploiting course analytics as a practical tool to provide online student support (Vivolo, 2014).

Without data to guide them, faculty can only guess which parts of their classroom instruction are effective. Was last week's lecture on track? Is this slide too complex? Should the class begin with an overview? Or should you plunge right in? In face-to-face instruction, faculty are often puzzled over what works and what doesn't. If they feel they're not getting through, the most common recourse is to wait until the next semester to try something different to fix it. Instead, digital learning analytics can be a productive academic force, driving continuous improvement by revealing how students actually navigate through an online course. Data can show which elements students may ignore, for example, and which ones they may find puzzling or difficult. Using results drawn from student-use data, instructors can modify the curriculum by restructuring content to make it more accessible or hone language in exam questions to increase chances of student success. To give learners greater flexibility, matching options with learner styles, some faculty test student outcomes against various delivery modes—text- based documents, audio lectures, slide presentations, or video streaming— uncovering which approach might be effective or, perhaps most innovative, whether students do best by accessing a wide variety of delivery modes. In active learning (see Chapter 3), course modules can be reassembled, altered, inserted, or deleted, measuring which ones are most successful.

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Excerpted from *Going Online: Perspectives on Digital Learning*

Learning analytics is a core property of adaptive learning, an interactive teaching method, derived from a cross-fertilization of artificial intelligence, cognitive psychology, and learning science. In the blossoming education tech- nology industry, largely spawned by recent advances in digital learning coupled with adaptive methods, the giant publishing house Pearson has partnered with Knewton to deliver personalized adaptive services. The company claims it "Helps teachers guide each student along their own best path through the material" (www.knewton.com/approach/). Similarly, McGraw Hill's ALEKS (Assessment and Learning in Knowledge Spaces) says that it provides students with an "individualized learning experience tailored to their unique strengths and weaknesses" (www.aleks.com/highered). Introduced mostly in math and science online and remedial courses, advocates claim it can break the "iron triangle" of cost, access, and quality by substituting technology for faculty. "Some of this may be overstated and overblown, as the up-front investment for adaptive technology is still beyond what most institutions can afford, especially given the long-term payoff is still largely unproven" (Fleming, 2014).

According to a report issued by the US Department of Education, learning analytics can be used to build models to reveal "what a learner knows, what a learner's behavior and motivation are, what the user experience is like, and how satisfied users are with online learning.... Because these data are gathered in real time, there is a real possibility of continuous improvement via multiple feedback loops that operate at different time scales—immediate to the student for the next problem, daily to the teacher for the next day's teaching, monthly to the principal for judging progress, and annually to the district and state admin- istrators for overall school improvement" (Marie, *et al.*, 2012).

A major concern raised by learning analytics, however, is how faculty and institutions maintain the confidentiality of student data. Personal information can be disclosed inadvertently, or worse, revealed by design, say, when sold to commercial vendors without student permission. To protect learner data, universities must introduce formal policies that guarantee that students own the rights to their data generated in online classes, that they have the right to correct errors posted in their files, and that they have control over how schools share their data with others.

WRITING

The schoolroom is a place where the spoken word is the principal means of communication among classmates and between students and faculty. Except for note-taking, quizzes, exams, and in rare other occasions, writing is largely performed

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elsewhere—at home, library, and other locations outside of class to produce homework assignments, term papers, or other documents. Communication theorists Anne-Laure Fayard and Anca Metiu note that despite the crucial importance of writing in modern life, "a tacit assumption persists: that face-to- face interaction is the ideal, richest form of communication and that nothing can replace it ... we tend to perceive face-to-face communication as 'truer' and deeper, more authentic, more genuine" (Fayard & Metiu, 2013). Delivered quickly in real-time, speech has often been thought of as the most basic form of communication, expressing thoughts and feelings most directly.

In contrast, online discussions are carried on almost entirely in text—in digital message boards forums, by e-mail, through social media, and other peer-to-peer conversations, held as if participants were writing digital letters to one another. Fayard and Metiu say that e-mail and other forms of digital communication have revived the creative dynamism often found in traditional correspondence among notable scholars. They claim that important advances were stimulated by intense exchanges of letters between key figures in science—Darwin, Einstein, and Freud—with close colleagues.

Writing is at the center of our culture. It is the core of literature, science, philosophy, commerce; practically no aspect of modern society is sustainable without it. Before the invention of writing, knowledge was transmitted orally, allowing the accumulation of thought to be passed along haphazardly or lost. Writing permits knowledge transfer, giving us the ability to capture, organize, create, and distribute it to others. In scholarship, commerce, and other spheres, your intellectual achievement is judged almost entirely by the quality and extent of your written words. When speaking in class, your thoughts are delivered in real-time, extemporaneously and unfiltered, subject to your shifting mood and porous memory; unless recorded, they disappear, evaporating like ghosts. With writing, you can structure your thoughts and clarify your ideas. Writing permits you to gather data, arguments, and experiences drawn from other sources and combine them into a reasoned text, giving others time to reflect and comment intelligently. "From their first-day introductions of themselves to their final journal reflections on the class, the vast majority of student work takes the form of considered, thoughtful prose," comments Prof. Gregory Semenza of the University of Connecticut about his virtual students (Semenza, 2015).

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Excerpted from *Going Online: Perspectives on Digital Learning*

REFLECTION

Bound by four walls, the classroom is not only a confined place, but it is also restricted by time, limiting student interaction to the "credit hour," an academic unit—imposed on universities since the late nineteenth century—curbing student engagement to a defined period. Rather than measuring student learning, the credit hour arbitrarily uses time as the basis for judging educational attainment. The Carnegie Unit[1] (or student hour) forms the basis, not only of determining when classes begin and end, but also provides evidence of course completion and, ultimately, even the foundation for awarding academic degrees. Faculty workload and evaluation are also judged by the same yardstick. It is a late Victorian economic model—employed universally in the US as it was more than a century ago—as a standard for calculating faculty compensation, paralleling the way factory workers are paid by the hour, oddly applied today in every course delivered at every college and university in the US.

As Arthur Levine, former President of Columbia University's Teachers College, comments,

> The concern in colleges and schools is shifting from teaching to learning— what students know and can do, not how long they are taught. Education at all levels is becoming more individualized, as students learn different subjects at different rates and learn best using different methods of instruction ... Today, schools and colleges are being required to use the fixed-process, fixed-calendar and Carnegie Unit accounting system of the industrial era
>
> (Levine, 2015).

Accreditors and state education agencies still hold digital classes to the same standard, requiring online programs to follow the same number of credit hours as on campus, ignoring the fact that faculty and students online can easily leap over barriers of space and time. Knowing the bell won't ring, virtual students often engage in discussion long past the clock, participating in forums for hours, occasionally over days. Making sure the class doesn't run over, conventional instructors limit class discussion when the bell rings. The schoolroom—like so many other spheres of life—falls under the discipline of time. The conventional classroom is often ruled by the clock, whose hands act like a pair of scissors, cutting off thought.

On-campus, faculty routinely engage students in question-and-answer volleys, reminiscent of Jeopardy, with the object of the game to give a correct answer, not to

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explore possible alternatives or raise doubts. In grade school, we learned how to perform the question-and-answer act, sitting dutifully in our seats, waiting for the teacher to toss a question. Arms shoot up, hands wave. If you were among the lucky ones, you were chosen. Luckier still, if you gave the right answer, followed by a rewarding smile from the teacher and relief from the rest of the class, freed from the anxiety of coming up with a response. Unless you're a student in a small seminar, where complex, thoughtful discussion is encouraged, similar educational charades are performed every day in classrooms everywhere, with the teacher concluding that the student who gave the right answer actually mastered something. Very likely, however, the eager student who hit on the correct answer learned nothing. In giving her response, she may just be parroting what she already knew. As for the rest of the class, it's unclear whether they learned anything either, since there is no guarantee that hearing an answer imparts knowledge, especially if the other students didn't understand the question. Encouraging speed over reflection, many instructors urge students to deliver quick responses. The student whose hand goes up first is often favored over those who need time to reflect, who may be weighing various alternatives thoughtfully. "Direct, immediate discharge or expression of an impulsive tendency is fatal to thinking" (Reflective Thinking, 2015).

"In any face-to-face classroom," notes Prof. Semenza," a small number of students emerge as truly skillful participants, speaking not just regularly, but also eloquently, while others speak only out of a sense of obligation, and many don't speak at all" (Semenza, 2015). Echoing Semenza, online instructor Mark Kassop notes that on campus

> the instructor asks a question, and the same four or five extroverted students inevitably raise their hands. They offer spontaneous, often unresearched responses in the limited time allotted for discussion. In the online environment, discussions enter a new dimension. When an instruc- tor posts a question on the asynchronous discussion board, every student in the class is expected to respond, respond intelligently, and respond several times.
>
> (Kassop, 2003)

"As a result," Kassop continues, "students have the opportunity to post well-considered comments without the demands of the immediate, anxiety-producing, face-to-face discussion, which often elicits the first response that comes to mind rather than the best possible response."

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Confirming Semenza's and Kassop's experience, sociologists David Karp and William Yoels found that in traditional classes with more than 40 students, only two to three students accounted for about half of all student comments (Karp & Yoels, 1976). Digital learning breaks through the constraints of space and time imposed by the physical classroom. Online, you can explore insights for as long as it takes—an hour, a day, a week—conducting courses in unbounded time, an essential feature required of reflection.

Nearly 100 years ago, American philosopher, psychologist and education reformer John Dewey recognized that reflective thought is nourished by "doubt, hesitation, perplexity" (Dewey, 1930)—frames of mind often discouraged, when certainty, confidence and conviction are demanded of students. "Reflective thinking," Dewey observed. "is always more or less troublesome because it involves overcoming the inertia that inclines one to accept suggestions at their face value; it involves a willingness to endure a condition of mental unrest and disturbance. Reflective thinking, in short, means judgment suspended during further inquiry." Dewey concluded, "Time is required in order to digest impressions and translate them into substantial ideas."

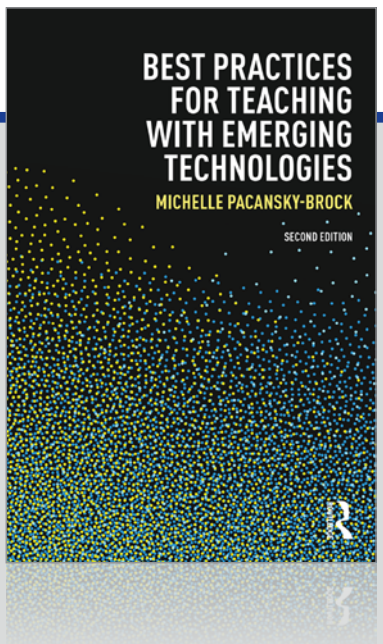
NOTE

1. Introduced in the late nineteenth and early twentieth century, the Carnegie unit awards academic credit on how much time students spend with classroom instructors. It is defined as 120 hours of contact time with a teacher—an hour of instruction a day, five days a week, for 24 weeks, or 7,200 minutes of instructional time over an academic year (Gaumnitz, 1954).

CHAPTER

3

BUILDING A SOLID FOUNDATION



This chapter is excerpted from

Best Practices for Teaching with Emerging Technologies, 2nd Edition

By Michelle Pacansky-Brock

BUILDING A SOLID FOUNDATION

Excerpted from *Best Practices for Teaching with Emerging Technologies, 2nd Edition*

The first semester I integrated a social network into my online art appreciation class, I had a student come to me with an unexpected concern. That concern was an important moment for me, as it made me think more carefully about how my use of new technologies affected each student in different ways.

The semester was in its first few days, and most of the students had already joined our network and were enthusiastically sharing photographs on their personal page—ranging from family vacation photos taken at the Louvre to pictures of their families and pets. I excitedly lurked in the network and enjoyed reading the student-student dialogue that was prompted by the photographs: "Hey, I went there on a family vacation too. When were you there?" Or, "Your dog is adorable. He looks like a dog I used to have." Or, my favorite, "I remember you! You were in my geography class last semester!" I think about these early personal communications in an online class as being the early whispers of community building—kind of like the chatter and pre-class conversation that occurs in a hallway or in a classroom before the instructor begins speaking.

However, the student who came to me with a concern wasn't so keen on the idea of interacting with her peers in our social network. In fact, she sent me a thoughtful email explaining that she "isn't a teen-ager" and doesn't have any interest in being part of a class that resembles something like Myspace (this story took place pre-Facebook). That email changed my understanding of what it means to teach effectively with emerging technologies. It made me think more inclusively about who my students are and how their own experiences contribute to the way they learn. While my younger students generally jumped into the social network enthusiastically, my older students weren't yet engaged in social networking and were suspicious and unsure about how it could correlate with a college class.

It was important for me to take this concern seriously. First, I was pleased that she felt comfortable enough to bring it to my attention and realized there were probably other students who might be compelled to drop a class rather than engage their instructor in a discussion about the learning environment. Second, I realized that her reluctance was an effect of me being ineffective in how I contextualized the technology into my class and introduced my expectations to my students. This chapter provides strategies that will help ameliorate student concerns like the one I've shared here.

BUILDING A SOLID FOUNDATION

Excerpted from *Best Practices for Teaching with Emerging Technologies, 2nd Edition*

SUPPORTING STUDENT SUCCESS

For a moment, shift your viewpoint and think about your class(es) from the perspective of your students. Most students register for classes to fulfill requirements and know very little about the actual class (expectations, requirements, etc.) until the class begins—that is, perhaps other than what they read on RateMyProfessors.com. Really, what happens when a student begins a class is she enters a learning environment. The first time she engages with that environment, she begins to understand what is expected of her, what the experience will be like, and what her role in the process will be. And, more than likely, she is simultaneously registered for several other "environments" that will each be distinct. It's up to her to navigate these environments successfully, and this can be a tricky—even daunting—task.

Now imagine being that student and having each of those learning environments shift unexpectedly throughout their duration. Unexpected shifts in a class are like unexpected turbulence on an airplane. They are uncomfortable and stressful. Teaching with emerging technologies can be like flying with unexpected turbulence if they aren't integrated into a learning environment effectively.

While today's traditional college-age students are more comfortable with experimenting with new technologies than previous generations, they aren't necessarily fluent in all tools, nor do they understand how to use them to be productive lifelong learners, which, I believe, is a skill that all college classes can contribute to developing. Moreover, college classes can consist of generationally diverse groups of students. You'll have students, much like my apprehensive student, who become anxious at the prospect of taking a class that integrates technologies they've never used. The key to supporting the success of all your students is to start students off on a solid foot the moment a class begins. Implementing the strategies outlined in this chapter will ensure your students are clear, from the start, about why you are requiring them to use tools in your class, how the tools will enhance their experiences, and what is appropriate and inappropriate behavior and content.

As you integrate emerging technologies into your classes, strive to communicate the following items in your course syllabus and share them with your students on or before the first day of class:

LIST OF TOOLS THAT WILL BE USED AND YOUR REASON(S) FOR USING EACH

Upon entering a class, students should have an opportunity to preview the supplemental tools you plan to have them use. This does not imply that you cannot

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use a tool not shared on the list; it's merely an effort to communicate your plans to students so they have a clear picture of the road ahead.

As noted earlier, sharing this information with students before the start of a class, even before they register for a class, is ideal, as it empowers students to be able to register for classes that meet their own learning styles and overall preferences. Today, we have many students who are enthusiastic about using mobile apps or social media in a class, but, at the same time, we also have multiple generations of students on college campuses now, students with disabilities that may be challenged by using particular tools, and others that may be supported more effectively in a rich-media environment. Considering the student experience is an essential part of teaching effectively with emerging technologies.

With that said, students also want to understand why you are using the technologies. This is important to share for two reasons. First, because it illuminates the connection between learning (the student's goal) and technology. Sadly, only about half of college students feel that their professors use technology effectively.[1] So don't expect your students to feel excited about using a new tool or two until you can lucidly demonstrate why it's relevant to their success. Second, hearing your explanation may turn a reluctant baby boomer with little to no technology skills into a curious learner who is ready to try something new. Moreover, this can be an empowering experience for both the student and the instructor.

Here is a sample I've written:

> In this class, you will create your own blog using WordPress, a free blogging platform. Alternatively, if you would prefer to use a different blogging tool, just let me know. A blog is a website that is similar to an online journal. You will regularly add new entries or "posts" to your blog that will reflect on your learning in this class.
>
> Creating your own blog will provide you with your very own website to examine, analyze, and discuss the content you will engage with in this class. You will find that blogging is quite different from writing a paper and submitting it to your professor for a grade. Your blog will be shared with your peers and the rest of the world, placing your unique ideas and perspectives in a collective, living, and global dialogue about our topics.

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> Your blog will extend you the opportunity to connect with people around the world who are engaging with similar topics, to receive comments from these individuals, and to inspire ideas for other bloggers. At the end of our class, you will have a living product that will remain active beyond the end of this term.

LIST OF REQUIRED SUPPLEMENTAL EQUIPMENT

What equipment do students need to possess (or have access to) for your class? Most colleges and universities have basic technology requirements that are communicated to online students prior to registration (computer, browser, high-speed Internet connection). If you are teaching a face-to-face or hybrid class with emerging technologies, it's critical to establish a similar toolkit—this may be something already established and shared on your campus, or it may be up to you to get this conversation initiated.

In addition to the tools and equipment needed to access your class, however, you must also clearly communicate the equipment students will need to contribute to your class. In your list, it may be more appropriate to encourage students to "have access" to the tools rather than require them to be purchased.

Supplemental equipment for learning may include the following:

- webcam* (for participating in a video web conference or recording video presentations)
- microphone* (for having online voice conversations during office hours, recording an audio presentation, leaving a voice comment in a discussion, interviewing an artist in Mexico, recording a variety of opinions about a current event)
- smartphone or other device that can take digital pictures (to document a field trip, identify a biological specimen, share examples of local architecture that demonstrate influence from ancient civilizations)

ACCESS EXPECTATIONS AND RESOURCES

Campus Access

Is the equipment available for student use on campus? You may need to do some research in this area. Visit your campus computer labs or reach out and contact the appropriate campus representatives. If the answer is "no," it's important for you to share the need for these resources with your colleagues involved with planning efforts.

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Today's typical college or university provides students with access to Wi-Fi and computers, but some provide private audioand video-recording stations, as well as mobile lounges in which students can check out mobile tablets for completing course assignments. Also, keep in mind that some campuses still block the use of some social media sites in computer labs. If you are having your students interact in a Facebook group, view or share videos on YouTube, or engage in a chat on Twitter, then you should identify if your students have access to these sites from computer labs on campus.

Discounts or Special Pricing

Are the tools you are encouraging your students to use available in your campus bookstore or through an online partner at a discounted rate? For example, the Foundation for California Community Colleges has developed "College Buys," an online portal that provides discounts on software and hardware to students, faculty, and campuses. If you are aware of resources like this, be sure to share them with your students (and your peers!)

NECESSARY SOFTWARE

Will your students need to download and install or use any applications to complete class assignments and projects? Providing this information to students ahead of time will allow them to make alternative access plans. Also, it's a good idea to encourage students to upgrade to the most recent version of the applications on your list (including web browsers). Include a direct link to the website(s) when possible.

SUPPLEMENTAL MOBILE APPS

Chances are most of the students in your classes have a smartphone. According to the Pew Research Center, 92% of Americans age 18–34 own a smartphone.[2] Compiling a list of mobile apps that students could use to support their learning in your class is a great idea. Keep your eyes peeled for the "mobile" icon throughout this book to identify emerging technologies that may be used with mobile devices, but also take some time to peruse the apps available that align with your own discipline. You may be surprised at the great resources you discover!

EXAMPLES

You will have many students who are not familiar with the technologies you've identified, so it's always a great idea to include a link to an example of a podcast, a wiki project, a collaborative mind map, etc. Seeing an actual example will relieve a

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TIP!

Use Jing for Easy Screenshots and Screencasts

There are many ways to create screenshots (still images of your computer screen) and screencasts (videos of your computer screen). My favorite free tool is Jing. It runs on both PCs and Macs, and produces .png files that can easily be annotated and saved to your computer, as well as screencasts that can be shared online via a free Screencast. com account or downloaded and then shared within a course management system or website. See Chapter 4 for further discussion.

student's anxiety and help him or her understand what to expect more clearly. You may also consider including screenshots of the environments in your syllabus.

STUDENT PERSPECTIVES

It's amazing how much more relevant advice is to a student when the advice comes from another student rather than a professor. Our society has swiftly evolved into a participatory culture, placing peer reviews at our fingertips before we dine at a restaurant, vacation at a hotel, or buy a book. Students want to hear from other students about what they should expect in a class—and that desire is the fuel behind the popularity of RateMyProfessors.com.

SHOWCASE

WISDOM WALL

Figure 3.1 • Screenshot of wisdom wall.

Here is a creative, fun, and easy way to use a collaborative tool such as Google Docs, VoiceThread, or Flipgrid to share past student perspectives with incoming students and start to build community in your class. Provide students with a link to the Wisdom Wall at the beginning of a new class.The Wisdom Wall is a collection of advice contributed by students from the previous term.

The advice the students share with each other consistently impresses me, and, honestly, I learn a great deal from the comments myself!

SAMPLE WISDOM WALL CONTRIBUTIONS

> "It may seem like a lot of work at first but just breathe and try not to get overwhelmed as this class is very rewarding. Just be sure that you keep up with your blog posts … and do your VoiceThreads and you will do great!"

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> "Don't be afraid of all the technology. The teacher is really good about showing you step-bystep how to do everything and after a while it gets easy and starts to become fun."
>
> "If you are dreading this class, listen up! Michelle makes this class so interesting and exciting. You will be learning and enjoying the class before you can say yuck … This class was awesome!"
>
> "The main advice I can give is DO NOT GET BEHIND … If you choose to procrastinate you will not be happy with the results because things pile up quickly and unexpectedly."

HOW TO CREATE A WISDOM WALL

Coordinating the Wisdom Wall can be a very simple process or it can be a time-consuming task. One option would be to have students email their "advice" to you and then you'd be responsible for curating a display of the feedback on a website or in your course management system. At the end and beginning of a new term, there are many other, more important, tasks for you to focus on. So empower your students to be able to create the Wisdom Wall on their own!

Here's an easy solution: Create a Google Doc (see Chapter 5 for more information). Adjust the share settings so the doc can be edited by anyone with the link. Then include the link to the doc in your course. In essence, selecting the following settings transforms a Google Doc into a wiki page:

1. Refer to the online Google Drive Help Center for instructions to change your share settings in Google Drive: https://support.google.com/drive
2. At the top of your doc, compose clear instructions to students. I prefer to say, "Click in the white space below the red horizontal line and type your advice to my future students." Then insert a simple horizontal red line below the instructions.
3. If you prefer, create a fun graphic and insert it at the top of your Wisdom Wall. I created the graffiti text in **Figure 3.1** using the Graffiti Creator (GraffitiCreator.net), took a screenshot of it, saved it to my computer, and then uploaded it into my Google Doc.
4. Paste the link to the Wisdom Wall Google Doc in your course management system and encourage your students to leave their advice by a particular time and date.

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BUILDING COMMUNITY

The mainstream use of social technologies such as Facebook, YouTube, Twitter, and Instagram has transformed learning outside the college classroom into a rich community-based experience. Each year, more and more traditional college-age students enter our classrooms with an intimate understanding of the relevance and value that participatory learning provides. As Cathy Davidson and David Goldberg noted in The Future of Thinking:

> Since the current generation of college students has no memory of the historical moment before the advent of the Internet, we are suggesting that participatory learning as a practice is no longer exotic or new but a commonplace way of socializing and learning. For many, it seems entirely unremarkable.[3]

Participatory learning simply "looks" different from traditional college learning. In most college classrooms, learning has historically relied upon the successful transfer of information from a subject-matter expert (professor) to a receptacle (student). This traditional model expects students to play a passive role in learning. In contrast, participatory learning situates individuals within a fluid community in which members make contributions by sharing ideas of their own and responses to the contributions made by other members. Other community members comment on those contributions, leading to further dialogue, refinement, growth, and debate. The intermeshing of community members in a participatory learning environment is grounded in clear "community guidelines" that are a stipulation of joining the community.

Figure 3.2 • Video still, "My Space in the Room" by Derek Schneweis. Used with permission.

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Michael Wesch's 2011 video, "'The Visions of Students Today' 2011 Remix One," is a compilation of student-generated videos submitted in response to Wesch's call. The video conveys experiences of 21st-century college "learners" who are immersed in traditional lecture classes and wondering what their peers are thinking and feeling. The student contributions suggest that they perceive their opinions and thoughts to be irrelevant in the classroom. The students convey a sense of feeling excluded from the process of constructing knowledge and understanding. To me, the video (a still from which is shown in Figure 3.2) illustrates the relevance gap between our mainstream teaching pedagogy and the effects of our students' participatory learning experiences outside the walls of college.[4]

Integrating emerging technologies into your college classroom does not necessarily mean you will transform your class into a participatory learning community. However, it does extend this opportunity to you, and it's a concept that you should think about as you begin to experiment and understand the technologies you will employ. For those professors who wish to create a community-based learning experience for students, it's necessary to realize that you will need to explicitly frame your class in this way from the very first day of class and then cultivate a learning environment that fosters and encourages trust, student contributions, peer comments, and the overall collaborative construction of knowledge. This vision of learning should inform the decisions you make about tools to use in your class.

CLASS PHILOSOPHY

Compose a brief description of the type of learning environment your students should expect and include this in your syllabus. Each college professor has his/ her own style. Communicating how you approach your class and the role that emerging technologies play will allow you to share your style and expectations, and encourage students to be more productive. However, the most important element of a class philosophy is making a commitment to modeling it throughout the semester. A philosophy is only words on a page—the time your students spend in your class will infuse it with meaning.

Sample Online Class Philosophy (CC-BY Michelle Pacansky-Brock)

This class is a community. We all have the same objective: to learn. Online students often feel isolated, but it's important to know you are not in this alone! I need each of you to approach our online class with a great attitude and a willingness to help each other. Many problems and questions can be resolved by asking a fellow student. I am always here to

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help you, but I truly believe your experience will be better if you communicate with your fellow students throughout the semester. The technologies woven into this class will increase your ability to share, connect, and learn from one another.

Sample Face-to-Face Class Philosophy (CC-BY Michelle Pacansky-Brock)

This is not a typical "lecture" class. In "lecture" classes, students come to class and passively receive information delivered via lecture format. Throughout the semester, you will be completing regular web-based assignments prior to coming to class. This will include micro lectures, videos, and readings that may be accessed on a computer or smartphone. Rather than using class time passively, you will actively participate in critical analysis, discussion, and debate as we apply the ideas from the digital course materials. Your full commitment to the format of this class is critical to your success.

Every person in this class is part of a community focused on learning. Throughout the semester, you will be expected to help each other, and you will learn to rely upon each other. You will treat each other with respect and should always feel comfortable approaching one another for help. I will do everything in my power to create a trustworthy, stimulating, active learning experience for you. As your instructor, I am here to facilitate your learning and guide you each step of the way. I am also here for you to discuss any problems or challenges you are having. Please don't ever hesitate to contact me via email or phone or visit me during office hours.

My role is dependent upon having a group of individuals who are committed to being here for every class and being ready to contribute keen insights and perspectives to our discussions. We are in this together! This class will not be a success if you do not hold up your end of the bargain. Deal?

COMMUNITY GROUNDRULES

Communities thrive through the active contributions of their members. Students need to feel safe and perceive their learning environment as a trusted space to share and collaborate with their peers. Developing a clear set of community groundrules and sharing them with your students is imperative. Aside from developing the set of rules, it's critical that you weave them into the use of the participatory tools you'll be using. Agreeing to the groundrules could be made a condition of participation, for example, and/or you could share your groundrules on a website (a simple Google Doc will do for those of you without knowledge of html or a process for hosting your content) and link to it from the assignments you share in your course management

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system. Essentially, keeping the groundrules at the surface of your students' participation is important, as this approach serves to remind them of their expectations and also provides an opportunity for you to communicate how students should deal with violations. The groundrules empower students to play a central, rather than peripheral, role in their learning.

Sample Community Groundrules (CC-BY Michelle Pacansky-Brock)

A community is a group of individuals who work together to support a common goal or interest. We are working together to support the successful achievement of our learning outcomes. In an effort to ensure our community develops, thrives, and sustains throughout our time together, the following groundrules will be in effect at all times.

- Treat contributions made by other members of the class with respect.
- Reach out and help when you see the need. And ask for help when you need it.
- Back up your contributions. As with any content you share online, keeping an alternative copy is essential. Each community member is responsible for keeping a backup of his/her contributions.
- Have patience and a sense of humor with technology. There will be hiccups, expect them.
- Keep an open mind. If you're feeling reluctant, that's OK. Take it one step at a time and look at this as an opportunity to learn something new.
- Contribute regularly to collaborative activities to ensure other members of the community have ample opportunity to read/listen, reflect, and respond to your ideas.
- Respect the diverse opinions and viewpoints of each member of our community. Differences allow us to learn and grow together.
- Understand that communications shared through text have a higher likelihood of being misinterpreted than the spoken word. Therefore, when you type a thought or a comment, read it carefully before you submit it. If you question the way it is worded, read it out loud to yourself. If you still question the way it's phrased, rewrite it.
- Contribute regularly to group dialogue, including blog posts and replies. The contributions of each individual play a role in the collective strength and diversity of our community.
- Members of our community are to be restricted to enrolled members of our class in an effort to maintain a safe, trustworthy discussion environment.
- All image and video content shared within this community will reflect acceptable

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TIP!

Write a general set of community groundrules that apply to all of your classes. Type them up into a Google Doc and include the link in each syllabus/course.

content standards. You are expected to use discretion and, if asked, you will be expected to demonstrate how your content supports the theme of our community: "[enter a description of the community's theme here]."

- Understand that any network member has the ability to create a new forum in our network. However, s/he who creates the forum immediately takes on the responsibility of moderating it. This means you have committed to regularly responding to new comments and greeting new members of the forum or group.
- If, at any time, you feel that any of these groundrules have been violated by a member of our community, you are encouraged to bring your concern directly and immediately to [enter professor name], our community leader. Clearly identify which groundrule has been violated and include specific evidence of the violation in your email. Your concerns will be addressed promptly with careful consideration in an individualized manner.
- After this class is over, your access to this community will end. If you share content that you'd like to preserve, it is your responsibility to make a backup of it before the class ends.

EMPOWER STUDENTS TO PREPARE PRIOR TO THE START OF CLASS

Emerging technologies provide many options for professors and institutions to increase a student's readiness for the start of a new term. Our newly participatory society has crafted higher expectations for understanding precisely what an experience will be like before it begins or before a purchase is made. When I visit Amazon. com to purchase a book, for example, I read the reviews left by other users before I make my decision. When my 14-year-old son wants to purchase a new video game, he goes online and reads the reviews left by other users to decide whether or not it's worth his money, or if the advertisements are just a slick persuasive tactic. When I'm traveling, I'll pull out my smartphone and check the reviews of a restaurant on Yelp before I decide to dine there. Our participatory society has empowered us as consumers to be informed and to make choices that are tailored to our preferences, needs, and expectations before we make a decision to take the plunge.

Unfortunately, things don't work this way in the world of higher education. But I like to imagine how different things would be if they did. Now we can easily make the argument that students want to know about their professors and the expectations that will be placed upon them after registering for a course. This desire is easily confirmed by considering the wild popularity of RateMyProfessors.com. At the time of writing this, the site boasts that it shares more than 15 million student-generated

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ratings of over 1.4 million professors (up about 50% from the first edition of this book!). And the site is viewed by more than four million college students each month.[5]

Trying to gain insight about a professor or a particular class is part of the age-old student experience. I know I made efforts to gain insight about my professors before registering for a class when I was in college, and I bet you did too. But, imagine with me, if students had the opportunity to learn about you directly from you, rather than tap into what other students thought about you. Why don't we share our syllabi online for students to review prior to registering for a class? Why don't we record a video introduction and share it online so students can get a sense of who we are, the person they'll be spending 50 hours with over the course of a semester?

The Web 2.0 era has empowered each of us to become content creators. We can now easily record video direct from a webcam into a free YouTube account and embed it on a website. And we are no longer barred from creating a website because we don't know html or because we don't have server space. There are many options available to us now.

If you like the idea of sharing your course expectations, syllabus, and other critical resources with your students before they register for your class but don't have the resources to develop a traditional website, consider designing a "liquid syllabus" using a free micropublishing tool such as Adobe Spark Page or Populr. me (see Chapter 4 for details).

THE NUTS 'N' BOLTS OF TEACHING ON THE WEB

The nuts 'n' bolts of how you integrate emerging technologies into your teaching will hinge partially on your existing technological infrastructure. What is the central access point for your students outside of your physical classroom? Most institutions these days provide professors teaching online, hybrid, or faceto-face classes with access to a learning management system or LMS (Canvas, Blackboard, Moodle, etc.), while other professors independently use eLearning resources provided through a publisher or have a simple website or blog on which they share links to resources and web-based activities.

A learning management system (which may also be referred to as a course management system or CMS) is proprietary or open source software that contains some basic functions: an area for announcements, storing content in a hierarchic structure, traditional assessments (quizzes, exams), a discussion board, and a grade

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book. Additional functions vary by LMS (and version) but may also include blogs, wikis, ePortfolios, and web-conferencing platforms.

LMSs are excellent tools for organizing content into a clear, consistent learning path for your students. They provide a centralized location for sharing pertinent course materials with students who are registered for your class. LMSs also require students to authenticate so you are ensured the students who access the material you share are enrolled in your class, and they also provide options for tracking student log-ins, access to content, and participation. Student authentication supports the construction of a safe, trustworthy learning environment, and the gradebook included with a LMS is an essential, secure portal for sharing private information with students.

However, many college instructors today are less than thrilled with the tools commonly included in the LMS toolkit for delivering awe-inspiring learning and, therefore, experiment with the wealth of web-based, social technologies that allow for easy content creation and sharing. This section will touch on three important elements to keep in mind as you integrate emerging technologies into your students' learning:

- embedding versus linking
- ensuring student privacy
- using copyrighted material for teaching

EMBEDDING VERSUS LINKING

Frequently, teaching with emerging technologies involves the integration of content from another website into your online course. When you integrate that content, it's important to think carefully about how to integrate it most effectively to avoid derailing the flow of your students' learning. Embedding content into your online class is like taking a pair of scissors, cutting the content out from the secondary web page, and gluing it onto a page in your LMS, eLearning portal, or website. Linking to content, essentially, appears as an active URL or hyperlinked text on a page. Clicking on the URL link or hyperlinked text opens a new window or tab, displaying an external web page to view and interact with the content you've shared with them.

Embedding content from other websites is an effective way to keep your students focused on the content inside your main access portal rather than fragmenting their experience by going out to multiple websites. You may find it helpful to realize that many students who are sent out to another website get sidetracked and don't come back to the class. (Can you relate? I know I can!) Identify whether or not embedding

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the content in your primary content portal is an option. If it is, is the embedded version effective or is it best to provide both the embedded and linked version? Here are some things to keep in mind.

Is Embedding an Option?

Most web-based tools provide the option to embed content elsewhere, but it's important to be sure. To check, look for a "Share" or "Publish" option within the tool you are using; this is typically where you'll find the "embed" option, if it exists. If you see an embed option, the site will provide a string of "embed code," which is a snippet of code that a browser interprets and, in turn, displays a "cutout" of your web-based content. The code you copy will specify the dimensions of the embedded object. Some sites provide different size options or allow you to customize the embed code. When selecting a particular size, you'll want to be sure it fits within the display area of your course (this is a process of trial and error). When you locate the embed code, highlight the entire string of code and copy it to your computer's clipboard. (To copy on a PC, press Control + C. To copy on a Mac, press Command + C.)

Locate the Visual Text Box Editor

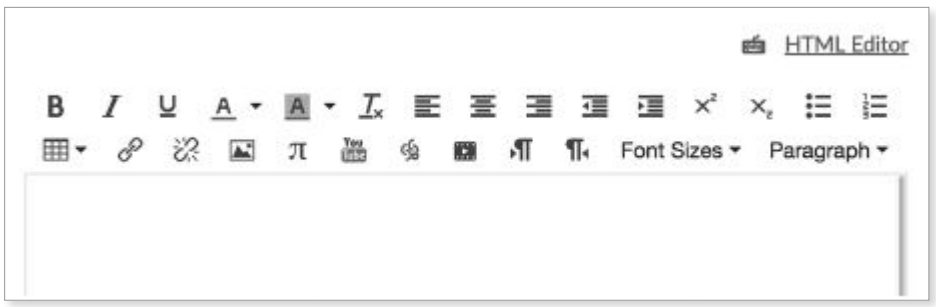

Figure 3.3 • Screenshot of visual text box editor 1.
Image provided with permission of Instructure, Inc. © Instructure, Inc.

You can easily embed content in an LMS, an eLearning portal, or a web page. The key is locating the visual text box editor. Many experienced LMS users are not aware of this option. The visual text box editor is a function within an LMS that is usually made available to users by default, but I have seen some instances in which institutions disable this feature. Visual text box editors will vary in appearance, but they should look something like the one shown in Figure 3.3.

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Provide Supplementary Information about the Content

Before you paste your embed code in the visual text box editor, it may be a good idea to introduce the content you are embedding (if you haven't already done this somewhere else). If it's a video you are embedding, type a simple description in the text box that introduces its topic and tells students how long it is. If it's a video without captions, you may provide a link to a transcript for students who require this accommodation (Figure 3.4).

Figure 3.4 • Screenshot of visual text box editor 2.
Image provided with permission of Instructure, Inc. © Instructure, Inc.

Toggle to HTML Source Code View

This is a critical step. Before you paste the embed code into the text box, you must switch from rich text mode (which shows text the way it will appear to your students) to html source code view. How to do this varies, but usually the action is performed by clicking on a button that looks like this "< >," or you may see a button or tab that says "HTML." Click on the appropriate icon and then paste the code into the blank space below the existing text (see Figure 3.5).

Figure 3.5 • Screenshot of visual text box editor with embed code.
Image provided with permission of Instructure, Inc. © Instructure, Inc.

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Save

Click the necessary buttons (save, continue, etc.), and you should now see your embedded object below the supplementary information (see Figure 3.6).

Figure 3.6 • Screenshot of embedded video.

STUDENT PRIVACY

For centuries, college learning has occurred in a physical space partitioned from the rest of the world by four walls. The idea of encouraging or requiring students to interact with each other and share their work in digital format in the public web challenges the traditional paradigm of college learning in many ways. And frequently this change ushers in some alarming concerns about student privacy. Being concerned about the privacy of your students is certainly important but what's more important, possibly, is that we, as educators, provide opportunities for our students to learn how to responsibly participate in the online environment and mindfully re-use digital content. These are critical 21st-century skills that much of the population does not yet possess. Using emerging technologies in your college classroom is an opportunity to foster these relevant skills. Teaching effectively with emerging technologies requires you to facilitate meaningful, safe interactions in support of your students learning—which is nothing new. How to achieve this objective with emerging technologies is new. Here are some things to consider.

Identify the Tool-Specific Privacy Settings

As you evaluate tools for adoption in your teaching (which is the focus of Chapter 2),

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you'll want to spend time exploring the privacy options that are provided. Many tools will extend the option to share the content in different ways that may range from public display on the open web, retrievable through a web search, to private and requiring sign-on or a password, and anywhere in between. For example, I use a web-based tool called VoiceThread to foster participatory learning activities designed around images (for more information, reference the introduction, as well as Chapters 4 and 5). When I create a VoiceThread, it begins as a completely secure environment. For example, if I were to send the link to anyone else, that person could click on it but only see a message indicating that he/she doesn't have privileges to view it. I can easily make adjustments to this default setting by allowing "anyone" to view it (which actually means "anyone with the link," but it won't be found through a web search), or I could choose to have it included on VoiceThread's "Browse" page, making it fully public and retrievable through a web search. Similarly, if I share a video on YouTube, I have the option to mark the video "Public" (for anyone to find and view), "Unlisted" (which means it will not be found through a web search and will not appear in searches in YouTube but will be viewable by anyone who has access to the link), or "Private" (which requires me to type in the email addresses of the individuals who have my permission to view the video. This option requires the permitted users to sign in before viewing the video).

Select the Best Security Setting

The "best" security setting is not always the most secure. You need to think carefully about the environment you wish to cultivate with the content and manage your workload effectively. If you select the most secure option, you are going to be entering many emails (possibly hundreds, depending on how many students you have and how much teaching support you are provided) and, undoubtedly, dealing with many students who encounter log-in challenges. Frequently, the mid-range option is a great option, particularly if you are teaching in a LMS. If you copy the link to your content and share it within your LMS, then students must first authenticate to view and interact with the content. This doesn't make it impossible for the content to be shared outside of class, but it does reduce the likelihood of this occurring and eliminates the concern of having others find the content within a web search and leave comments that may be disruptive, inappropriate, or symptomatic of spam. With that said, one of your objectives may be to have your students participate in a global conversation about a particular topic. Perhaps you want your students to be able to invite others to contribute to the course dialogue, or you want them to have the opportunity to experience receiving commentary from the global community. If this is

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the case, then you may want to consider a fully public option and encourage your students to become effective monitors of spam and foster the ability to ferret out inappropriate contributors (both essential 21st-century skills.)

Inform Students about Who Their Audience Will Be

Don't expect students to understand intuitively who will have access to the content they contribute for your class. Be sure to explain this to students prior to their participation. If you are having students participate in public web-based activities, it's a very good idea to encourage them to sort through information that is appropriate to share. A good rule of thumb is to encourage students to abstain from sharing personal information about themselves and focus on fulfilling the course-related prompts and assignments.

Develop a Student Use Agreement

Develop and share a student use agreement in your syllabus and have students verify their acceptance through a written contract or by completing an automated "syllabus quiz" in your LMS in which they "accept" the agreement. This practice clearly informs students about the parameters of the environment you have constructed and also provides you with tangible verification of their acceptance of the parameters, thus providing practical protection for both you and your students.

Offer Options

Be prepared to offer students options about how students will represent themselves online. Here are some suggestions to consider. Encourage students to use their first name and last initial when sharing contributions. Be creative with avatars. Some students may not feel comfortable sharing a photograph of themselves. Encourage them to share an icon or image of something that represents who they are.

Provide Accommodations When Necessary

Be aware that there may be students who have valid privacy concerns about sharing contributions online. For example, I once had a student who was taking online classes because she had a restraining order against her husband and was afraid to leave her house. It's important that you create an environment in which students, first, have an opportunity to share these concerns with you and, second, have alternative options that allow them to contribute and learn along with the rest of the class in a safe, trustworthy environment. One strategy is to allow the option to use a

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TIP!

Download these Student Privacy Tips in a handy PDF from the Chapter 1 resources shared online at TeachingWithEmergingTech.com

pseudonym, with your approval, to preserve the anonymity of these students. But keep in mind that pseudonyms can complicate the assessment process, as you will need to identify the author of the anonymous content.

Do Not Share Grades

Student grades should always be kept private and shared in a secure environment that requires a user authentication, like a CMS. Email is not considered secure.

RE-USING COPYRIGHTED MATERIAL FOR TEACHING AND LEARNING

Copyright is one of the most complex and dizzying topics in academia today. Our digital culture has flipped the logic of copyright on its head and, as a result, copyright restrictions are becoming increasingly more stringent, and teaching with digital materials is becoming more bewildering. Questions about the legality of using copyrighted material in your classes (in analog or digital form) should be brought to your respective campus representative(s). Individual colleges and institutions should have their own individual copyright policy to assist with guiding faculty through these muddy waters and protecting their own interests. The information provided here is offered for educational purposes and is not intended to replace the advice of your campus representatives or to serve as legal advice.

Understanding copyright in its historical context is a good place to start our conversation. In 1787, the writers of the U.S. Constitution included a clause in Article 1, Section 8 (arguably a sign of its significance) that has shaped the copyright laws we live with today.6 The clause was guided by the interest to preserve the public's right to access knowledge without being limited by a creator's right to restrict access: "The Congress shall have Power To [...] promote the Progress of Science and Useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[7]

It may seem contradictory to understand that copyright law exists to promote public access to knowledge when, from my experiences, many professors today live in fear of being slapped with a lawsuit for violating copyright law. For the owner of the copyright has the exclusive right to govern who may use the work only after receiving express written authorization from the copyright owner to do so. This fear often prevents educators from sharing content that contains copyrighted works, even when their distribution of the materials may fall well within fair use (see the description in the next section). When copyright of a work expires, the work enters the public

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domain and may be used, at that time, without authorization. However, understanding when a work enters the public domain isn't so easy (and varies by country).[8]

Fair Use

The fair use clause of copyright (section 107) further supports the interest of promoting public access to knowledge by permitting the use of copyrighted material without the permission of the copyright owner for certain purposes (including teaching, scholarship, and research). However, to determine whether a particular use of a copyrighted work is fair, four factors must be considered.

- The purpose and character of the use, including whether such use is of a commercial nature or is for non-profit educational purposes.
- The nature of the copyrighted work.
- The amount and substantiality of the portion used in relation to the copyrighted work as a whole.
- The effect of the use upon the potential market for or value of the copyrighted work.

(Title 17, Section 107 United States Code)

So, with this information clearly spelled out, it should be simple to identify whether or not a particular use of a copyrighted work for teaching, scholarship, or research falls into fair use, right? Well, it's not. And digital content makes this process more ambiguous, as the definition of a "copy" is no longer clear-cut. In fact, you will never be able to ascertain a hard "yes" or "no" to whether or not a use is fair. What's critical is that you understand the four factors of fair use and are able to apply them with good judgment in your own teaching, following your institutional guidelines (which, for example, may provide a more clear definition of what your college/university has determined to be "the amount and substantiality of the portion used"). There are also some very helpful tools that have been developed to assist with this process. If a copyright owner feels that you have overstepped the boundaries of fair use, there may be the need to address how the use of work applies to each of the four factors.

Open Licenses

Creativity in the 21st century is deeply informed through remixing, which involves a process of using existing material to create something new. Remixing, a product of

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our digital society, deeply informs contemporary creative expression, and you'll find examples of it on YouTube, Flickr, Twitter, Instagram, and other social media outlets. In remix culture, "fair use is your friend," as the Center for Social Media has so eloquently argued in its clear and informative video shared about video remixing.[9]

But as videos are now recorded daily with mobile phones and other devices and shared via social media tools and unattributed photographic images are downloaded and redistributed on other websites, it becomes increasingly difficult to ensure the content one shares does not include copyrighted material. For example, if I were to take out my phone and record my niece jumping for a balloon and I happen to record a popular song playing in the background, I would violate copyright law. Now that's probably not going to be an issue if I keep that video between my family and me. However, when I click the "Share to YouTube" button on my phone and publicly share it with the world, that's a different story. No, I didn't intentionally use copyrighted material without the permission of the copyright owner, nonetheless, I did, and that's a violation of the law. Why is this really such a big deal? Well, imagine if I were a documentary filmmaker who captured a copyrighted song in the background of a key interview. I could be required to pay thousands of dollars in royalty fees for the licensing rights to use that song—which would directly undercut my creativity as well as the progress of filmmaking in general.[10]

While instances like these continue to wreak havoc on the logic of copyright law and the tenuous balance between the rights of authors/creators and public access to knowledge, there is some relief. Thanks to some creative and progressive thinkers, there are now several license options that copyright owners may choose to apply to their original works (without releasing their rights under traditional copyright law). These new flexible options are referred to as "open" licenses. When a copyright owner applies an open license to his work, it clearly specifies how and under what circumstances another person may re-use the work without permission. As public knowledge and understanding about open licenses continues to spread, more and more copyright owners are applying open licenses to their work and, in turn, there is an increasing supply of content that is easily accessible and may be redistributed and remixed without the anxiety of a looming lawsuit. Further, the energy stimulated through the use of open licensed content is fostering a culture of sharing that, arguably, in the 21st century promotes public access to knowledge more so than traditional copyright.

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Creative Commons

One of the most popular open licenses today is Creative Commons (CC). Founded in 2001 with support from the Center for the Public Domain, CC has grown to support projects and licenses for works in more than 70 jurisdictions.[11] CC has become the "global standard for sharing across culture, education, government, science, and more."[12] To gain further clarity about how CC licenses work, it's helpful to think about them as a license option that falls somewhere between traditional copyright and the public domain, as illustrated in **Figure 3.7**. A work that is shared with a CC license clearly specifies how and under what circumstances a work may be used without the permission of the copyright owner. These conditions include one or more of the following: attribution (giving credit to the copyright owner), no derivatives (the work must be shared unchanged and in its entirety), share alike (new creations that use the work must be shared under an identical license), noncommercial (the work may not be used for commercial purposes).

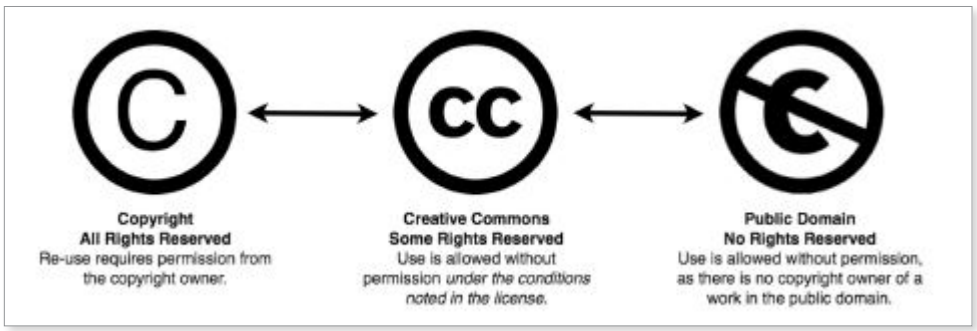

Figure 3.7 • Permissible use of Creative Commons licensed works.

Creators can easily discern which license is best for their work by using the Creative Commons License Chooser.[13] Licenses may be applied to digital works through the inclusion of an image of the license and websites containing digital works may embed a snippet of html code into the page, which allows for the content to be found and used more easily.

As educators utilizing emerging technologies for teaching and learning, understanding the value that sharing brings to our culture is critical. Learning, after all, doesn't occur without the sharing of knowledge. As you move forward with the creation of your own content in digital form, consider applying a CC license to your work and play a role in changing the world.

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Excerpted from *Best Practices for Teaching with Emerging Technologies, 2nd Edition*

HOW TO FIND CREATIVE COMMONS–LICENSED WORKS

Creative Commons is largely based on community participation and works that utilize a CC license do not enter a database that can be accessed and searched directly. However, there is a portal page that will connect you with several useful content searches that will assist you with locating pertinent CC-licensed content. Keep in mind that it is your responsibility to ensure the content you find through a search on the following portal is, in fact, shared through a CC license.

1. Go to the Creative Commons Search portal at: Search.CreativeCommons.org.
2. Click on one of the options that aligns with the media type you are seeking: Flickr (image),YouTube (video), Jamendo (music), SpinXpress (media), etc.

TIP!

Downloading Images from the Web Is Easy

If you are on a PC, right mouse click on the image and select the "Save Image As" option from the drop-down menu. If you are on a Mac (and don't have a right mouse click option), press "Control" and click on the image.Then select the "Save Image As" option from the drop-down menu and save the image file to your computer.

TIP!

A Simple Way to Keep Track of Image License Details

I use Flickr a lot to find images for use in my digital work. I have found that it can be very easy to forget the name of the author and keep track of the license type of each image after I download them to my computer. I have found it useful to save the image with a filename that includes the author name and the details of the license. For example, a photograph of a yellow flower by John Catskill with an AttributionNo-Derivative-Non-Commercial license would be saved as, "Yellow Flower by John Catskill CC-BY-ND-NC.jpg"

TIP!

Tools for Managing the Attribution of Images

Another way to manage the attribution of images you download from the web is to annotate the attribution on the image itself.This requires a tool that supports annotations. On my computer (I have a Mac), I regularly use Preview to do this. Alternatively, PicMonkey is a free, online tool that you can use to annotate images and then download them to your computer without creating an account. Avoid using screenshot tools for this purpose, however, as you are likely to reduce the quality of the digital image when taking a screenshot of it. Finally, some tools that utilize re-use of images are starting to incorporate the attributions during the creation process. For example, HaikuDeck and Adobe Spark, tools discussed in Chapter 4, and Photos for Class, a simple image search tool, offer this feature.

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Excerpted from *Best Practices for Teaching with Emerging Technologies, 2nd Edition*

LEARNING FROM STUDENT FRUSTRATIONS

At the start of this chapter, I shared a story about a student who was reluctant to engage in the social network I had integrated into my class. After that student reached out to me, we engaged in a dialogue—I listened to her concerns and responded with more context, explaining why I had integrated the tool into the class, shared comments from previous students about how it had helped them stay connected and engaged, and encouraged her to keep an open mind. In our exchange, I made it clear to her that the only thing she was required to do in the network was become a member and write a weekly blog post in response to prompts I provided in the corresponding learning modules. That was key to her success. After she had more clarity about what she was required to do and what was optional (the sharing of pictures, for example), she felt more comfortable in the social, participatory environment I had planned for the student-student interactions.

It was clear to me that this was a high-risk student who may drop the class and, for that reason, I stayed in close contact with her throughout the first few weeks of class. By week three, she had turned the corner, and she began contributing some very compelling reflections in our weekly blog post assignments. And by the end of the class, she shared something priceless with me. She wrote me an email in which she thanked me for listening to her concerns and reflected on the class as a successful learning experience. But there was one more thing she shared that, to me, stands out as one of my most memorable teaching moments. She told me that, for the first time in her life, she felt connected to a culture from which she had previously felt excluded. My class gave her the opportunity to learn what a "social network" was and how a "blog" works—these were words that were meaningless to her before. Whereas before the class she felt marginalized from the technological landscape surrounding her—viewing it as a space for "teen-agers"—after the class, she felt included and welcomed. And here's the best part—she is a teacher who has begun using emerging tools in her own classes.

NOTES

* Think mobile! Suggest applications students can use on their smartphones to record/host video and audio. Smartphones and tablets are terrific for creating digital media content.

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7. *The Constitution of the United States of America*. Retrieved from http://caselaw.lp.findlaw.com/data/constitution/articles.html.
8. Cornell has shared a helpful online table to assist with identifying when a work enters public domain: http://copyright.cornell.edu/resources/publicdomain.cfm.
9. Center for Social Media. (n.d.). *Remix Culture: Fair Use Is Your Friend* [video recording]. Retrieved from www.centerforsocialmedia.org/fair-use/videos/podcasts/remixculture-fair-use-your-friend.
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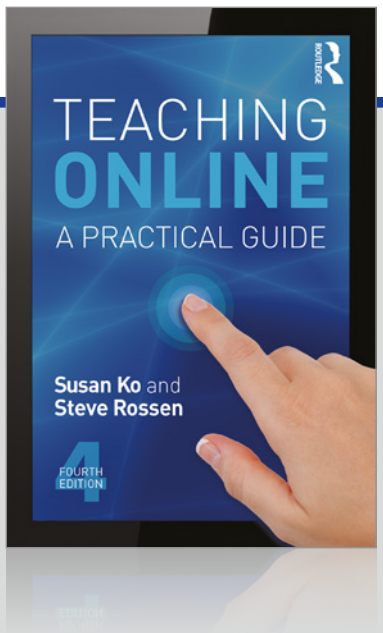
CHAPTER

4

PREPARING STUDENTS FOR ONLINE LEARNING



This chapter is excerpted from

Teaching Online: A Practical Guide, 4th Edition

By Susan Ko and Steve Rossen

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PREPARING STUDENTS FOR ONLINE LEARNING

Excerpted from *Teaching Online: A Practical Guide, 4th Edition*

Learning online can be as exasperating for the student as for the instructor, particularly for those taking an online course for the first time. Suddenly thrust into a world in which independent or collaborative learning is heavily stressed, students accustomed to traditional classroom procedures—taking notes during a lecture, answering the occasional question, attending discussion sections—must make unexpected and often jolting adjustments to their study habits.

In addition to these pedagogical concerns, students must contend with varying website formats requiring special equipment or software. Indeed, it isn't unusual for students at the same university to encounter two or sometimes three different learning management software systems or different sets of tools during a single semester. Add to that the tendency of faculty to set up online class sites according to their own design, resulting in students encountering variations in layout and navigation scheme with potentially each different course. With sometimes outdated equipment and busy schedules, perhaps unsure whether they should communicate by email or by posting queries on discussion boards, students often feel frustrated, abandoned, or confused.

Students' problems fast become those of the instructor as well. Instead of teaching their course, posting information, and responding to legitimate queries on the discussion board, instructors often find themselves trying to troubleshoot technical queries for which they have minimal expertise. Tussling with why a student using a particular browser can't see part of a given web page or why another is unable to install a program on her home computer, instructors expend too much time and energy providing support and maintenance while struggling to keep up with the normal duties of teaching a course. Ideally, every institution should have 24/7 tech support to which every student can turn for help or a mandatory student orientation that ensures each student has mastered the basics of software and processes before accessing online classes. But we realize that some readers do not teach under those conditions.

This chapter will address these and related issues concerning preparation of students for the online learning environment. The key is to identify and be forewarned about potential problems and to learn some effective methods for handling them.

PROBLEMS THAT STUDENTS TYPICALLY ENCOUNTER

A student logging on to a course website for the first time has a lot to contend with. To begin with, there's the terminology. Those neat rows of icons or links, either along the side or across the top or bottom of the screen, meant to guide students to the

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course material often bear names, captions, or titles the users have never seen before. For example, a button or link might say "Course Notes," "My Course," "Course Information," or "Main Page," all of which generally mean the same thing. The icons under which such captions appear may look like an open notepad, an owl reading a book, or a blackboard.

Similarly, an area set aside for students to post information about themselves, including a small digital photograph, might say "Course Information," "Student Home Pages," or "Biographies." Most variable of all is the button or caption leading to the discussion area. In some learning management systems it is called the "Threaded Discussion," while elsewhere it might be called "Conference Board," or "Discussion Forum." Tests are sometimes called quizzes, sometimes assessments, and the areas where students collaborate on projects may bear names like "Group Pages" and "Student Presentations." When students submit an assignment, does an icon or message appear to them to signify that it has been correctly submitted or do they see nothing in particular?

Often these mysteries of nomenclature and icons are just the beginning of the puzzles a student must solve. There are also technical problems and communication difficulties.

We have also observed over the years that while students strongly prefer consistency in the layout of all their online courses, faculty like to depart from any templates to put their own stamp on the design and even navigation of the site. This can create further problems for the student in the first days of a course unless the instructor has made a point of explaining that course site layout and navigation to students. Thus our strong recommendation that the very first announcement in an online course briefly orient students as to where everything is and how to get started.

TECHNICAL PROBLEMS

When they begin a course, students may find themselves unable to view the web pages properly, either because the browser they're using is too old (for one reason or another they haven't updated it), or because they haven't installed the necessary plug-ins. Or perhaps the instructor has not tested out the mobile app version of her course that many students are using and so there's a disconnect between what some students see and what instructor and students using the desktop browser can view. Far less common these days as MS Office products are more readily available and Google documents ubiquitous, is not being able to share wordprocessed documents, but there may be occasional problems. Even if students are using the same software

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program, those with earlier releases may not be able to read documents created by classmates or instructors with more current versions without the help of a plug-in.

PROBLEMS RELATED TO LEARNING STYLE AND ONLINE COMMUNICATION

Far more significant, perhaps, is the variance in learning styles required of those learning online. Students used to instructordirected learning may feel somewhat lost in an environment that relies heavily on individual initiative and independent learning or even more dismayed to hear that collaboration with peers is an expected element of the class.

Even though the requirements of the course are clearly outlined in the syllabus and in the class announcements, the effect isn't the same as seeing an instructor glare severely at the class and announce that the essays are due the following week, without fail.

Assignments are completed at home, often in solitude, and submitted through the click of a button, without that warm feeling students sometimes get when they pass in their exam papers or hand their essays over to their teacher in person. Indeed, without the discipline and structure imposed by the requirement of physically sitting in a classroom, students often feel cast adrift.

The complicated mechanisms of human expression—facial expressions, voice intonation, body language, eye contact—are also no longer available. In their place are the contextual and stylistic conventions of the written word, a mode of communication that favors verbal over visual or kinesthetic learners, thus leaving some students curiously unsatisfied. Learning how to modulate their own speech is also a concern for online students. Most of us rely on body language to deflect the impact of what we say; we convey our true intentions through gestures and vocal intonation. The absence of these conventions sometimes causes students real distress. Or students accustomed to communicating daily via messaging apps, Facebook, Instagram, or Twitter may have difficulty adjusting to the norms of communication in the academic environment.

The asynchronous nature of much online communication adds a further dimension to this problem. We are all used to instant feedback: Susan says something, and Steve responds. Online, in an asynchronous format, Susan may still say something to which Steve responds—but the reply may come a day later. This spasmodic flow of communication takes some adjustment.

None of these problems is beyond the reach of a dedicated instructor. Now that there are so many ways to easily incorporate audio and video into classes, we encourage

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instructors to think about selecting opportunities to add these personalizing elements to the classroom, both in the form of their own short recordings as well as permitting students to do the same in their projects. Knowing when a particular student might be in need of a real-time communication, whether by phone, in person, or via online messaging, is crucial for retaining students who might otherwise be at risk of dropping the course. Dealing with these problems effectively can save both the student and the instructor valuable time, reducing some of the tensions inherent in learning something new. The key is to understand the need to prepare students adequately for what they are about to encounter and to provide them with the necessary tools to get through the course. These efforts will complement the work you put into designing your course and syllabus.

PREPARING YOUR STUDENTS

To address the kinds of problems we've been describing, the most successful online programs offer student orientations as well as continuing technical support and resources. They may also offer study-skills courses that include a strong focus on the issues particularly relevant to online learning. But instructors who are left mostly to their own devices can also find effective ways to meet their students' needs. In the following pages, we suggest approaches for both the individual instructor and the institution as a whole.

READINESS PROGRAMS

Many institutions have short online quizzes or lists that allow students to judge their readiness for online classes. Some of the areas they seek to gauge are:

- whether students are proactive, self-disciplined, and wellorganized;
- whether students are comfortable communicating entirely online without face-to-face meetings (for fully online courses);
- whether students are comfortable with learning new technology, have access to adequate computer equipment and software, and if not, whether they are willing to update their equipment.

Two examples of different types of readiness quizzes online are:

- Penn State University, https://pennstate.qualtrics.com/jfe/form/SV_7QCNUPsyH9f012B;
- Washington Online, www.waol.org/prospective_students/isonlineForMe.aspx.

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There is a whole collection of these self-assessments on MERLOT at https://www.merlot.org/merlot/viewPortfolio.htm?id=731796.

While you may not be creating your own quiz for students, you may find these serve as good reminders about behaviors of successful online learners that you will want to promote among students in your own class.

In recent years, the emphasis at many institutions has switched from having prospective students self-assess to providing more detailed explanations and illustrations of how online learning works. Videos capture the navigation of an online class and interviews with online students set forth the expectations for online learners. We recommend that you familiarize yourself with these initial views of online learning to which your new students will have been exposed.

ORIENTATION PROGRAMS

Ideally, your institution should devise a student-orientation program that will take care of major issues such as these:

- any equipment or browser requirements;
- a general introduction to the learning management or other software used for instruction and its major features;
- instructions and links for downloading necessary software;
- information about issues that arise in an online class—perhaps in the form of a checklist about what one can expect as an online student;
- issues concerning the importance of student time management in an online class.

Lists of frequently asked questions (FAQs), referral email addresses, and toll-free numbers for reaching support staff (advising, student services, tutoring) and accessing library services are other useful features often included. Some orientation programs also use this as an opportunity to inform students about academic integrity policies at the institution.

Many institutions or their hosting and delivery partners have created such orientation programs. Most are simply self-paced series of web pages or videos, some interactive and some not. Many incorporate self-assessment surveys that seek to help students identify whether they are suited for online learning. Others test knowledge about computers, the institution's procedures, and so forth. At some institutions, student orientation is an actual experience that takes place within the

PREPARING STUDENTS FOR ONLINE LEARNING

learning management system in which courses will be conducted, providing a preview of what students can expect. This may be a self-paced orientation or one conducted with a cohort of new students and a facilitator prior to a semester start.

Once students have enrolled with their cohort, such orientation programs contain an element of human supervision and feedback, so that students must complete a few tasks in order to "pass" the orientation and be admitted to the classroom. These requirements are particularly effective in ensuring that students have the minimum skills, resources, and knowledge for an online course.

Having well-prepared students will mean that you as the instructor can concentrate on teaching rather than on resolving extraneous problems. There's enough for you to do once your online course has begun without having to divert attention to these preparation issues. Effective student orientation is also beneficial to the institution, because it makes a significant difference in the retention rates in online programs. Students who start off with a good orientation are more likely to have a positive experience and to return for further courses.

PREPARING YOUR OWN ORIENTATION PROGRAM

What if your institution hasn't yet made arrangements for an adequate student orientation? What should you do?

Two methods will resolve your dilemma. First, you can devise a simple orientation of your own, one that will satisfy at least the minimum requirements. Second, as noted in Chapter 5, you can give clear directions in your syllabus for dealing with documents, as well as explicit explanations of how and where you will handle material and activities in the classroom. If you are teaching a blended class, we suggest using the first class meeting as a chance to take the students step by step through an orientation to the software used in your class and to answer any questions students may have. For those teaching a fully online class, creating a brief screencast video may also help students quickly get up to speed on use of a new technology tool or how to access a resource.

Before you begin creating your own orientation, you may want to take a look at some of the information and orientation pages that other institutions and their LMS partners have set up. The following offer useful examples:

- Arizona State University, http://online-student-welcome.asu.edu/

This orientation is delivered mostly through video.

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- Xavier University, www.xavier.edu/online/Student-Orientation.cfm

This orientation is in Canvas, but is viewable by the public.

ELEMENTS OF AN ORIENTATION

If you create your own student orientation, there are several elements you should consider, as outlined below. If you find that your institution covers some elements but not others, you might focus your attention on the latter.

1. General introduction, including our expectations for online students

A general introduction can be made available to students even before they enroll in your course. Michelle Pacansky-Brock created such an introduction for her students at Sierra College, combining a short video, "Preparing for Your Online Class," with a text introduction, all linked from the distance learning web page at her institution so that students could view this as early as when they were shopping for classes. She told students in the video,

> I created this website in an effort to increase the success of your learning by providing you with some very important information about my classes before the semester begins. … This page is important for all my online students but especially for those of you who are about to embark upon your very first online learning experience … You're going to find, as you embark upon your journey with me that I really love teaching online and I work very, very hard to make your experience exciting and relevant.

Pacansky-Brock discussed the attributes of successful online students and referred students to her institution's online studentreadiness quiz and a video of a Student Success workshop she had created, "Are You Ready for an Online Class?"

In the video, she explained how communications worked in her class,

> This may sound a bit odd to hear from your instructor but communication is the foundation for any successful relationship … yep, that's right. I expect you to fully communicate with me throughout your semester learning experience. You'll have plenty of opportunities to interact with me in our discussions and activities but if you, at any point, need further help to successfully

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> meet a specific learning objective in our class, it is your responsibility to reach out to me and let me know.

She commented on this,

> I try to explain what my class consists of ahead of time so I can be more assuring of having prepared students enrolled on day one. I know there are students who do NOT want such a technologically enriched learning environment, and they have the right to be informed about the components of my class before they enroll so that they can find another class that suits their preferences.

2. *Requirements for computer equipment and software (other than the platform being used)*

State these as simply as possible. Realize that many people don't actually know the "numbers" for their computers, such as how large the hard drive is. In most cases, computers and many mobile devices will be adequate for online learning although you may have a few students on older, inadequate equipment. Based on your learning management system, you will want to specify if they require a particular browser or browser version or if there is any function that they cannot use via mobile devices. You can also devise your own "tests" of certain requirements. For example, if students need to be able to access audio in your course, give them a sample to test— either on your own site or elsewhere on the internet.

Many institutions can make a common word-processing program available to your students, or they have site licenses for other software. But if your students don't have access to a common program supplied by your institution—and this is often the case for continuing-education students—you will need to stipulate how documents will be shared. You might ask students to save all documents in a particular format or to use wordprocessing and spreadsheet or other software freely accessed through a service like Google Drive. Or you might want students to paste their documents into text boxes provided in your learning management software.

Gather information about the software possibilities ahead of time, and let students know whom they can contact for technical support or to obtain software. Include links on the internet where students can download any free programs, such as Adobe Acrobat Reader, that you intend to use in the classroom or indicate if there is a mobile app version. In regard to technical resources, don't overload new online students with many different references; instead, choose a few carefully evaluated resource links that will meet the students' needs.

PREPARING STUDENTS FOR ONLINE LEARNING

Pacansky-Brock addressed the issue of technical requirements humorously in a section of her introductory materials called, "Your Transportation to Class":

> "What?! Why do I need transportation for an online class?!" Well, you wouldn't enroll in an on-campus class if you didn't have a reliable way to get there, right? So, you shouldn't enroll in an online class unless you have regular and reliable access to the internet. This class requires high-speed internet access … due to the large, multimedia files you'll regularly be accessing. … Reliable "transportation" is paramount to your success in this online class.

3. Computer skills needed

Most students taking online classes these days generally do have the basic computer skills needed and the institution will sometimes say that is an assumption for students registering for an online class. Depending on your student audience and the course materials, you may want to suggest a computer skill set necessary for taking your course only if it goes beyond the basic knowledge of email, attachments, downloading, and uploading. There are video tutorials on YouTube that cover just about every computerrelated skill or program you can imagine. In some cases, you may be able to refer students to on-campus workshops as well. In an online language or speech class, you will need to discuss any software that you will be using to facilitate audio communication.

4. Introduction to the learning management software or other programs you will use to teach the class

Some learning management software companies have already put together a general introduction, student manual, or classroom demo for their software. Whenever possible, refer students to such pre-made resources. You may also be able to find examples of software introductions at the sites of other institutions that use the same software version your institution does.

Michelle Pacansky-Brock added information about the technology and programs students could expect to use in the class and how she planned to use that technology in a section entitled, "How Much Technology Does This Class Require?"

> As you may have heard from other students, my online classes employ many forms of emerging technologies as learning tools.

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> This is a topic I'm passionate about, folks, and I assure you I have carefully evaluated each technological tool before integrating it into my class and requiring you to use it.

She continues,

> Podcasts (Art 10 and Art 1E)—Both of my online classes offer options to my students. Lectures are offered in printed PDF form and in podcast form so you can select between reading or listening, based upon your own reading preferences. Interestingly, nearly 40 percent of my students have shared that they read and listen to my lectures because it enforces their learning. The other wonderful option that podcasts provide is mobile learning …
>
> VoiceThread (Art 10 and Art 1E)—If you enroll in either of my online classes, you will also be engaging in weekly discussions and activities using an online tool called VoiceThread. VoiceThread allows you to leave your comments in text or voice, it enhances our class community and enforces visual learning through image-based, interactive discussions … If you're interested in using the voice commenting feature of VoiceThread, you are encouraged to consider purchasing a USB microphone for your computer or you have the option to purchase one hour of phone commenting through VoiceThread for $10. The phone commenting option allows you to leave comments through your telephone, just like leaving a voicemail (pretty cool!). Voice comments are encouraged but not required …

5. If not otherwise available as links in your class site, provide contact information for such essential resources as library services for online students, writing or math assistance, or student advising. These can be critical for ensuring the success of online students.

6. A first assignment that requires students to demonstrate some familiarity with the software being used

This might be combined with one of the icebreaking activities described in Chapter 7. Typical of such assignments (depending on the software features available) would be these:

- Write a short self-introduction and post it in the discussion forum.

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Excerpted from *Teaching Online: A Practical Guide, 4th Edition*

- Take an orientation quiz using the online testing program that will be used throughout the course.
- Fill in the template of a basic web page or blog with some biographical data and an optional photo of yourself. Add a video clip or audio recording if you like.

A FINAL NOTE

We recommend that you avoid beginning any orientation with material that consists only of a streaming video or animation that requires the downloading of a plug-in. Although many institutions are relying on video to deliver all orientation information, it can intimidate students who are already nervous about their ability to take an online course or who may wrongly assume that most of their online course will be delivered via video. Make sure there are captions for any video, and if possible, provide students with some summary material in downloadable format so that they can easily refer back to this information as needed once the course has begun. End the orientation on an upbeat note. This might include an assignment or a self-assessment quiz that provides feedback and encouragement and reinforces students' sense of readiness to begin their online course.

PROVIDING FAQS

Take a good, hard look at your syllabus and ask yourself if anything you're requiring your students to do will require special additional skills or equipment. For example, if you've devised an exercise that entails uploading or downloading software, using a plug-in, or accessing a useful but difficult to navigate site, go through the steps yourself and jot down any parts of the exercise that may not be obvious. You may think that all of the operations involved are commonly known, but you'll be surprised to discover how many students don't understand them. If you don't provide some way for students to readily find out, you may spend an inordinate amount of class time filling in the blanks.

One approach is to gather all these possible sticking points into one FAQ file. You can compose it using a word-processing program, or create it as a web page. In this FAQ you should list each procedure your students may encounter and provide a short explanation of what they need to know to complete it. The internet convention for composing such FAQ pages is to list all the possible questions at the top of the page and then create a link to each one with a bookmark (in Word) or an anchor (in HTML), thus permitting your students to find the question they want answered without having to search the entire document.

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INTRODUCTORY TECHNIQUES

Your initial postings in the discussion forum, your first messages sent to all by email, or the greeting you post on your course home page will do much to set the tone and expectations for your course. These "first words" can also provide models of appropriate online communication for your students.

Your introductory remarks should reinforce what is contained in your syllabus, your orientation, and other documents students will encounter as they commence their online class. Note some of the examples we have already given of instructor remarks that set a tone and reinforce expectations.

The last thing we would like you to remember is that you must establish a presence and rapport in your classroom that are evident to students as soon as they walk through the online classroom door. Even though this would seem to be a matter of an instructor's own preparation, it is also an important part of what you can do to foster your students' readiness to begin the learning process.

Here are a few tips for establishing your presence:

- Convey a sense of enthusiasm about teaching the class.

For example, you might say:

> Welcome to our course! I look at teaching Intro to Biology as a chance to share my enthusiasm about this subject with all of you, whether you are taking this class to fulfill a general requirement, have a personal interest in biology, or because you are exploring whether or not to major in this area. If you are one of those who feel some trepidation about science classes in general, I hope that you will soon realize that biology is all about the life around us and I look forward to helping you discover the underlying principles of this subject.

- Personalize and provide some touchstones about yourself and encourage students to do the same.

A biology instructor might share the following information about himself:

> I first became interested in biology as an undergraduate, changing my major from business. My particular interest is in the biology of marine animals and I have spent many summers at a

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> research center in California. Here's a photo of me chatting up the sea lions ...

or,

> I have been teaching biology for twenty years here at State College. In my private life, I am a member of the chamber music group here in Smithtown and play the violin.

Or you might present the same information in a brief, informal video made with webcam or on your smartphone, then uploaded. If you include both a text and video version, students will select the format with which they feel most comfortable. They may watch the video to get a sense of your personality while scanning your text for the actual information.

Or an instructor might share her enthusiasm about online education,

> I began teaching online two years ago and found that it has opened up a new world for me, broadening the range of students with whom I come in contact to include those from many different places in the world and diverse backgrounds. Please tell me and your classmates a bit about yourself and what you hope to learn in this class.

- Indicate your availability for questions and communications, the protocol to follow, and reassure students that they are not stranded on their own when it comes to online learning.

For example, you might say:

> If at any time you have a question, please post it in the Q&A discussion area after checking the class FAQ. If it is something relevant only to yourself, please send me an email. I log in each day and should respond to you within twenty-four hours. Sometimes your classmates will come to your assistance, but please don't wait to contact me if you are encountering a serious issue. If you have a technical problem, contact the 24/7 help desk as soon as you can rather than endure frustration and delay trying to figure out the problem on your own.

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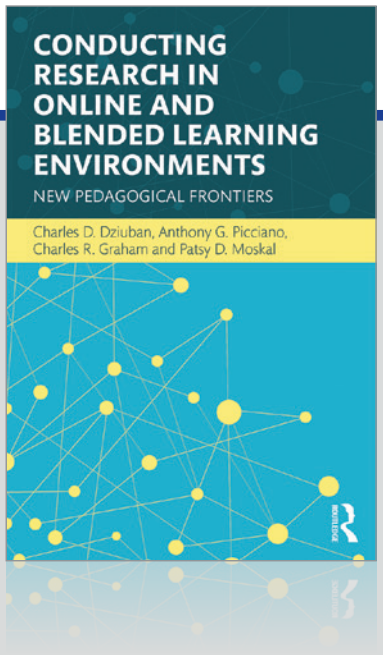
A well-organized course, with signs that you have anticipated the students' problems, plus a welcoming attitude apparent in your first communication, conveys your appreciation of student concerns. Your initial efforts set the tone, and when these are followed by a responsiveness to students throughout the course, they will go a long way toward instilling student confidence in the online learning process.

CHAPTER

5

PRINCIPLES FOR DATA ANALYSIS IN ONLINE AND BLENDED LEARNING RESEARCH



This chapter is excerpted from

Conducting Research in Online and Blended Learning Environments: New Pedagogical Frontiers

By Charles D. Dziuban, Anthony G. Picciano, Charles R. Graham and Patsy D. Moskal

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Charles D. Dziuban

Link is to Teaching Online - is that correct?

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The remarkable growth of online and blended learning throughout the world reinforces the need for improved data analysis methods. Fortunately, newer and more effective computing options make it possible to provide useful information to a broad range of constituencies, such as policymakers, faculty, students, and the public at large. However, data do not equal information, and as Silver (2012) cautions us, data do not have a voice of their own.We have to provide that voice in a manner that informs those who are trying to understand the contemporary educational environment. Because of this you will find yourself doing detective work (metaphorically) with data, trying to uncover what happened in your study.You will discover that there are many approaches to an acceptable solution because there is no single right answer. A great deal depends on the context of your research, the goals of the study, and the quality and amount of data that you are able to collect. Good research is iterative, with constant feedback loops that adjust your findings and even your original assumptions—it happens to us all the time.This is a formidable responsibility given the general public's mistrust of much of the information it encounters on a daily basis (Seife, 2010, 2014). Regularly, the authors are reminded of the quote from Mark Twain (1907)—"lies, damn lies, and statistics"—and the punch line from the old statistics joke—"how do you want it to turn out?"

BEGIN WITH A SELF-ASSESSMENT

If you begin a study by collecting data and then looking around for a way to analyze them, you have gotten off to a shaky start.You should have your analysis strategies in mind before your study begins. If you do not give some prior thought to your analysis, it is highly likely that you will find yourself rummaging through textbooks, websites, or computer packages in an attempt to find procedures that might work for you. Many faculty members and students come into our offices with data in hand, hoping to find a "significant difference," and then leave crestfallen when that doesn't happen, believing that their study was a failure. Actually, they should have considered whether or not a significant difference was the most important element for a successful study. No significant difference, or a weak relationship, does not necessarily invalidate a study. In order to help you make an approximate determination of where you are in terms of analyzing data and interpreting results, we provide a self-analysis rubric. Table 6.1 is based on a mash-up of David Berliner's (1988) theory of expertise in pedagogy and the Interagency Language Roundtable (ILR) language proficiency rubric used by the United States Foreign Service Institute (Clark & Clifford, 1988).

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Excerpted from *Conducting Research in Online and Blended Learning Environments: New Pedagogical Frontiers*

Stage I
Has limited intuitive understanding of the conceptual principles involved in data analysis
Wants context rules for data analysis
Generally unaware of the assumptions underlying various procedures
Sometimes confused by the results from the output of computing programs
Conforms to whatever procedures he/she is told to follow or has researched
Lacks understanding of important concepts, such as sampling distributions and estimators
Tends to ask questions such as "how large does my sample have to be?"
Tends to cut and paste results from printouts and do things such as reporting correlations to four decimal places.
Stage II
Develops some strategic and conceptual understating of data analysis procedures
Makes some decisions based on previous experience
Discerns that a particular data analysis strategy is not producing the desired results
Understands how analysis strategies play out across contexts
Prepares data and runs the analysis on his/her own
Understands that everything on the printout may not be relevant to his/her needs
Is able to explain the results to colleagues
Does not necessarily accept "significance" as the ultimate criterion for success
Stage III
Reads and generally understands analysis methods in journal articles
Proficient in understanding which assumptions are important and which ones are not for a particular procedure
Understands sampling distributions and relationships among analysis procedures Sets
priorities for his/her analysis strategies; i.e., "if I get this outcome A, I will try this procedure B"
Articulates goals for his/her analysis
Explains his/her results with a good deal of fluency
Has insights into the idiosyncrasies of analysis procedures
Understands that concepts are vital and the computations are secondary
Stage IV
Uses the language of data analysis at most levels that are pertinent to professional needs
Uses experience and know-how as guiding factors in the analysis
Possesses a good grasp of analysis across contexts

Table 5.1 • Self-Analysis Rubric

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Recognizes relationships among procedures—for instance, a two-way chi square contingency test and the phi coefficient
Recognizes patterns in data analysis
Uses some intuition to guide the analysis process
Discerns among analysis options and evaluates the advantages and disadvantages of each
Accommodates questions about the analysis with relative ease

Table 5.1 • Self-Analysis Rubric (continued)

We offer this protocol in the attempt to help you do a realistic self-assessment of where you might be with respect to the data analysis process.This approach follows the work of George Lakoff (1987) on prototype theory, where you identify the category that most typifies you. Interestingly, in these kinds of assessments (as with most rubrics) it is entirely possible that you belong to some degree in each one of the categories. For instance, you may be proficient in one procedure and a novice in another. Certainly this is true for the authors.

THE SOLUTION IS JUST A CLICK AWAY

Today, advances in computing technology have freed us from the daunting computational drudgery that discouraged analyses in the past, currently enabling us to work with much larger data sets. At the same time we must be mindful of what Wurman, Leifer, Sume, and Whitehouse (2001) and Taleb (2007, 2012) cautioned; that we can be overwhelmed with the pure amount of data at our disposal and the many ways in which we are able to present them—sometimes in informative and sometimes in confusing manners. However, consider this quote from Ferguson and Takane's sixth edition of Statistical Analysis in Education and Psychology: "Since the first edition of this book in 1959, remarkable changes have occurred in computational methods. Also enormous changes are anticipated in the future as increasing computational power is incorporated into smaller computers at decreasing cost" (1989, p.14).

Enthusiasm for computing power was on the horizon when this classic textbook was published, but since then advances have far surpassed anything that we could have imagined. Open source, as well as proprietary, statistical packages abound, making useful results just a click way. Unfortunately, this is good news and bad news at the same time.The good news is that any analysis we can imagine is well within our reach.The bad news is that it is far too easy to run analyses on bad or incomplete data, or create solutions we do not fully understand. There isn't one of us, including

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the authors of this book, who hasn't found him/herself diving in too deeply and being in over one's head. Additionally, online and blended learning and the newfound computing power have placed considerable stress on the tried and true analyses that have served us well in the past. For instance, concepts such as statistical significance, relationship, prediction, and classification take on fundamentally different meanings in a world where data changes in its calibration from day to day, hour to hour, and in some cases minute to minute. Modern data are dynamic, and we must respond accordingly. In fact, modern computational power allows us to enter the realm of data mining, where we are able to build robust decision rules that do not necessarily depend on statistical assumptions. Because of this, we have opportunities to provide the kind of information that accurately tracks the impact of online and blended learning—information that is authentic, contextual, and reflective.A bit of concentrated effort can put us in control of the data at hand. Unfortunately, our purpose in this little chapter cannot be to teach statistics and data analysis, but rather to outline a set of principles and resources that point the way to meaningful analyses in the new educational world.

COMPUTING RESOURCES

There are a large number of data analysis packages available to the reader, some open source and others proprietary, all easily found on the Internet. A small sample is listed below in Table 5.2.

Open Source	*Proprietary*
OpenStat4	MATHLAB
PAST	Minitab
PSPP	SAS
R	SPSS
SOFA	Stat
	STATISTICA

Table 5.2 • Data Analysis Packages

Of course, there are other, more general purpose platforms that can be used for data analysis, such as Microsoft Excel (Albright, Winston, & Zappe, 2009). In addition, several proprietary platforms have developed access options, in some cases free of cost and in other cases at greatly reduced pricing. Another example of the continuing

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evolution of computational options is that SPSS has made R computational routines available through its platform, thereby combining proprietary and open source data analysis options (IBM Corporation, 2013). One can go to the Internet for extensive discussion of the advantages and disadvantages of most computation packages, as well as heated debates about the merits of each one. However, except for extremely specialized analysis procedures, most programs have equivalent options that yield comparable results. Depending on your organization or university, some version of a statistical analysis platform is probably available, and, of course, researchers always have the open source options.The authors commonly download open source programs, experiment with them, and then make a decision about their viability. There is great value and learning that comes from simply tinkering with these programs. Very quickly the reader will get a good feel for whether or not a particular platform resonates with his or her skill level and format preference.A small word of caution: It is highly unlikely that any of us will have need for all the options in any of these programs. The reality, even for the authors, is that we use these platforms for solving the problems we encounter. Further, it is unlikely that we will ever be completely familiar with all the options in SPSS, SAS, R, or OpenStat4, but if we have a need for an analysis, a solution will be available to us.

VARIABLES ARE THE KEY TO DATA ANALYSIS

The two fundamental questions in online and blended learning data analysis are: "What questions am I trying to answer" and "what are the variables I have at hand?" Handling these questions is a very important first step. For instance, am I interested in student learning outcomes or simply success in class? These are two variables that measure quite different constructs. Am I interested in changes in student or faculty attitudes or satisfaction with teaching and learning? Do I wish to investigate changes in student access or how faculty members change their teaching techniques as a result of instructional technology? These are examples of more general research questions that do not necessarily deal with hypothesis testing in the statistical sense. Oftentimes important issues in research may not require conducting a formal hypothesis test. For better or worse, there seem to be an almost unlimited number of research questions in the area, some of which are quite challenging. For example, questions about the quality of online courses compared to face-to-face lessons have daunted us for years. Often, the best we can do is find a stand-in variable for quality, such as success rate, end-of-course examinations, performance rubrics, and other measures—either standardized or created by the instructor or investigator.

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There are any number of good resources for understanding the nature and consequences of variables and scales—some classic and some modern (Glass & Stanly, 1970; Ferguson & Takane, 1989; Anderson & Finn, 1996; Norman, 2010; Howell,

2010; Lomax & Hahs-Vaughn, 2012; Urdan, 2010; Cohen & Lea, 2004; Huck, 2012; Salkind, 2004). In addition, there are a number of resources that can help investigators gain a better conceptual understanding of statistics and data analysis (Wheelan, 2013; Urdan, 2010;Vickers, 2010; Pyrczak, 2006; Utts & Heckard, 2011). Anderson and Finn (1996) provide a useful way to conceptualize measures in the form of variables—categorical and numerical.These resources provide excellent guidelines for determining which analysis procedures are appropriate in a given situation. Of course, there are many guides to procedures online as well. Examples of some resources are listed in Table 5.3.

Institute for Digital Research and Education by UCLA
Choosing the Correct Statistical Test by University of Alabama
Decision Tree for Statistical Test by Muhlenberg College
Practical Assessment, Research & Evaluation (a peer-reviewed electronic journal)
SAGE Research Methods

Table 5.3 • Data Analysis Resources

NOMINAL CATEGORICAL VARIABLES

Often, we deal with variables that are simply indicators for categories to which people or intuitions belong. For instance, three authors of this book are male and one is female, with two representing the University of Central Florida, one The City University of NewYork, and one BrighamYoung University. Certainly we are familiar with similar variables of this nature—ethnicity, college, department, major, marital status, occupation, course modality designation, and so on.These categories can be extremely useful for disaggregating other scales or measures in one's data collection protocol. For instance, is there a difference in satisfaction with online learning between males and females or among students in blended, online, and face-to-face courses? There is no problem assigning numbers to these categories. However, those designations simply serve as markers for categorical classifications of group membership. Of course, in online and blended learning research indicators for course modality have been found to be of prime importance for comparative studies (Means,Toyama, Murphy, Bakia, & Jones, 2010).

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ORDINAL CATEGORICAL VARIABLES

On some occasions categorical variables are collected in rank order. There are many possibilities for ordered variables in online and blended learning research: socioeconomic status (high, medium, low), year in school (freshman, sophomore, etc.), motivation for taking a particular course (high, medium, low), instructor effectiveness (excellent, average, poor), and job satisfaction (satisfied, ambivalent, and dissatisfied). The thing about rank-ordered variables is that they provide the researcher a bit more information on who or what is first, second, third, and so on. Certainly, ranking is important in contemporary society. We are all familiar with the NCAA football rankings that come out every Monday morning, or the rankings that get sports teams into the playoffs.Very often student achievement in online and blended courses, or some project completed for class, is evaluated with a carefully developed rubric of some kind. Essentially, this results in a rank ordering into categories ranging from excellent to poor. We offer two words of caution about ranks. First, there is really no specific distance between a rank of one and two—they are just ordered. One can easily find him/herself slipping into assuming that the ranks are equidistant. Second, there are a limited number of ordered categories that make sense. See, for instance, Silver's (2012) discussion of the U.S. News and World Report ranking of colleges and universities. We would be very hard-pressed to make a meaningful distinction between two universities, one of which is ranked 170 and the other ranked 171. Consider **Table 5.4** illustrating the percentage of students who assign an overall rating of excellent to various course modalities.

In reviewing this simple table, it becomes obvious that there are several options for interpreting the results. By ordering the percentages of excellent ratings for the five course modalities, we see that blended courses rank first and blended lecture capture courses rank fifth. The difference in percentages that causes first and fifth ranking is 8.9%. If we just presented the ranks you would not know that. Also in **Table 5.4**, you can see that face-to-face and online courses rank two and three, respectively. However, the difference that causes that rank order is 0.5%. For all practical purposes, online and face-to-face courses are in a dead heat for excellent ratings. In addition, the sample sizes vary greatly so that the percentage differences represent vastly different absolute numbers of students. As investigators we do have a responsibility to make some value judgments about the results that add context for those who view our data. A good research practice is to present the ranks and the underlying data on which the ranks were formed so the reader can better contextualize the results. There are a number of resources for rank order data. These fall under the classification of nonparametric, or

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distribution-free, procedures (Siegel & Castellan, 1988; Hollander & Wolfe, 1999; Gibbons & Chakraborti, 2003). Additional information on analyzing data using nonparametric statistics can be found from online resources such as StatSoft, an electronic statistics textbook from Statistica.

Course Modality	*%*	*n*	*Rank*
Blended	56.6	121,768	1
Face-to-face	53.8	108,046	2
Online	53.3	40,219	3
Lecture Capture	48.7	1,831	4
Blended Lecture Capture	47.8	9,998	5

Table 5.4 • Percentage and Number of Students Assigning Overall Excellent Ratings for Course Modalities

INTERVAL NUMERICAL VARIABLES

Numerical variables carry more information than categorical variables (nominal or ordinal). Interval variables (scales) are constructed such that the units are equivalent all along the scale. For instance, on an IQ test the assumption is made that the distance between two individuals who have scores of 120 and 130 is equivalent to the distance between two individuals with scores of 100 and 110. However, we all learned in measurement 101 that because there is no meaningful zero point on the scale (zero IQ), the ratio of two numbers is not valid. The same is true for multiple-choice, end-of-course examinations. In theory, a student could get none of the items correct on the final examination, but that by no means indicates a complete lack of subject knowledge. This can get a bit tricky, but we would be reasonably safe in saying that a number of the scales we encounter, such as student satisfaction measures, course examination measures, and the Likert scale devices, if carefully constructed and validated, might be treated as interval scales. However, almost never do their score ratios make sense. Interestingly, the ratios of many discrete categorical variables can make sense. If one student takes thirty online courses and another student takes fifteen blended courses during their studies, the ratio can be useful as long as the context is fully explained. For instance, the student who enrolled in the larger number of online courses may have been in a completely online program where that was the only course mode option.

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VARIABLE SCALES AND DECLASSIFICATION

Once you have made some decision about the variables of interest in your study, it is important to give consideration to the best way you can build a scale for it. If we consider the previous section on variables, it should be clear that higher scales carry the most information. But consider this:You can always convert a higher-level scale (in terms of measurement) to one below it, but you cannot go from a lower scale to a higher one. For instance, the University of Central Florida assesses success in courses by using grades as an outcome measure. Although we compute grade point averages, it has been argued in many places that the best information we can get from grades is a rank ordering. Now suppose we wanted to compare the success rates across face-to-face, online, and blended courses. One option is to simply look at the grade distributions for the whole university across those modalities for undergraduate students.The problem is that not only do we want to assess whether or not grades are impacted by course modality, but we also know that grades reflect many other aspects of course and department besides modality—philosophy, rigor, gatekeeping tendencies, and many other things. For example, look at the grade distribution in Table 6.5 for an online, blended, and face-to-face class.

The percentages of the five grades vary greatly across the classes, so that these distributions might well reflect many of the other class characteristics as well as the modality of the classes.The question becomes:Will declassifying the grades somehow help us portray the data in a useful way? Of course the distribution problem cannot be eliminated by this process, but it can be reduced within the context of these data. If the grade distributions are declassified so C or better is success and any grade below a C is a nonsuccess, the impact of the original grade distributions can be reduced. In this instance, the highest success levels are found in blended and online classes (97%, 92%), with the lowest rate in face-to-face (79%). The consequence of a procedure such as this is a loss of specificity. However, the gain comes from a reduction of grade variability impacted by a multitude of class characteristics that have little to do with course modality. In many instances, declassification can be helpful with complex data by providing simpler and more straightforward results that various groups and individuals can incorporate into their decision-making process. Often straightforward and direct approaches are the best ways to provide information.

PRESCREENING IS INVALUABLE

Before comparative, correlational, predictive, or significance tests are carried out, it is always a good idea to get to know the data by taking its vital signs, much as a

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Course Modality	*Grade*	*n*	*%*
Blended	A	67	59
	B	31	28
	C	11	10
	D	2	2
	F	1	1
Online	A	18	18
	B	55	55
	C	19	19
	D	7	7
	F	1	1
Face-to-face	A	10	9
	B	24	22
	C	52	48
	D	15	14
	F	8	7
% of C or higher grades			
Blended	97		
Online	92		
Face-to-face	79		

Table 5.5 • Grade Distributions in Blended and Online Courses by Number of Students (n) and Respective Percentages

doctor does with an incoming patient. For instance, in the case of nominal or ordinal data, it is a good idea to compute the frequency distributions.This gives the investigator a good indication of the data's accuracy, the distributional characteristics, and whether or not there are errors to be found. The grade distributions in **Table 5.5** gave the investigator a good sense of the grading characteristics of each class.This prescreening never fails to be helpful. Furthermore, for ordinal data it is informative to compute the median and semi-interquartile range for the data, giving the investigators an indication of the central tendency and variability in the data. For interval and ratio data, all students at the University of Central Florida are taught to compute the "moments" of their distributions—that is, the mean, standard deviation, skewness, and kurtosis for each variable under consideration.We cannot overestimate the importance

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and value of this prescreening procedure. Besides being the best way to find aberrant data, this process helps to identify outliers—those cases that may be so extreme that they will have an adverse impact on the generality of the results. In addition, there is simply no better way to understand the characteristics of your data set than by spending a bit of time carefully exploring and describing it. In the long run, this process will save time, costs, and resources that come from an erroneous finding. Understanding your data is critically important.

MAKING SENSE OUT OF STATISTICAL HYPOTHESIS TESTING

Russell (2001) popularized the use of statistical hypothesis tests to determine the effectiveness of online teaching and learning by publishing The No Significant Difference Phenomenon. In reviewing a large body of research studies, we find that educators implicitly accepted the notion that statistical hypothesis tests were a good indicator of online learning's success. Certainly this trend has continued over the past two decades—where researchers collect their data and apply a statistical test of some kind to determine if their results are "significant." However, the authors believe it is incumbent on the researcher to precisely understand what hypothesis is being tested when they run a procedure. Specifically, when a statistical hypothesis test is being conducted you are answering the following question: "What is the probability that I will observe the results in my sample if it is collected from a population in which the null hypothesis was true?" For each test that is completed there is a very specific hypothesis associated with the procedure. For instance, in reporting that there was a significant difference in final examination scores between an online and comparable face-to-face course at the .01 level of significance, we can say that we have reason to believe that that there was less than a .01 chance this could have come from the population where the null hypothesis is true.Therefore, we reject the null hypothesis. Modern computation has made making hypothesis decisions at the .05 and .01 levels simple, because virtually all analysis programs generate the complete sampling distribution for the test and give the investigator the exact probability that his or her sample came from a population where the null hypothesis was true.

However, the general research community working in the technology-mediated teaching and learning area has appeared to make two assumptions that are not true. The first is that a smaller p value indicates a more substantial difference and that statistical and practical significance are synonymous. Unfortunately, neither one of these assumptions is correct. A smaller p value simply indicates there is less chance that your sample came from a population in which the null hypothesis was true. This

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is an easy mistake to fall into, especially with computer programs able to give the exact probabilities, which in some cases are rounded to .000. Commonly, researchers run multiple tests and in one table report p values of .05, .01, and .001, tacitly implying that some of their correlations are more important than others. However, these p values speak only to the likelihood of the null hypothesis being true—in the case of correlations, that the value in the population is zero. When an investigator reports a significant correlation, the hypothesis test really has very little information about the strength of the relationship in the population. Therefore, it is entirely possible that a statistically significant correlation is of no practical value. William Hays very early and succinctly summarized the problem in this way:

> It is very easy for research psychologists, particularly young psychologists to become over concerned with statistical method. Sometimes the problem itself seems almost secondary to some elegant statistical method of data analysis. But overemphasizing the role of statistical significance in research is like confusing the paint brush with the painting. This form of statistical inference is a valuable tool in research but it is never the arbiter of good research.
>
> (1973, pp.385–386)

Therefore, the researcher would be well advised to spend a little time understanding precisely what hypothesis is being tested for each procedure that he/she completes and then deciding whether or not that hypothesis test answers the research question in which he/she is interested. As you will see in the next section of this chapter, there are alternatives to the null hypothesis that may be tested.

SOME OPTIONS FOR USING STATISTICAL HYPOTHESIS TESTING IN ONLINE AND BLENDED RESEARCH

The controversy over statistical hypothesis testing led the American Psychological Association (APA) to carefully review the entire process and recommend that investigators provide not only information about the statistical significance of their findings but additional information as well that would allow readers to assess the magnitude of the effect—the effect size recommendation (Orwin, 1983; Rosenthal, 1994; Fidler, 2010). Chapter 4 in this book on meta-analysis demonstrates the use of effect sizes in summarizing the results from several disparate studies.Various authors disagree about whether these effect sizes should be presented when the investigator reports that the null hypothesis is not rejected, but in general we

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recommend that investigators do it as a matter of course.This agrees with the APA position on effect size. Several resources for computing effect size can be found online. Further, the APA goes on to recommend that whenever possible, confidence intervals for that data should be presented as well.There are two reasons for doing this. First, the more information the researcher gives the reader, the better. Second, doing so will help with deciding what is or is not important in one context or another.

WHAT MAKES A SIGNIFICANT DIFFERENCE?

The No Significant Difference Phenomenon (Russell, 2001) made the case that, in most instances, comparing student outcomes by the nominal variable class modality only showed trivial differences. Russell (2001) pursued this question, tallying the number of "significant findings," while another group conducted meta-analyses based on effect sizes (Means, Toyama, Murphy, Bakia, & Jones, 2010). However, Walster and Cleary (1970) provided a thoughtful perspective on data analysis when they suggested that statistical significance is best used as the basis for a decision-making rule, and not as an absolute determinant.They reemphasized that hypothesis testing answers the following question: "What are the chances that I will get my sample results when the null hypothesis is true in the population?" These significant tests are a function of three things:

1. Significance level (e.g., .05, .01, or some other value)
2. Sample size
3. Some effect size or degree of non-nullity as a mean difference. Usually, in the statistical literature, this difference is signified as delta (Δ).

Historically, the way most researchers conduct experimental and comparison studies is to arbitrarily pick a significance level, get the largest sample size obtainable, and run the study.The consequence of conducting studies in this way is that by arbitrarily picking a significance level and sample size, the difference that will be significant is predetermined. And certainly very large sample sizes cause rejection of the null hypothesis, even if the difference is trivial.

The point is that the analysis is much more meaningful if some thought and decision making go into the process prior to collecting and running any data. If the researcher can specify Δ , a difference that is of no interest or will not make a practical difference in his or her judgment, then the lower bound for the process has been established. Similarly, identification of Δ a difference that will make a practical difference, causes

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the hypothesis testing procedure to take on a completely different perspective. This involves three steps:

1. Identify Δ first—this is not important to me.
2. Identify Δ —this is important to me.
3. Pick a significance level you can live with—.05, .01, or something else.
4. Pick a sample size that will catch Δ but not Δ .There are a number of resources available to help the researcher accomplish this (Murphy, Myors, & Wolach, 2008; Cohen, 2013; Liu, 2013; Kraemer & Thiemann, 1987; Aberson, 2010).

There are programs that require that the investigator provide this prior information, to protect him or her from calling a trivial difference significant and to provide the best opportunity for finding a difference that will be important in his/her judgment. However, this decision-making process cannot be accomplished by collecting data and automatically running it through an analysis program.Waiting for the program to tell you whether or not your results are significant does not optimize the potential information in your study. We need to provide careful reflection on the process and take full responsibility for our decisions. Statistical tests are a resource, not the final result. In the final analysis, any procedure will produce value if it can provide useful information to those trying to understand the impact of online and blended learning.

In concluding this chapter, we leave the reader with a set of principles that have served the authors well for many years.

1. When you have a choice, simple is really much more effective.
2. Effective progress is better made in small steps.
3. Statistical analysis is wonderful, but it is not everything.
4. High quality educational design makes a big difference.
5. Just because you can doesn't necessarily mean you should run a particular analysis.
6. If you get too sophisticated, people won't know what you are talking about—make your analysis relevant to your audience.

We have attempted to provide a thought experiment about how to approach analyzing data that you collect for determining impact and effectiveness of online and blended learning.To be clear, this is not an easy task and one that is evolving as we work on this book.The best we can hope for is to provide insights from many years of collective experience—and there is no substitute for experience. We are fond of a quote from C.S. Lewis: "Experience: that most brutal of teachers. But you learn, my God do you

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learn" (n.d.). However, that is not to say that you cannot do an effective job of data analysis without extensive experience—it just takes a bit of care. We recommend that you start by doing a realistic self-assessment of where you might be on the data analysis continuum. Then, work hard to identify the important variables in your study and how you will scale them. Once you have collected your data, spend whatever time you need to understand and describe it effectively. Should you plan to test statistical hypotheses, make sure that you thoroughly understand what is being tested. If you follow these simple steps you will be well on your way.

CHAPTER

6

SCALING BLENDED LEARNING EVALUATION BEYOND THE UNIVERSITY

This chapter is excerpted from

Blended Learning Research Perspectives, Volume 2

Edited by Anthony G. PIcciano, Charles D. Dziuban and Charles R. Graham

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Patsy D. Moskal and Thomas B. Cavanagh

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Imagine that you are one of the 58% of college students who fail to complete your bachelor's degree by age 26. Among low-income students, the bachelor's completion rate is just 26% (About Next Generation Learning, 2012). Perhaps you actually are in one of these groups. If so, you understand the unique challenges facing higher education today. The need to work, to care for families, to adhere to dictated schedules all compete for limited time and resources, forcing many students out of the educational pipeline, even if they have already accumulated a number of credits. Yet, educational access remains as important as ever for breaking the cycle of poverty (Bailey & Dynarski, 2011; Engle, Yeado, Brusi, & Cruz, 2012; Lee, Edwards, Menson, & Rawls, 2011; Schneider & Yin, 2012; Tavernise, 2012). "In 2008, the average wage for adults 25 and older with a four year degree was $60,954, compared to $33,618 for those with only a high school diploma and $24,686 for those with no high school diploma" (About Next Generation Learning, 2012). But how can higher education meet the public's need for educational access in such an environment of increasing work/life demands?

This is precisely the question at the center of the Next Generation Learning Challenges (NGLC) program, "a collaborative, multi-year initiative created to address the barriers to educational innovation and tap the potential of technology to dramatically improve college readiness and completion in the United States" (About Next Generation Learning, 2012). NGLC is led by EDUCAUSE in partnership with the League for Innovation in the Community College, the International Association for K–12 Online Learning (iNACOL), and the Council of Chief State School Officers (CCSSO), with funding provided by the Bill and Melinda Gates Foundation and the William and Flora Hewlett Foundation. The NGLC program consists of several "waves" of project funding, each with a slightly different focus.

In Wave 1 of the program, NGLC solicited proposals in four challenge areas designed to scale proven models to much wider student populations: Blended Learning, Open Educational Resources (OER), Learner Analytics, and Deeper Learning and Engagement. Only 29 Wave 1 projects were funded out of over 600 submissions. One of the Blended Learning projects was a collaboration between the University of Central Florida (UCF) and the American Association of State Colleges and Universities (AASCU) called "Expanding Blended Learning Through Tools and Campus Programs."

PROJECT BACKGROUND

Blended courses (also known as hybrid or mixed-mode courses), where a portion of the traditional face-to-face instruction is replaced by web-based online learning, have

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proven to be among the most popular choices for students at institutions where they are offered. At first glance, this popularity seems intuitive because blended courses allow students and faculty to take advantage of much of the flexibility and convenience of an online course while retaining the benefits of the face-to-face classroom experience.

Blended learning is conceptualized and implemented in various ways by different universities (Mayadas & Picciano, 2007; Norberg, Dziuban, & Moskal, 2011; Graham, 2006). Where blended courses have succeeded, they have most often done so when strategically aligned with an institution's mission and goals (Moskal, Dziuban, & Hartman, 2013; Graham, Woodfield, & Harrison, 2013). The development and delivery of blended courses can be used to address a variety of institutional, faculty, and student needs. For universities, blended courses can be part of a strategy to compensate for limited classroom space, as well as a way to think differently about encouraging faculty collaboration. For faculty, blended courses can be a method to infuse new engagement opportunities into established courses or, for some, provide a transitional opportunity between fully face-to-face and fully online instruction. For students, blended courses offer the conveniences of online learning combined with the social and instructional interactions that may not lend themselves to online delivery (e.g., lab sections or proctored assessments). If an institution's blended learning strategy can be designed to address the needs and dynamics of all three constituencies (institution, faculty, and student) simultaneously, then blended learning can become a powerful force for institutional transformation (Moskal *et al.*, 2013).

The U.S. Department of Education, in a meta-analysis of online research, reported that students in online courses performed modestly better, on average, than those in face-to-face courses, with blended students performing the best (Means, Toyama, Murphy, Bakia, & Jones, 2010). Not only do students perform better in blended courses, but the electronic resources inherent in the modality offer other advantages as well. For example, student performance analytics (another NGLC focus area) can be used to study and better understand student learning. Data analytics can also identify students who need early intervention, thus increasing retention (Dziuban, Moskal, Cavanagh, & Watts, 2012). The online tools available in blended courses can also significantly enhance student engagement, ensuring that all students participate in course discussions and benefit from collaborative learning.

Pioneering the modality since 1997, the University of Central Florida (UCF) has been an internationally recognized leader in blended learning. Since beginning this

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initiative, UCF blended course sections and course offerings have increased nearly 500% (Table 6.1).

Blended learning	*2010–2011 academic year*	*Totals since 2002*
Sections	777	5,808
Registrations	31,081	191,941
Student credit hours (SCH)	91,432	568,255

Table 6.1 • UCF's Blended Learning Growth

PROJECT DESIGN

In order to achieve the NGLC stated goal of scale, UCF partnered with the American Association of State Colleges and Universities (AASCU) to disseminate UCF's successful blended initiative broadly across 20 AASCU member institutions (Table 6.2). AASCU consists of more than 420 public colleges and universities, representing six different Carnegie classifications and enrolling more than 3.8 million students (56% of the enrollment at all public four-year institutions). AASCU schools educate 55% of all minority students in public four-year institutions. A substantial portion of students at AASCU member institutions are the first in their families to attend college, and many are Pell grant recipients. Between 30% and 40% of all students admitted to AASCU member institutions require some form of remediation. AASCU also has strong ties to community colleges; half of all students who graduate from AASCU member institutions began their academic careers at community colleges (American Association of State Colleges and Universities, 2012).

The UCF/AASCU project expanded adoption of blended learning to 20 participating AASCU member institutions by developing and disseminating a "Blended Learning Toolkit" based upon the proven best practices that have been successfully implemented by the University of Central Florida. Included in this toolkit were strategies for blended course design and delivery, OER blended course models in Composition and Algebra, assessment and data collection protocols, and "train-the-trainer" materials and workshops. AASCU recruited the 20 collaborating institutions and leveraged their networks and conferences to work with these institutions on blended learning implementation, while at the same time making the toolkit and course models widely available to its entire 420 member institutions and systems.

Table 6.2 • Participating AASCU Member Institutions (Individual and Statewide Systems)

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Individual institutions	*State coordinating institutions*	*State participating institutions*
Columbia State University	**Missouri**	• Harris-Stowe State University
Fayetteville State University		• Lincoln University of Missouri
Grambling State University	Southeast Missouri State University	• Missouri Southern State University
Northwestern State University (LA)		• Missouri State University
Indiana University Kokomo		• University of Missouri-St. Louis
Texas A&M University-Corpus Christi	**Alabama**	• University of North Alabama
The College at Brockport, State University of New York	Troy University	• University of South Alabama
Thomas Edison State College	**Minnesota**	• St. Cloud State University
University of Maine at Fort Kent	Winona State University	

Each of 20 partner institutions deployed one or more courses (either directly using the Composition and Algebra templates or building other high-need courses by using the strategies and resources contained in the Toolkit). These 20 institutions enroll over 250,000 students, including 33% low-income and 75% 25 years old or under, key demographics for the NGLC project.

The project connected the 20 participating AASCU institutions to a community of practice dedicated to curricular reinvention through technology. Faculty in these institutions worked with each other and with expert UCF faculty and staff to redesign the provided Composition and Algebra courses. UCF's team of faculty, assessment, and blended learning experts worked with their peers at the participating institutions to create a "bottom up" buy-in of blended learning, using the toolkit and model courses to jump start adoption and rigorous assessment to prove efficacy. At the same time, AASCU's unique position of influence among its network of members allowed the project team to help their participating institutional presidents and provosts understand the strategic value of blended learning, leveraging UCF's positive student learning outcomes and ROI as context.

The project consisted of the following elements:

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- An open educational resource (OER) Blended Learning Toolkit containing:
    - Best practices, strategies, models, and course design principles.
    - Two OER prototype blended course templates in key core general education disciplines: Composition and Algebra.
    - Directions and suggestions for applying the toolkit resources to create original blended courses other than Composition and Algebra.
    - Train-the-trainer materials for development and delivery of the prototype open courses, as well as a 5-week massive open online course on general blended learning design and delivery.
    - Assessment and data collection protocols for all participating institutions, including survey instruments and standards.
    - Virtual and in-person workshops for participating institutions and others within the AASCU membership.
- Institutional support through a variety of existing AASCU meetings and conferences (such as separate semi-annual meetings for presidents and provosts; an annual leadership institute and academic leadership series webinars), which aligned AASCU's ongoing activities in technology and educational transformation with NGLC's goals.
- 217 new blended course sections (funded) across 20 project institutions nationwide.
- Targeted low-income students under age 26 (with the total population across the participating institutions being 187,500).

The Blended Learning Toolkit was made available via a public website (www.blendedlearningtoolkit.org) and covered by a Creative Commons licensing agreement (Attribution Non-Commercial Share-alike: BY NC SA). Included train-the-trainer materials provided faculty who delivered the blended courses specific instructions for effective deployment. Online webinars conducted by UCF staff and faculty supported the train-the-trainer materials through both the planning and delivery phases.

Also included in the package were protocols and a single entry point for ongoing data collection so that the project's wider impact and efficacy could be consistently evaluated over time. UCF has a long history of collecting and measuring data related to fully online and blended learning. The toolkit included survey instruments, collection protocols, definitions, etc., so that those institutions participating in the NGLC grant could collect their own data in a manner consistent with UCF's data reporting, allowing the team to assimilate project data from the field.

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The Blended Learning Toolkit, along with its requisite components of best practices, prototype courses, training materials, and assessment guidelines, was distributed to the 20 participating AASCU institutions, with ongoing support from UCF experts. There were two categories of institutional participation: those included as individual institutions and those who were part of statewide consortia, whose activities were coordinated by a single lead institution.

PROJECT EVALUATION

With the grant spanning 20 campuses, evaluation posed logistical hurdles. Ideally, the goal of any evaluation is to provide a valid mechanism for collecting meaningful data, providing results to constituents to help them better determine impact for continual improvement. The NGLC evaluation had two goals. The first was to provide resources and guidance to the 20 campus sites so that they would be enabled to continue evaluating their blended learning initiatives after the grant had passed. The second was to conduct the grant evaluation and determine the successes and challenges of implementing the grant objectives.

Careful planning and coordination were necessary to deal with the logistics of requesting and obtaining student data from 20 different schools and thousands of dispersed students. GroupSpaces (www.groupspaces.com) provided a means to communicate with the various contacts at each campus. As participating faculty, administrators, or assessment personnel registered, they were asked to designate themselves as faculty—math, English, or other subject; primary point of contact for their campus; or assessment point of contact for the grant. In some cases, one person served in all three capacities and was the faculty member teaching the courses, as well as the assessment and primary point of contact. In other cases, the assessment person was a contact within the university's Institutional Research office and was savvy in data collection and format, and the primary contact may have been a high-level administrator. For evaluation purposes, the assessment point of contact served as the go-to person regarding any evaluation data required and this person dispersed evaluation information and requests to their campus faculty and/or institutional research staff.

Just as UCF's award-winning program (Center for Distributed Learning Awards, 2012) became the blended learning model for the grant, UCF's Distributed Learning Impact Evaluation became the model for how to evaluate this project. UCF has designed their campus evaluation to inform campus stakeholders with meaningful results. Over time,

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components of this model have been scaled from the classroom, to program, college, and institution. The NGLC grant provided an opportunity to determine which components could scale beyond the university to 20 remote sites and also provide the opportunity to identify issues related to the challenge of this large evaluation project. Because of the complexity of gathering data from many distributed sites, the design was simplified to encompass the data elements seen in Table 6.3.

Target outcome	*Index*	*Measure*	*How collected*	*Data analysis*
Scale	Degree to which the model has been scaled and plans for continuation and expansion	Number of students, faculty, courses, and unique sections participating	Participants' institution data	Tabulation of each from course and student data provided by participating institutions
Success	Grade of A, B, C	Class roster of each blended class with all identification removed	Participants' institution data	Compute success proportion and variability overall and by low income
Withdrawal	Non-medical withdrawal	Same grade roster with withdrawals indicated	Participants' institution data	Compute withdrawal proportion and variability overall and by low income
Student Evaluation of Instruction (SEI)	Students' evaluation of their blended learning experience	UCF questionnaire developed and validated by UCF	UCF online	Tabulation and analysis of questionnaire response Content analysis of free responses
Faculty Evaluation of Instruction (FEI)	Faculty members' evaluation of their blended teaching experience	UCF questionnaire developed and validated	UCF online	Tabulation and analysis of questionnaire responses Content analysis of free responses

Table 6.3 • Evaluation Design for UCF/AASCU's NGLC Project

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UCF's Institutional Review Board (IRB) analysis of the grant research found the project to be "exempt" from human subjects review. This approval for the project was provided to each of the 20 campus assessment contacts to assist them in gathering approval for participation on each of their campuses. UCF researchers provided assistance as needed throughout the IRB process, answering questions and providing input when required. A spreadsheet format was provided to each assessment contact to standardize the format of student data across the different participants. This institutional grade dataset included university/campus identifier, course prefix, number, section, teacher name, student age, gender, ethnicity, Pell status, and final course grade. The schools' student data were to be aggregated into the grant data file for analyses. Individual campuses were not identified in any analyses, and student identification was not provided in any dataset. The goal was to provide the campus contacts with the materials they needed to expedite and simplify their IRB process.

To ensure the evaluation was as straightforward as possible for participants, student and faculty surveys were developed and coded in Google Forms by UCF researchers. Faculty at each participating campus then received a request and reminders with the survey URL during the administration period near the end of the Fall and Spring semesters to encourage their students to participate. Using online surveys allowed UCF to maintain control over the survey data and also served to minimize the imposition on faculty. Faculty only had to advertise the survey within their blended courses. Data collected through Google Forms was maintained and analyzed by UCF. Requests to faculty to complete the faculty survey were made approximately 2 weeks after the student survey so as to minimize confusion. The UCF grant assessment coordinator was the point person for any questions faculty had regarding survey administration or problems they or their students posed.

Student grade data were de-identified and students' surveys were anonymous. Therefore, no comparisons could be made by grade and satisfaction. This was a conscious decision on the part of the UCF evaluation staff. Having anonymous student data ensured that UCF's IRB classified the research as "exempt" from human subjects review. This made the process significantly easier for those responsible for assessment at the 20 participating schools in terms of their obtaining IRB approval and handling student data. Even with this designation, several campuses required more information and were initially hesitant to release student data due to FERPA (Family Educational Right and Privacy Act) protection. These requests had to be handled individually by UCF's grant assessment coordinator, who provided the necessary details to meet individual campuses' requirements for human

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subjects review. Having student private identification would have greatly complicated this process, and would have hampered our ability to accomplish the evaluation in the aggressive 15-month grant time period. The result was losing a possible comparison between grades and satisfaction, but gaining quick access to the quality and quantity of data that we were able to obtain. In our experience, this was a necessary sacrifice.

FINDINGS AND RESULTS

As the main focus of the grant was to scale blended learning beyond UCF, the number of course sections was a critical measure of the evaluation. Because the course identification was provided for student data, this allowed us to keep track of the number of unique course sections developed for each campus.

Course demographics allowed us to track the sections by discipline (English, math, other) and monitor enrollments for each. In addition, Pell status provided those details for low income students. One of the grant requirements was to provide summary data as needed to the external evaluators of the grant, SRI International. Overall enrollment figures, and number of unique sections, faculty and total course sections were computed and submitted each quarter in a provided spreadsheet.

SCALING BLENDED LEARNING

The primary directive for the grant was to investigate whether blended learning could be scaled to the 20 participating campuses. **Table 6.4** illustrates the breakdown of each campus, indexed by students, faculty, and course metrics. Over all 20 campuses, 79 unique blended courses were developed by 131 faculty who delivered 217 sections to 5,798 students. Blended learning was embraced by some more than others, due in part to the rapid ramp-up time required to commit and participate in the grant and no doubt the varying milieu of the campuses. This may have been the motivation for slightly more than half of the total sections (121 out of 217) being delivered in the grant's second semester (Spring), as it provided those faculty with an extra semester to design and develop the course before delivery.

Table 6.4 • Scale of Blended Learning: Students, Faculty, Unique and Total Sections Delivered by Institution

STUDENTS' EVALUATION OF INSTRUCTION

The student survey was administered in late Fall and Spring semesters, with faculty being sent reminders to advertise the survey to students. A follow-up reminder was

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Institution	*Students*	*Faculty*	*Unique courses*	*Total sections*
Columbus State University	93	5	4	5
Fayetteville State University	704	21	8	23
Grambling State University	361	6	4	11
Harris-Stowe State University	33	2	1	2
Indiana University Kokomo	76	2	2	2
Lincoln University Missouri	61	1	1	3
Missouri Southern State University	53	2	1	3
Missouri State University	108	5	1	5
Northwestern State University	49	4	2	4
Southeast Missouri State University	115	4	1	4
St. Cloud State University	1286	9	3	35
Texas A&M at Corpus Christi	230	9	6	20
The College at Brockport	203	6	5	8
Thomas Edison State College	15	3	4	4
Troy University	179	8	4	9
University of Maine, Ft. Kent	572	22	14	31
University of Missouri, Kansas City	39	2	2	2
University of Missouri, St. Louis	190	7	4	10
University of North Alabama	144	3	1	5
University of South Alabama	244	3	2	12
Winona State University	1043	7	9	19
TOTAL	**5798**	**131**	**79**	**217**

sent to faculty approximately 2 weeks later asking them to nudge their students once more to participate. A total of 1,349 students returned completed surveys. Computing response rates becomes problematic because of the remote nature of relying on faculty to announce the survey and the assumptions that all faculty did so and all students were able to access the survey successfully. However, given that there were 5,798 students in participating courses, the response rate for 1,349 of those completing a survey is a respectable 23%. Sixty percent of the respondents indicated that they took a blended math course, 34% English, and 11% other. Seventy percent of the students indicated that this was their first blended learning course.

Table 6.5 indicates students' satisfaction with blended learning, with 60% responding they were very satisfied or somewhat satisfied with the course. Twenty-five percent indicated they were neither satisfied nor dissatisfied, while only 16% expressed dissatisfaction with the new modality.

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Excerpted from *Blended Learning Research Perspectives, Volume 2*

Table 6.5 • Students' Satisfaction with Their Blended Course (n=1,315)

	Percent
Very dissatisfied	7
Somewhat dissatisfied	9
Neither dissatisfied nor satisfied	25
Somewhat satisfied	31
Very satisfied	29

Table 6.6 illustrates the top five reasons students indicated they liked the blended modality. Not surprisingly, the top attraction for those who responded to this open-ended question was the flexibility and convenience the blended format offers with

Table 6.6 • Top Five Things Students Like Most About Blended Learning (n=736)

	Percent
Time saving/convenient/flexible	43
Instructor (or other class characteristics)	16
Use of technology in learning (e.g., easier to get feedback, features of online assignments)	15
Easy methods of/and getting help	10
Able to review content/access material whenever	9

st, technology issues also topped the features liked least with 17% of respondents mentioning them. The instructor also appeared on both the most/ least liked lists with 17% reacting negatively to the faculty teaching the course. Students felt the

	Percent
Technology issues	17
Instructor/other class characteristics	17
Time-consuming/intensive	13
Less teaching time by instructor/less actual class time	13
Procrastination/time-management issues	9

n their willingness to take another fully online course. **Table 6.8** illustrates that more than half (58%) of students indicated they would probably or definitely take another

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blended learning course. Still, 20% of the respondents were negative, indicating they would probably or definitely not enroll in a blended course if they had a choice in the future. Twenty-two percent were unsure.

Table 6.8 • Students' Likelihood of Enrolling in a Future Blended Course (n=1,313)

FACULTY EVALUATION OF INSTRUCTION

Participating faculty were also asked to complete a survey indicating their

	Percent
Definitely not	11
Probably not	9
Not sure	22
Probably	24
Definitely	34

Faculty were very positive regarding their experience teaching in the blended format with 74% indicating they would definitely or probably teach this modality in the future if given a choice. Only 7% of those responding were negative and definitely or probably would not teach in the blended format again if they had a choice. Nineteen percent of respondents were not sure if they would teach in this format in the future (**Table 6.9**).

Table 6.9 • Faculty Preference to Teach a Future Blended Course (n=73)

When asked what they perceived as positive about teaching blended courses (**Table 6.10**), 42% of faculty who responded to this open-ended question indicated that they liked that it merged the best of both worlds, allowing for more materials available online and also helping their students access the course with anytime, anyplace instruction. Twenty-one percent of faculty mentioned that they felt they could give more time or individualized attention to their students and also that they had better interaction with their students in the blended format. Faculty felt that students were forced to become more independent (13%) and that they were able to spend more of the face-to-face class time on specific content (8%).

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	Percent
Definitely not	1
Probably not	6
Not sure	19
Probably	21
Definitely	53

Table 6.10 • Top Five Positive Aspects of Teaching a Blended Course (n=62)

Faculty also indicated what they viewed as challenges to teaching online (**Table 6.11**). Twenty-eight percent felt that it was not a good experience for students who lacked the necessary discipline or who needed significantly more face-to-face attention. They also saw that students who were deficient in computer skills had challenges that made learning course material more difficult (25%). Issues related to the technology cut into face-to-face time (18%). Some felt more disconnected (16%) as they faced the challenge of a changing role in teaching in the blended format. Others (16%) viewed the online assignments as less important.

Table 6.11 • Top Five Negative Aspects of Teaching a Blended Course (n=44)

	Percent
Best of both worlds/convenient/broader range of materials	42
Individualized/more attention to students	21
More and better interaction with students	21
Increases student independence	13
More face-to-face class time for specifics	8

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course. **Table 6.12** shows the percentage of students who completed blended courses and those who succeeded in the courses by non-low income and low-income.

Table 6.12 • Student Percent Completion and Success Rates by Income Level

Completion rates were 93% for both low income and non-low income students. However, success rates (A, B, or C) were slightly lower for low income students (61%)

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	Percent
Doesn't work for students lacking discipline/ needing more individual attention	28
Problems for students not computer savvy	25
Issues cut into face-to-face class time	18
Lessened importance of online assignments	16
Feel disconnected	16

than students who were not low-income (67%). These data will be provided to grant participants to give them a baseline for future research as their blended learning initiatives develop over time.

GRANT EVALUATION OUTCOMES

While the evaluation plan included a variety of measures such as student withdrawal, success, and perception, the primary determinants of success are the outcomes included in the original project proposal. These outcomes, as well as their final results, are summarized in Table 6.13. Overall, given the condensed time frame and hurdles involved with working with 20 geographically dispersed campuses, the primary objectives of the grant were successfully achieved.

	Enrollment	*Completion*	*Success*
Low income	2,669	93	61
Non low income	3,107	93	67
TOTAL	5,798	93	64

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Table 6.13 • Summary of Proposed Outcomes and Results

IMPACT BEYOND THE CORE GRANT ACTIVITIES

Outcome	*Result*
1. Build blended learning infrastructure 1a. Identify participating institutions and communicate requirements 1b. Develop Blended Learning Toolkit 1c. Package Composition and Algebra prototype courses 1d. Conduct train-the-trainer sessions	Outcome 1 and all sub-outcomes were completed on time as proposed
2. Increased access to education via blended learning for low-income, under 26 students 2a. Disseminate toolkit materials and prototype courses to participating institutions 2b. Implement courses across AASCU network 2c. Assess project success	Outcome 2 and all sub-outcomes were completed on time as proposed 217 new blended sections 5,798 total students impacted 2,587 low-income students
3. Increased student success and retention	Data were collected to support outcome 3 for a longer-term analysis

OnlineEdgeK12. com, "I didn't expect to find materials as thorough, clear, and practical as yours. And I certainly didn't expect them to be available to me at no cost."

We continue to get feedback and queries from campuses who participated, and many who were not part of the grant, but have heard about the Blended Learning Toolkit through various presentations or publications and would like more information. We more than exceeded the scale we had expected to achieve. UCF conducted a second version of the general blended learning faculty development MOOC in Fall 2012 to help with the demand for more resources regarding blended learning.

LESSONS LEARNED FROM SCALING THE EVALUATION

The scale of the evaluation provided us with several issues and lessons learned on conducting research of this scope. Overall, we feel our grant was a success. As the primary goal was to achieve scale of blended learning across 20 campuses, we exceeded the expected sections produced, and far exceeded the scope of students and faculty we expected. As with any grant, the evaluation was only one of the objectives of the grant. Given the parameters of funding, time, and personnel, we

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quickly realized the following issues impacted our evaluation:

RELYING ON THE KINDNESS OF STRANGERS

Careful thought was given to managing the interaction with personnel in the trenches of the 20 campus sites. We conducted a face-to-face meeting at the beginning of a grant, held at an AASCU summer meeting. However, the limited budget did not include funding to pay for the campus representatives to attend and so, while many did, some could not due to time or budget constraints. Gathering institutional data, as well as survey responses, meant that we had to rely on others to gather information (in the case of student grade and course data), or at the very least advertise surveys. Relying on others who are remote always generates unknown effects into the equation.

DIFFERING CONTEXTS

From the beginning, we were aware of the differences of each of the 20 unique campuses. While they were recruited by AASCU in part because they were positive about moving to blended learning (as well as their institutional percentages of targeted low-income students) we had to assume that faculty who were engaged were of varying experience and enthusiasm with regard to the shortened time frame in which they were asked to convert or design a blended course, and participate in an outside grant. We heard anecdotally from some who were excited to have the opportunity, but we have to assume that some were also ambivalent about the process. Campus support for technologyenhanced learning varied, course content varied, faculty varied, and even grading practices varied. Twenty differing campuses provided twenty different contexts into the mix.

LOCAL BUY-IN UNKNOWN

Each campus was recruited by AASCU as being interested in blended learning and being incentivized with a small budget to convert courses. However, within the year-long grant, there were numerous changes that occurred as is the nature of higher education. Faculty left, the planned course sections changed, courses did not achieve enough enrollment to be offered, grant contacts left, and even several provosts changed. Much happens in a year in the life of a university. Multiply that effect by 20 and we have to assume that some of those factors may conceivably have influenced the grant.

MINIMAL BUDGET AND TIME

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Contextually, we know the count of students, courses, and faculty, but we don't know the depth of change faculty experienced due to the training. It is possible that some dramatically changed their courses, while others may have minimally incorporated blended learning. Yet, the money and time limits of the grant did not allow for site visits or interviews, which may have provided valuable information as to exactly what transformations may have taken place, and given more insight as to how the differing contexts may have influenced the experiences of each of the participants.

NO MEASURE OF LEARNING OUTCOMES OR COMPARISON

While grades were used to measure success and completion, they are not necessarily a measure of learning. Certainly, grades lose reliability across varying faculty, disciplines, departments, and even campuses in the case of this grant. Collapsing the grades into success rates helps to mute this phenomenon, but they are at best an easy-to-measure substitute for gauging true learning. There was also no funding or time to compare the blended courses with their face-toface counterparts to determine whether improvement was made. Anecdotally, some of the participating schools indicated they were monitoring this comparison independent of the grant. UCF offered to help design these studies, if needed.

Key to the success of such a large-scale evaluation in a condensed time was the collaboration between UCF and AASCU, who recruited the schools in a very short time period and provided a mechanism to periodically meet with participants from the various campuses at their organized events. We were also aware of having to rely on staff at other universities and tried to be respectful of their time and experience with research. A conscious effort was made to ensure that any contact with participants was as easy and painless as possible. Automated surveys, spreadsheet templates, and a research design that was exempt from human subjects (IRB) review were critical to the evaluation success.

While we were pleased with the achievement of scale, we were disappointed to find that the success rates did not match UCF's success rates in blended courses. UCF's experience with blended learning has created a culture where success rates typically exceed those in face-to-face courses. We attribute this success to the institutional commitment that allowed for transformation to occur on our campus (Moskal *et al.*, 2013). Such transformation takes time and continual improvement to succeed and is far beyond the scope of a limited grant. However, we are hopeful that this grant allowed some campuses to investigate blended learning at their institutions and seed an innovation that will take root and eventually flourish. Upon further reflection, it

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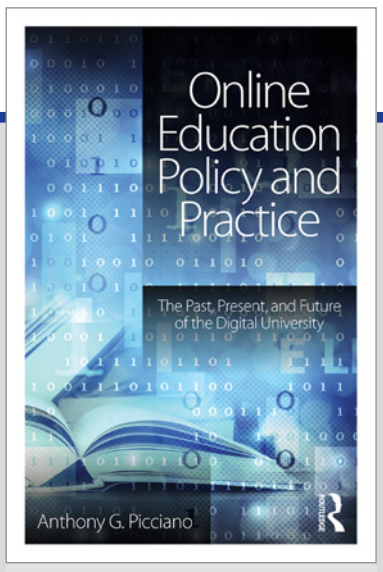
would be unrealistic to expect any of the partner institutions to achieve the same student success results as UCF, who has been growing and supporting blended learning on its own campus since 1997. With the experience gained through this project, as well as continuing access to the resources housed in the Blended Learning Toolkit, perhaps not only will the 20 grant partners, but also the many others who participated in a non-funded capacity, be able to effectively design and evaluate blended learning on their individual campuses on an ongoing basis, eventually both meeting and even exceeding UCF's historical results.

CHAPTER

7

THE SECOND WAVE

BLENDING INTO THE MAINSTREAM (EARLY 2000s)



This chapter is excerpted from

Online Education Policy and Practice The Past, Present, and Future of the Digital University

By Anthony G. Picciano

THE SECOND WAVE

BLENDING INTO THE MAINSTREAM (EARLY 2000s)

Excerpted from *Online Education Policy and Practice The Past, Present, and Future of the Digital University*

By the early 2000s, the majority of people in the United States were able to afford high-speed connectivity to the Internet using cable modems or digital subscriber lines (DSL). This enhanced connectivity opened up the possibility of incorporating multimedia (pictures, sound, video) into online learning development. Social media such as blogs, wikis, podcasts,YouTube, and Facebook also came on the scene, allowing for greater interaction. Faculty from around the world began sharing learning tools and objects in digital depositories such as Merlot. Perhaps the most important development of this second wave was that Internet technology was no longer seen solely as a vehicle for distance education providers but could be used in mainstream education in almost any class and for teaching any subject matter. Course/learning management systems were acquired by the vast majority of colleges and universities. It was estimated in 2003 that more than 80 percent of the universities and colleges in the United States were utilizing CMS/LMS (Harrington, Gordon, & Shibik, 2004). If these systems were not purchased, institutions contracted out for cloud-based CMS/LMS services. The predominant pedagogical model of this wave was blended learning, as faculty began to use online facilities to enhance their courses and to replace seat time in regular face-to-face courses. This was particularly true in the public and nonprofit private sectors. Courses were designed to take pedagogical advantage of the best of the fully online and face-to-face modalities. In the forprofit sector, fully online courses continued to dominate program offerings.

THREE SCENARIOS

SCENARIO ONE

J.S. taught an introduction to sociology course (three credits/three hours) at a large public urban university. He considered himself a good lecturer and tried to provide material that provoked questions on the part of the students. When he first started teaching this course in 1991, the average enrollment was about twenty students. By 2007, as the overall college enrollment increased while budgets stagnated, his section sizes grew to thirty-five to forty students. He was frequently frustrated because he would run out of class time and was not always able to answer all the students' questions. He sometimes curtailed the time he took to answer questions in order to cover the material for the day's lesson. He read about the idea of flipping or inverting a class, wherein more of his lecturing would be provided by videos and more class time would be devoted to discussions of the content. He met with an instructional designer and developed a series of short videos (twelve to fifteen minutes) on the key topics of his course. Rather than meeting for three hours, his classes were reduced to

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meeting for two hours in a traditional face-toface session, but students were required to have viewed one or more of his videos and read assigned material before class. His two hours of class time were devoted extensively to discussions of the video topics and answering student questions. He found he had much more control and could use his class time for more in-depth question and answer activities. Students were also able to view the videos multiple times if needed to improve understanding of the material.

SCENARIO TWO

D.G. is an associate professor at a small community college where she teaches chemistry. In 2005, she applied for and received a grant from her college's instructional technology initiative to develop an online course. Previously, she had used a learning management system to develop some online materials, including several simulations of chemical lab experiments. As part of her grant, she refined her online course materials and developed an entire course in organic chemistry. The most difficult part of her online course development was simulating complex experiments that normally were conducted in "wet" laboratories. To solve this problem, D.G. decided to use commercially available software to supplement her own "home-grown" simulations. D.G. offered the fully online organic chemistry course for two semesters, and while she was happy with the result, she also was conflicted: perhaps students would be better served by doing lab experiments in face-to-face situations. When the grant expired, she decided that she preferred to teach part of the course online and part (the lab component) face-to-face.

SCENARIO THREE

C.S., the program coordinator of a fully online masters of business administration (MBA) at a college specializing in adult and distance learning brought her full-time faculty together in 2003 to consider offering a variation of the program that would require students to meet face-to-face. Although the fully online MBA program was well enrolled and considered successful, evaluations of the program indicated that students would like opportunities to meet with their coursemates. The faculty were well experienced in online learning but tended to agree with C.S.'s suggestion. A small committee was formed to work out the logistics and details. One year later a "blended" version of the online MBA program was offered in which students met once a month on Saturdays in face-to-face mode at the college. During the Saturday meetings, three hours in the morning were reserved for traditional face-to-face classroom instruction, and the rest of the day including lunch was reserved for group work, project presentations, and student socializing/bonding. The new "blended"

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program has been very successful, especially among students who live within a 150-mile radius of the college. While the enrollment in the fully online MBA program has decreased, the number of students in the blended program has more than made up for the loss. In fact, in a survey of new students, many of them would have enrolled in the fully online program but liked the idea of meeting face to face once a month.

These three scenarios represent different approaches to using online technology to supplement or replace some aspect of instruction. While very different in design, they all come under the common concept of blended learning. With the proliferation of CMS/LMSs, there was also a growing acceptance of the use of these tools for supplementing traditional classes, with no intention of replacing face-to-face time. Web-enhanced courses developed and grew at most institutions. Some of this development increased faculty "efficiency"—making it easier to share a syllabus or course readings while at the same time leading to greater faculty understanding of these systems. During this period, student enrolments in blended learning courses soared, but accurate data was impossible to collect mainly because a generally accepted definition of blended learning did not and still does not exist. It is safe to say that many millions of students were enrolled in courses that used online technology in one form or another.

BLENDED LEARNING DEFINITION

Given its multifaceted evolution, blended learning defies definition. There is not even agreement on the nomenclature. Terms used interchangeably include blended learning, hybrid learning, web-enhanced courses, mixed-mode learning, technology-mediated instruction, and flipped classes. At its core, blended learning is the practice of using both online and in-person learning experiences when teaching students. However, this definition is generally considered too simplistic and does not reflect the variety of blended learning approaches.

Blended learning comes in many different flavors, styles, and applications. It means different things to different people. The word "blended" implies a mixture more than a combination of components. When a picture is pasted above a paragraph of text, a presentation is created that may be more informative to the viewer or reader, but the picture and text remain intact and can be individually discerned. On the other hand, when two cans of different colored paints are mixed, the new paint will look different from either of the original colors.

In fact, if the paint is mixed well, neither of the original colors will continue to exist. Similar situations exist in blended learning. The mix can be a simple separation of part

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of a course into an online component. For instance, in a course that meets for three weekly contact hours, two hours might meet in a traditional classroom while the equivalent of one weekly hour is conducted online. The two modalities for this course are carefully separated, and although they may overlap, they can still be distinguished from one another. In other forms of blended courses and programs, the modalities are not so easily differentiated. Consider an online program that offers three online courses in a semester that all students are required to take. The courses meet for three consecutive five-week sessions. However, students do a collaborative fifteen-week project that overlaps the courses. The students are expected to maintain regular communication with one another through email and group discussion boards. They also are required to meet face-to-face once a month on Saturdays, where course materials from the online courses are further presented and discussed, and some sessions are devoted to group project work. These activities begin to blur the modalities in a new mixture or blend where the individual parts are not as discernable as they once were. Add to this the increasing popularity of integrating videoconferencing, podcasting, YouTube videos, wikis, blogs, and social media into class work, and the definition of blended learning becomes very fluid. In the broadest sense, blended learning can be defined or conceptualized as a wide variety of technology/media integrated with conventional, face-to-face classroom activities (see **Figure 7.1**). However, this conceptualization serves as a guideline and cannot be viewed as an absolute, limiting declaration. Also, while the term "blended learning" was developed to refer specifically to courses, it also can apply to entire academic programs.

In an article titled "Can Blended Learning Be Redeemed?" Oliver and Trigwell (2005) contended that the term "blended"—when associated with learning— should be abandoned or reconceived, especially as applied to research. They further stated that the multiple definitions in the literature were not at all helpful but rather quite confusing and redundant. They summarized the crux of their argument as follows:

> The term "blended learning" is ill-defined and inconsistently used. Whilst its popularity is increasing, its clarity is not. Under any current definition, it is either incoherent or redundant as a concept. Building a tradition of research around the term becomes an impossible project, since without a common conception of its meaning, there can be no coherent way of synthesizing the findings of the studies, let alone developing a consistent theoretical framework with which to interpret data.
>
> (Oliver & Trigwell, 2005, p. 24)

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In sum, a definition of blended learning was and continues to be elusive.

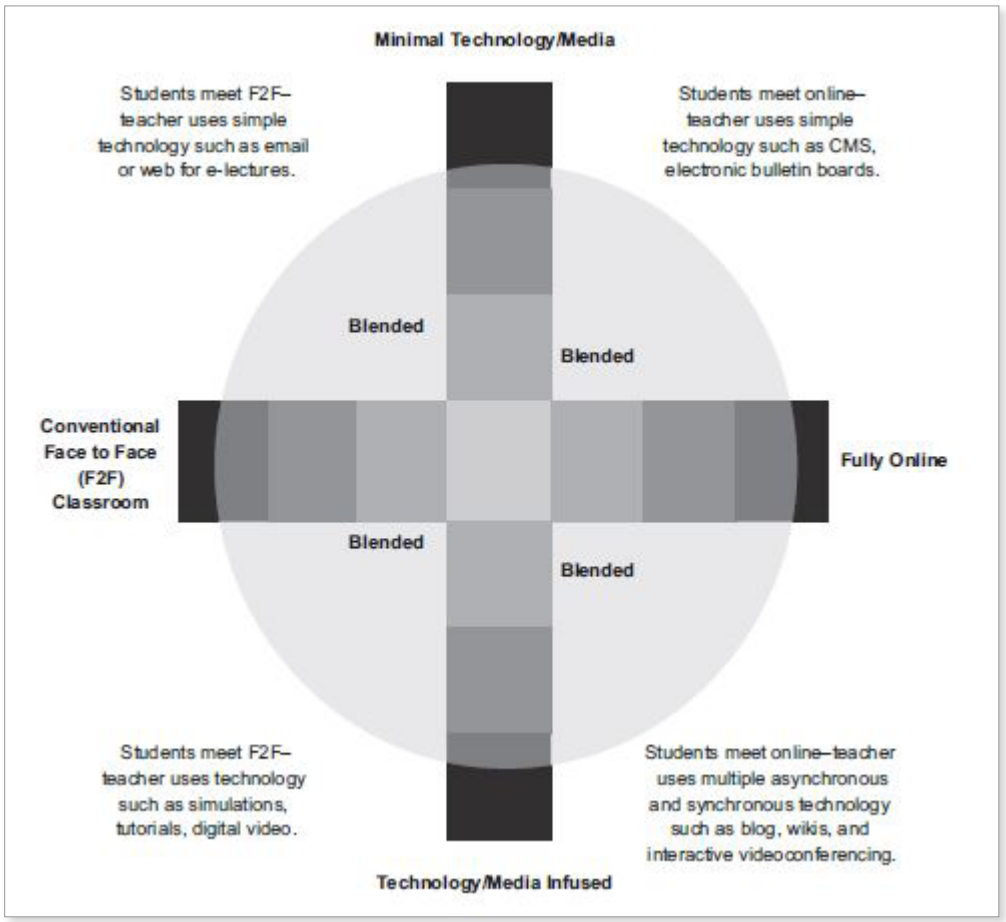

Figure 7.1 • Blended Learning Conceptualization
Source: Picciano, A.G. (2009). Blending with purpose: The multimodal model. *Journal of the Research Center for Educational Technology*, 5(1). Kent, OH: Kent State University

BLENDED LEARNING MODELS

Just as there has been little agreement on a definition for blended learning, there has also been little agreement on design models. In one review of blended learning models, Moskal, Dziuban and Hartman (2013) concluded:

> Blended learning models may be found in higher education (Kaur & Ahmed, 2005), industry (Executive Conversation, 2010), K–12 education (Keller, Ehman, & Bonk, 2004), the military

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> (Bonk, Olson, Wisher, & Orvis, 2002) and in many other sectors. There are formulations based on organizational infrastructures (Khan, 2001) that concern themselves with such things as development time, program combinations, cost factors, multiple locations and institutions, and landscape considerations. Learning environment approaches (Norberg, Dziuban, & Moskal, 2011) foster such issues as interaction, constructivism, communication, learning communities, learning enhancements, cognition and performance support, as well as synchronicity. Added value constructs (Graham, 2006) deal with elements such as enhancement, presence, access, reusability, transformation, replacement and process emphasis. Graham (2006) uses this approach to define enabling blends that increase access, enhancing blends that incrementally improve pedagogy, and transforming blends that create fundamental paradigm shifts. Mayadas and Picciano (2007) took the notion one step further coining the term "localness" as an amalgam of locations, courses, and course modalities (blended, online, face-to-face, and lecture capture) affording students the opportunity to avail themselves of comparable educational opportunities whether they are on campus, near campus or far from campus by blending those elements. All these approaches are definitional in some respects but differ in their emphasis. Most of them assert that blended learning offers potential for improving the manner in which we deal with content, social interaction, reflection, higher order thinking and problem solving, collaborative learning, and more authentic assessment.
>
> (Moskal et al., 2013, p. 16)

Among the models reviewed, it may be worthwhile to examine Graham's (2005) three categories of blending learning models, which he labeled:

- Enabling blends
- Enhancing blends
- Transforming blends

Enabling blends primarily focused on issues of access and convenience for students, for example, allowing students to take some of their coursework asynchronously and

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Excerpted from *Online Education Policy and Practice The Past, Present, and Future of the Digital University*

at times more accommodating to their work schedules or family obligations, with little changes to course materials or pedagogical approaches. Many of the early enabling blends focused on making course content available online. Enhancing blends provided for modest changes to course materials or pedagogical approaches but did not radically change the way teaching and learning occurs. In some of these cases, faculty and instructional designers supplemented existing course material used for traditional, face-to-face courses with online delivery of course materials and added pedagogical features, such as the use of discussion boards or blogs for student exchanges and collaborative activities. Transforming blends provided for a major change of the pedagogical approach and a redesign of course materials to take advantage of "the best of the both worlds" of online and face-to-face modalities. All aspects of course content as well as pedagogy approaches are reconsidered and redeveloped as needed. Multiple online features such as blogs, wikis, and media are considered. There is also an emphasis on providing students with the facilities to develop their own knowledge rather than simply receiving information from an instructor. To some degree, the three models represent a progression of blended learning models in terms of the extent of pedagogical redesign that go into a blended program. In the final analysis, Graham's categories of models appropriately found that blended learning was based on pedagogical approaches rather than on distance education, student access, or cost-beneficial considerations.

BLENDING WITH PEDAGOGICAL PURPOSE

Figure 7.2 depicts a model, Blending With Pedagogical Purpose, in which pedagogical objectives and activities drive the approaches that faculty use in designing blended learning courses. The model also suggests that blending objectives, activities, and approaches within multiple modalities might be most effective for and appeal to a wide range of students. This model typifies many of the design approaches that evolved during the second wave (Blending Into the Mainstream) of online education. It served as the focus and theme for a conference on blended learning hosted by the University of Illinois-Chicago in 2008. The model presents six basic pedagogical objectives/activities and approaches for achieving them. It is a given that other objectives can be added where appropriate. The most important feature of this model is that instructors need to carefully consider their objectives and understand how to apply the technologies and approaches that will work best for their students. A quick review of the objectives used in the model and their concomitant technology would be helpful in understanding the overall model.

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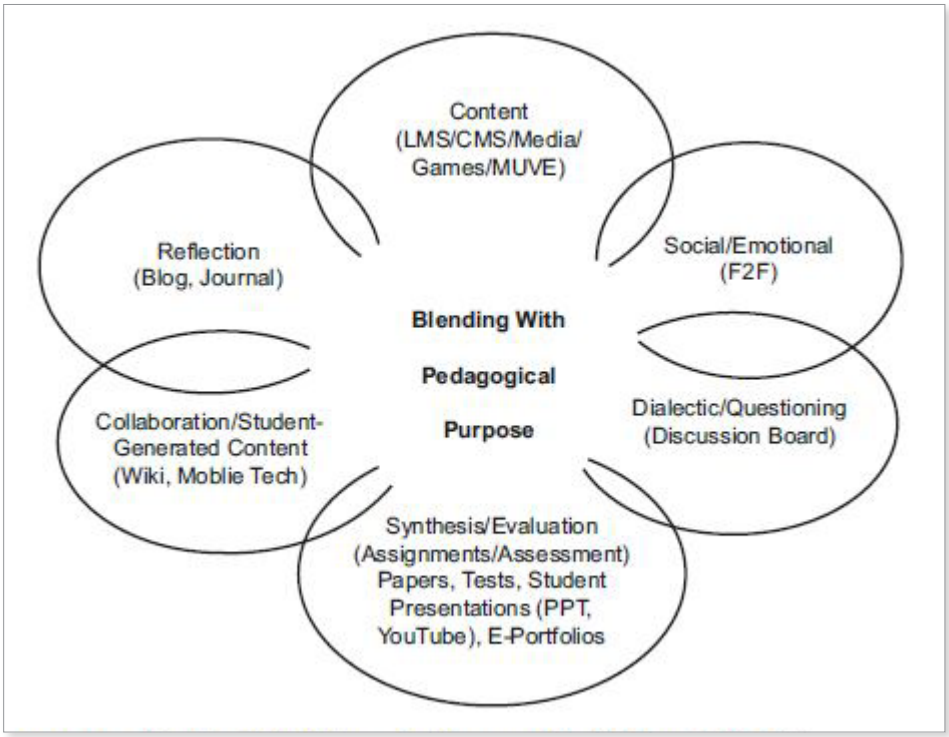

Figure 7.2 • Blending With Pedagogical Purpose (The Multimodal Model)
Source: Picciano, A.G. (2009). Blending with purpose: The multimodal model. *Journal of the Research Center for Educational Technology*, 5(1). Kent, OH: Kent State University.

Content is one of the primary drivers of instruction, and there are many ways in which content can be delivered and presented. While much of what is taught is delivered linguistically (teacher speaks—students listen; or teacher writes—students read), this does not have to be the case either in face-to-face or online environments. Certain subject areas such as science are highly dependent upon using visual simulations to demonstrate processes and systems. The humanities, especially art, history, and literature, can be greatly enhanced by rich digital images. Increasingly, course management systems such as Blackboard or Moodle provide basic content delivery mechanisms for blended learning. CMS software easily handles the delivery of a variety of media including text, video, and audio. Multiuser virtual environments (MUVEs) and gaming are also evolving and playing a larger role in providing instructional content. In providing and presenting content, the Blending with Pedagogical Purpose model suggests that multiple technologies and media be utilized.

The Blending with Pedagogical Purpose model posits that instruction is not always just about learning content or a skill but is also about supporting students socially

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and emotionally. Perhaps more readily recognized for younger K–12 students, social and emotional development is an important part of anyone's education. Faculty who have taught advanced graduate courses know that the students, even at this advanced level, frequently need someone with whom to speak, whether for understanding a complex concept or providing advice on career and professional opportunities. While fully online courses and programs have evolved to the point where faculty can provide some social and emotional support in blended courses and programs, this might best be provided in a face-to-face mode.

Dialectics or questioning is an important activity that allows faculty to probe what students know and to help refine their knowledge. The Socratic Method remains one of the major techniques used in instruction, and many successful teachers are proud of their ability to stimulate discussion by asking the "right" questions to help students think critically about a topic or issue. These questions serve to refine and narrow a discussion to very specific "points" or aspects of the topic at hand and are not meant to be open-ended "anybody can say anything at any time" activities. For dialectic and questioning activities, a simple-to-use threaded electronic discussion board is as or more effective than most other approaches. Research has continuously shown that asynchronous online discussion boards are the most prominent mechanism for supporting learning in an online environment (Rovai, 2007; Darabi, Liang, Suryavanshi, & Yurekli, 2013; Thomas, 2013). A well-organized discussion board activity generally seeks to present a topic or issue and have students respond to questions and provide their own perspectives while evaluating and responding to the opinions of others. The simple, direct visual of the "thread" also allows students to see how the entire discussion or lesson has evolved. In sum, for instructors wishing to focus attention and dialogue on a specific topic, the main vehicle has been and continues to be the electronic discussion board.

Incorporating reflection can be a powerful pedagogical strategy under the right circumstances. There is an extensive body of scholarship on the "reflective teacher" and the "reflective learner." While reflection can be a deeply personal activity, the ability to share one's reflections with others can be most beneficial. Pedagogical activities that require students to reflect on what they are learning and to share their reflections with their teachers and fellow students extend and enrich reflection. Blogs and blogging, whether as group exercises or as individual journaling activities, are evolving as appropriate tools for students to reflect on their learning and other aspects of course activities.

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Excerpted from *Online Education Policy and Practice The Past, Present, and Future of the Digital University*

The collaborative learning concept has been evolving for decades. In face-to-face classes, group work has grown in popularity and become commonplace in many courses. Many professional programs such as business administration, education, health science, and social work rely heavily on collaborative learning for group problem solving. In the past, the logistics and time needed for effective collaboration in face-to-face classes were sometimes problematic. However, email and other electronic communications alleviated some of these logistical problems. More recently, wikis have grown significantly in popularity and are becoming a staple in group projects and writing assignments. Furthermore, unlike group work, which typically ends up on the instructor's desk when delivered in paper form, wikis allow students to generate content that can be shared with others during and beyond the end of a semester. Papers and projects developed with wikis can pass seamlessly from one group to another and from one class to another.

Finally, perhaps the most important component of the Blending With Pedagogical Purpose model is synthesizing, evaluating, and assessing learning. CMS/ LMSs and other online tools provide a number of mechanisms for assisting in this area. Papers, tests, assignments, and portfolios are among the major methods used for assessing student learning and are increasingly being done electronically. Essays and term projects can pass back and forth between teacher and student without ever being printed on paper. Oral classroom presentations are giving way to YouTube videos and podcasts. The portfolio is evolving into an electronic multimedia presentation of images, video, and audio that goes far beyond the three-inch paper-filled binder. Weekly class discussions that take place on discussion boards or blogs provide the instructor with an electronic record that can be reviewed over and over again to examine how students have participated and progressed over time. They are also most helpful to instructors in assessing their own teaching and in reviewing what worked and what did not work in a class. In sum, online technology allows for a more seamless sharing of evaluation and assessment activities and provides an ongoing record that can be referred to over and over again by both students and teachers.

The six components of the model as described should blend together in an integrated manner that appears as seamless as possible for students. As mentioned earlier in this chapter, blending should be more a mixture of different colors of paint to create new colors or new learning environments rather than cutting and pasting visibly separate combinations of images, text, and other media or material. Furthermore, not every course must incorporate all of the activities and approaches of the model. The pedagogical objectives of a course should drive the activities and hence the

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approaches. For example, not every course needs to require students to do group work or rely on reflective activities. Finally, beyond examining individual courses, faculty and instructional designers should consider examining their entire academic program to determine which components of the model best fit which courses to cohesively serve overall programmatic goals and objectives.

THE EFFICACY OF BLENDED LEARNING

In 2007, the United States Department of Education (U.S. DOE) contracted with SRI International to conduct a meta-analysis of the effects of online learning on student achievement. Barbara Means led the project team of more than twenty individuals. The project was completed and a report prepared in 2009 and revised in 2010. As part of its work, the project team conducted a systematic search of the research literature published from 1996 through July 2008.

The overall finding of the meta-analysis was that classes with online learning (whether taught completely online or blended) on average produce stronger student learning outcomes than classes with solely face-to-face instruction. The mean effect size for all 50 contrasts was +0.20, $p < .001$ (U.S. DOE, p. 18). It is important to keep in mind that an effect size of +0.20 is considered small but is nonetheless positive. However, the researchers for the meta-analysis went a step further by separating the findings for fully online versus blended learning. To quote:

> The conceptual framework for this study, which distinguishes between purely online and blended forms of instruction, calls for creating subsets of the effect estimates to address two more nuanced research questions:
>
> 1. *How does the effectiveness of online learning compare with that of face-to-face instruction?*
>
> Looking only at the 27 Category 1 effects that compared a purely online condition with face-to-face instruction, analysts found a mean effect of +0.05, $p = .46$.
>
> This finding is similar to that of previous summaries of distance learning (generally from pre-Internet studies), in finding that instruction conducted entirely online is as effective as classroom instruction but no better.

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2. *Does supplementing face-to-face instruction with online instruction enhance learning?*

> For the 23 Category 2 contrasts that compared blended conditions of online plus face-to-face learning with face-to-face instruction alone, the mean effect size of +0.35 was significant ($p < .0001$). Blends of online and face-to-face instruction, on average, had stronger learning outcomes than did face-to-face instruction alone.
>
> A test of the difference between Category 1 and Category 2 studies found that the mean effect size was larger for contrasts pitting blended learning against face-to-face instruction ($g+ = +0.35$) than for those of purely online versus face-to-face instruction ($g+ = +0.05$); the difference between the two subsets of studies was statistically significant ($Q = 8.37$, $p < .01$).
>
> (U.S. DOE, p.12)

This study was one of the first well-financed, large-scale research projects to examine the efficacy of face-to-face, fully online, and blended learning. Its conclusion, that the effect size comparing blended learning and face-to-face instruction is much stronger, at +0.35, gave significant credibility to the blended learning movement in higher education. Its general acceptance supported the insights of many faculty using blended learning techniques. However, there was one small caveat in the findings. The researchers commented later in the study that some of the difference in the effects of blended learning might be attributed to more time on task than in fully-online or face-to-face instruction. This too resonated with faculty and instructional designers working in blended learning environments. In many cases, the blended course designs did require more time for participation on the part of both teachers and students. This has not been studied carefully, but there is probably some truth to the speculation that faculty and instructional designers were adding additional components to blended courses that resulted in more time on instructional tasks.

Before concluding this section, it might also be appropriate to comment on research that compares modalities of learning. The U.S. DOE report recognized the important work of Richard Clark (1983, 1985, 1989), who proposed in 1983 that technology, or any medium, was basically a vehicle carrying an instructional substance and that real improvement in achievement only comes with improving the substance, not the vehicle. Unlike Marshall McLuhan's thesis that the "medium is the message," Clark

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posited that in education the message or content is what matters. Clark's position has been challenged over the years by a number of researchers such as Robert Kozma (1991, 1994a, 1994b) and Jack Koumi (1994), who see the medium as integral to the delivery of instruction. The two differing opinions on this issue remain to this day, and the "great debate" continues. As an indication of the ongoing nature and importance of this debate, a search of "Clark vs. Kozma" on Google provides over a million URLs, many of which refer to websites and blogs created in the past several years. Anyone interested in the effects of technology on learning would be well served by reading and rereading the cited articles by Clark, Kozma, and Koumi. Most recently, the tide seems to be shifting against Clark, mainly because his position was developed during the 1980s and '90s, when instructional technology was much less sophisticated than it is today.

ONLINE EDUCATION SPURS POLICY AND REGULATION ISSUES!

As online and blended learning became more prevalent at the beginning of the 21st century, policy considerations came to the fore. Higher education policy can evolve in many different ways, mainly because no single agency in the United States has complete jurisdiction. Two major policy developments that evolved in the early 2000s focused on accreditation and providing greater access to online education.

ACCREDITATION

The main purpose of accreditation is to ensure and improve the quality of higher education. In addition to quality assurance, Judith Eaton (2012), president of the Council of Higher Education Accreditation (CHEA), identifies three main functions of accreditation as:

1. Enable students to transfer credits from one institution to another.
2. Provide access to federal and state funding.
3. Engender private sector confidence.

How well the accreditation system in the United States has fulfilled its purpose is the subject of a good deal of debate, with some supporting the current processes that are independent of government or political influences while others believe the processes are broken and require more governmental oversight and involvement. The issues are complex and require lengthy examination beyond the scope of this chapter. Readers are encouraged to review these issues as presented by Paul Gaston (2014) in Higher Education Accreditation: How it is Changing, Why it Must.

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Excerpted from *Online Education Policy and Practice The Past, Present, and Future of the Digital University*

Unlike most other countries where the accreditation of higher education is conducted by a governmental agency, in the United States it is conducted by several independent accrediting bodies. First, regional accreditation agencies accredit all degree-granting public and most nonprofit private institutions and some forprofit private institutions. Second, there are specialized accreditation organizations that accredit programs in specific disciplines, usually in professional areas such as health and nursing. Third, there are national accrediting organizations that accredit institutions and programs that are primarily career oriented. These tend to be mostly small, for-profit colleges. The vast majority of accrediting agencies are recognized by the Council of Higher Education Accreditation (CHEA) and the U.S. Department of Education. As online education entered the 21st century, a number of new issues related to academic quality arose for these accrediting bodies.

Judith Eaton, in an article in 2000 directed at "presidents, chancellors, other college and university administrators, and trustees," called on administrators to become informed on quality issues related to distance learning. She defined distance learning as, "online teaching and learning, as well as academic support and student support services that are electronically delivered" (Eaton, 2000). In the article, she went on to state:

> In the fluid and sometimes volatile environment created by distance learning, we at the Council for Higher Education Accreditation (CHEA)—the national coordinating body for national, regional, and specialized accreditation— struggle to bring some order to the avalanche of information about both distance learning and quality assurance.
>
> (Eaton, 2000)

Eaton was highlighting concerns that evolved as a result of significant enrollment increases in online education at the same time that policymakers and others questioned their academic quality. The major American accreditation organizations started adopting standards for online education programs that closely mirrored those established for traditional face-to-face programs; however, there were concerns that these standards were not accomplishing their purpose.

First, accreditation standards had been developed with the assumption that instruction was centered within a physical entity identified as a classroom in which a group of students and a teacher met for so many hours per week in a place called a college. Online learning and virtual environments did not operate in physical places

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or at specific times but in the electronic world of the Internet and World Wide Web. Basic questions arose such as:

- How do hours spent in online activities equate to time normally spent in a physical classroom?
- How does a professor know who is responding to a question on a discussion board?
- How often do students need to respond online to participate effectively or in a sense be "present" for online course activities?

These questions did not have simple answers and served to require policy makers including accreditation bodies to explore venues for agreement among the various stakeholders.

Second was the issue of whether academic program goals and objectives were being adequately met in online education environments and student outcomes were being properly assessed. The meta-analysis commissioned by the U.S. Department of Education and conducted by Barbara Means et al. in 2010, cited earlier in this chapter, supported the premise that learning experiences in online environments were comparable to those in face-to-face classes. This study, however, was conducted ten years after Eaton's comments. In the early 2000s, it was recognized that online learning presented challenges to doing proper assessment of student outcomes while also providing new opportunities. For example, testing and other forms of summative evaluations frequently used to assess student learning were problematic in an online mode. As a result, many online education providers established policies that written tests be conducted in proctored, faceto-face environments to ensure the identities of the students taking the tests. On the other hand, it was becoming apparent to those who taught online that the electronic medium also provided opportunities for enhancing and extending assessment activities. Online education environments that relied on programmed or self-paced instruction generally had built-in assessment of student mastery. A complete record of student progress including ongoing formative testing was a common element of this type of instruction and could meet the needs of many assessment programs. Even in more highly interactive, asynchronous online models where students were expected to communicate ideas, comments, and responses to questions via written electronic bulletin boards, instructors had a complete record of student participation in class activities. Instructors could integrate assessment into electronic group discussions that resulted in a complete record of the activity. Most of the popular

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course management software systems used in online learning allowed for the entire course to be archived. An instructor could simply add comments on his assessment of the students and create a complete record for future reference. This was not possible in most face-to-face class situations unless videotaping, audiotaping, or some other form of recording technique were used. In sum, online education environments posed challenges but also provided opportunities for doing assessment of student outcomes in new ways. The approach faculty and administrators were taking was to provide multiple means for doing assessment of learning in online mode while not necessarily changing the goals and objectives of their academic programs because of the different delivery formats.

Third, perhaps the most significant issue for policy makers concerned with the accreditation and program quality of online education was the increasing number of providers, some of questionable quality. David Noble, mentioned in Chapter Five, popularized the term "digital diploma mill" to characterize the less-thanscrupulous online education providers that essentially provided online degrees with minimum or no academic requirements. While no one questions that such institutions should be closed down for their fraudulent operations, they caused problems for legitimate online education providers who needed to accredit their programs. For example, Athabasca University, a well-respected, publicly supported Canadian open university with physical campuses in Athabasca, Edmonton, and Calgary, Alberta, enrolled online students from around the world. It sought and received accreditation in the United States from the Middle States Association of Colleges and Schools in order to establish its legitimacy, to increase its appeal to American students, and to distance itself from the diploma mills. However, many unscrupulous distance education providers sought to avoid the accreditation process altogether. A whole industry of "fake accreditation agencies" evolved that catered specifically to granting accreditation to online diploma mills. By the end of the decade, a consumer group, GetEducation.com, listed more than sixty unrecognized or "fake" accreditation organizations (Get Educated.com, 2009).

Athabasca University was significantly different from the traditional not-forprofit public and private colleges that American accreditation agencies had typically served. The accreditation agencies were being challenged to develop appropriate evaluation procedures while policy makers questioned whether national, regional, and specialized accreditation as we knew it could assure quality in online programs. Many policymakers remained skeptical of the existing accreditation practices. Eaton (2000) concluded her article with a warning that CHEA as well as the accreditation agencies

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needed to provide more organization and coherence to the "plethora" of information and issues involved with quality assurance in online education and that "the price for misunderstanding … is very, very high." Such a misunderstanding could lead to greater involvement of governmental agencies in accreditation and other issues of accountability in higher education.

John Boehner, the chair of the U.S. Congress House Committee on Education and the Workforce during the rewriting the Higher Education Act (HEA), conducted hearings and raised several critical issues that were addressed as part of the reauthorization process for HEA. Among these issues were:

1. Accreditation policies
2. Transfer credit issues
3. Financial aid for distance learning students

He specifically recommended that:

> federal student aid programs must include more [distance learning] students and [that Congress] wanted to work with … accrediting organizations to assure the quality of these expanding programs.
>
> (Boehner, 2005)

Boehner's statement expressed concern over the quality of distance learning programs while opening up the possibility of expansion. Eaton's "price of misunderstanding" was greater involvement by the federal government in an attempt to ensure quality either directly or indirectly through accreditation. While the federal government did become more involved in attempts to assure academic quality, it left it to the private accrediting agencies to come up with new accreditation standards. As a result, there were extensive reviews, resulting in the developments of new accreditation standards that were subsequently integrated into the overall existing accreditation processes. Readers may wish to refer to the accreditation standards developed by one or more of the regional accrediting agencies. As an example, the Middle States Commission on Higher Education developed new accreditation standards in 2006 and revised them again in 2011 to identify hallmarks of quality and "to reflect the new distance education and correspondence education requirements of the Higher Education Opportunity Act of 2008" (Middle States Commission on Higher Education, 2006). Pages 57–60 specifically refer to distance education programs, an excerpt of which appears here:

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An accredited institution is expected to possess or demonstrate the following attributes or activities:

- distance education or correspondence education offerings that meet institution-wide standards for quality of instruction, articulated expectations of student learning, academic rigor, and educational effectiveness;
- consistency of the offerings via distance education or correspondence education with the institution's mission and goals, and the rationale for the distance education delivery;
- planning that includes consideration of applicable legal and regulatory requirements;
- demonstrated program coherence, including stated program learning outcomes appropriate to the rigor and breadth of the degree or certificate awarded;
- demonstrated commitment to continuation of offerings for a period sufficient to enable admitted students to complete the degree or certificate in a publicized time frame;
- assurance that arrangements with consortial partners or contractors do not compromise the integrity of the institution or of the educational offerings;
- validation by faculty of any course materials or technology-based resources developed outside the institution;
- a system of student identity verification that ensures that the student who participates in class or coursework is the same student who registers and receives academic credit; that students are notified at the time of registration or enrollment of any additional student charges associated with the verification of student identity; and that the identity verification process protects student privacy;
- available, accessible, and adequate learning resources (such as a library or other information resources) appropriate to the offerings at a distance;

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- an ongoing program of appropriate orientation, training, and support for faculty participating in electronically delivered offerings;
- adequate technical and physical plant facilities, including appropriate staffing and technical assistance, to support electronic offerings; and
- periodic assessment of the impact of distance education on the institution's resources (human, fiscal, physical, etc.) and its ability to fulfill its institutional mission and goals.

(Middle States Commission on Higher Education, 2006, pp. 57–58)

The document goes on to establish acceptable evidence and criteria for evaluating these attributes.

FEDERAL POLICY CHANGES THE LANDSCAPE OF ONLINE HIGHER EDUCATION

In 2006, the U.S. Congress lifted the "50 Percent" Rule that limited the number of distance education credits a student could take and qualify for financial aid. This change had the most significant impact on the evolution of online higher education of any other federal, state, or local policy. The biggest beneficiary of this change was the for-profit, higher education industry. The Education Trust estimated that the for-profit higher education sector in the United States grew 236 percent from 1998 to 2008, while the public and nonprofit sectors grew 21 percent and 17 percent, respectively (Lynch, Engle, & Cruz, 2010, p. 1). This increase in the enrollments in the for-profit colleges can be attributed largely to the change in the 50 Percent Rule. A brief review of how this policy evolved will provide insight into education policy development in what some have termed the "American education-industrial complex" (Picciano & Spring, 2013).

In 1992, the U.S. Congress enacted what became known as the 50 Percent Rule that required all colleges to deliver at least half their credits on a campus instead of online or via distance education in order to qualify for federal student aid. This rule was established after investigations showed that some for-profit trade schools were little more than diploma mills intended to harvest federal student loans (Dillon, March 1, 2006). In 2006, by adding eight lines of language as part of an 82,000-word budget bill, the U.S. Congress eliminated the 50 Percent Rule and allowed colleges, regardless of the number of courses held on campus or online, to qualify for federal student aid (Kirkham, July 29, 2011). Sam Dillon, two-time Pulitzer prize-winning reporter for the New York Times, characterized the passage of this bill as follows:

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> The Bush administration supported lifting the restriction on online education as a way to reach nontraditional students. Nonprofit universities and colleges opposed such a broad change, with some academics saying there was no proof that online education was effective. But for-profit colleges sought the rollback avidly.
>
> "The power of the for-profits has grown tremendously," said Representative Michael N. Castle, Republican of Delaware, a member of the House Education and Workforce Committee who has expressed concerns about continuing reports of fraud. "They have a full-blown lobbying effort and give lots of money to campaigns. In 10 years, the power of this interest group has spiked as much as any you'll find."
>
> Sally L. Stroup, the assistant secretary of education who is the top regulator overseeing higher education, is a former lobbyist for the University of Phoenix, the nation's largest for-profit college, with some 300,000 students.
>
> Two of the industry's closest allies in Congress are Representative John Boehner of Ohio, who just became House majority leader, and Representative Howard P. McKeon, Republican of California, who is replacing Mr. Boehner as chairman of the House education committee.
>
> And the industry has hired well-connected lobbyists like A. Bradford Card, the brother of the [George W. Bush] White House chief of staff, Andrew H. Card Jr.
>
> (Dillon, March 1, 2006)

Stroup was in a pivotal position to support or not to support this legislation. She authored a series of reports outlining an imperative to lift the online learning restrictions—a major impetus for Congress to ultimately scrap the 50 Percent Rule (Kirkham, July 29, 2011). Dillon characterized Stroup's evaluation as follows:

> In a 2004 audit, the Education Department's inspector general said a 2003 report she provided to Congress on the program "contained unsupported, incomplete and inaccurate statements.
>
> (Dillon, March 1, 2006)

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Excerpted from *Online Education Policy and Practice The Past, Present, and Future of the Digital University*

Most were assertions that online education was working as well or better than traditional methods, with little risk. The inspector general, citing the collapse of one participant in the program, the Masters Institute in California, chided the Education Department for reporting that it had found "no evidence" that the rule change could pose hazards. Stroup formally disagreed with the inspector general. In an interview, she said a subordinate had written the report, although she had signed off on it. In a later report to Congress, the department [later] acknowledged "several possible risk factors" (Dillon, March 1, 2006).

Stroup started as a staffer on the House Education and Workforce Committee, then took a "$220,000-a-year job as a lobbyist for the Apollo Group, the parent company for the University of Phoenix and was then appointed by Bush as assistant secretary for post-secondary education … overseeing the central interest of her previous employer" (Kirkham, July 29, 2011).

While a number of congressmen, both Democrats and Republicans, received campaign funds from the for-profit lobby organizations, significant campaign donations were distributed to Boehner, Senator Mike Enzi (R-Wyoming), and Representative Howard "Buck" McKeon (R-Calif.), the men who controlled the Education committees in the House and the Senate.

> McKeon held and sold stock for Corinthian Colleges Inc., … during the time he was crafting policies for the industry on the House Education committee, according to his required personal financial disclosure forms. … For the three election cycles between 2002 and 2006, those three lawmakers and their political action committees alone took in nearly one-fifth of the money donated to federal candidates and committees by the for-profit college industry.
>
> (Kirkham, July 29, 2011)

The result of the change in the 50 Percent Rule was dramatic. As mentioned earlier in this chapter, the for-profit higher education sector in the United States grew 236% from 1998 to 2008 (Lynch et al., 2010, p. 1). Enrollments soared at a number of for-profit colleges. For example, Bridgeport Inc. of San Diego purchased a small, failing college in Iowa and grew enrollment from fewer than 350 students in 2005 to more than 76,000 students by the end of 2010. Grand Canyon Education Inc. grew online enrollments from 3,000 in 2003 to more than 42,000 by the beginning of 2011. In general, approximately 25 percent of the revenue accrued by the for-profit industry

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from 2007 through 2011 was probably as a result of the change to the 50 Percent Rule. "Most of the large publicly traded institutions would not be able to exist the way they do today if that rule had not been taken away," said Kevin Kinser, an associate professor at the University at Albany who studies the history of for-profit higher education. "You have an entirely new revenue source that's been open to these institutions. … The cost goes down, the revenue goes up, and that's a pretty attractive investment vehicle" (Kirkham, July 29, 2011).

SUMMARY

In this chapter, the second wave of online and blended learning in the early 2000s was presented. Online education evolved rapidly and moved into the mainstream. A variety of blended learning models that mixed and matched online and face-to-face modalities had a special appeal to traditional colleges and universities. Social media blossomed throughout the Internet world and was embraced by higher education, as well. In 2007, the United States Department of Education (U.S. DOE) contracted with SRI International to conduct a meta-analysis of the effects of online learning on student achievement. It was one of the first major studies to examine student outcomes across modalities (face-to-face, full online, and blended learning). The project was completed and a report prepared in 2009 and revised in 2010. The overall finding of the metaanalysis was that classes with online learning (whether taught completely online or blended) on average produce stronger student learning outcomes than did classes with solely face-to-face instruction. However, upon further analysis, the blended model had the highest positive effects on student learning. The chapter concluded with an examination of two major education policy developments related to accreditation and the elimination of the 50 Percent Rule, which greatly expanded student enrollments in online education, especially for many of the for-profit colleges and universities.