Chapter 3

Curating Technology for Learning

A Faculty View

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As design faculty, we recognize a wide range of abilities and approaches in learners, and we advocate for creativity, a messy process, and often open-ended opportunities for young designers. Rather than assuming that all students sit as homogenous empty vessels awaiting transfer of knowledge from a sage on the stage, we adopted more active and experiential approaches to teaching and learning as guides on the side.[1] Whether in studio or a more traditional classroom setting, as design faculty we provided ways for students, majors and nonmajors, to see and utilize high-quality images, drawings, diagrams, and text. In uncovering suitable resources to promote quality learning, we regularly deployed video content, virtual experiences, maps, and field experiences along with other geographical data and tools in their work (figure 2.1). Unfortunately, no single source exists for such a wide array of materials. As a result, we often found ourselves navigating the spectrum of materials available on the web and through our own institution's library system, hoping to find, curate, and share exemplary design practices and resulting products. These acts represented some of our biggest challenges as educators teaching in a primarily visual and experiential field.

In this chapter, we unveil approaches to providing equitable access to quality resources through technology from our perspective as faculty members working with and recognizing librarians as partners and willing participants in the academic enterprise. In writing of our successes and challenges in light of the burgeoning wealth of online materials, we share our insights in this essay as committed educators to address the needs of so-called digital natives and the special challenges they bring to the processes of learning. In doing so, we organize our observations and reflections around a design framework with a series of best practices adaptable to almost any field of study.

Approach

We believe that others can learn from design because, frankly, design is everywhere. It is embedded in many processes, spaces, educational systems, technologies, and more. As in other disciplines, professional interior designers have the potential to offer services for research, space planning, and materials selection and strategies for working and doing as well as branding, requiring all types of thinkers and doers. Project-based

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Figure 2.1
Students visit an Indianapolis Museum of Art installation that artistically questions the efficacy of books as a sole source for knowledge acquisition. Image credit: Turner and Lucas.

studio instruction represents the backbone of interior design education, supplemented by a variety of lecture and skills courses. Aligning with practice, academic programs must draw from creative, open-ended processes alongside technological and measured approaches to understanding human beings. Interior design requires attention to aesthetic qualities in addition to meeting functional conditions that enhance the health, safety, and welfare of humans. In these ways, our work applies to many areas of study.

However, as is the case with all college students and diverse majors, future interior designers come to the university with a wide range of abilities and experiences, as well as with specific approaches and preferences in learning. In response, our faculty brings eighty-plus years of education to the classroom and, with this concentration of knowledge and experience, our program offers students a wide array of teaching philosophies and methods of implementation. Just as design thinking has become an integral strategy for thinking and doing for many outside of design,[2] we hope that our approach to resourcing and curating technology for learning has broad applicability. In these ways, too, our work in curating technology has broad appeal.

As we think about our faculty responsibilities, we recognize a shift in educational practice associated with the technology-infused world of the twenty-first century. The earphones, mobile devices, eyes glued to screens, and moving thumbs visible when walking on a college campus or in the classroom signify the undeniable amount of time students spend plugged in. While a majority of their time may be spent on social networking sites, our faculty believed it possible to engage student interest in the digital world by harnessing a variety of both physical and digital sources to help students better understand how design influences the built environment. Though some educators may avoid technology in their courses, a wealth of virtual platforms, information, and experiences exist that enable modification of the traditional delivery of information to one that embraces technology as a vehicle for learning. This active means of delivery and feedback attracts and informs students of various majors and learning styles and has the potential to make course information relevant by incorporating student enthusiasm for technology. Imagine two scenarios: sitting in an auditorium and listening to an instructor talk about the ancient Roman Colosseum while looking at projected images, or taking a self-directed virtual tour of the historic site with the ability to explore and interact. Which has the greatest potential to impart knowledge and create a meaningful learning experience of the Colosseum?

As designers, we often talk about the seven tenets of universal design: equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, and size and

space for approach and use. These design principles have, in turn, been leveraged to develop Universal Design for Learning principles: multiple means of representation, multiple means of action and expression, and multiple means of engagement.[3] Both sets of design principles emphasize the importance of impactful access to resources. Whether a student is engaged online through computer, tablet, or phone, faculty should take into account students' varying abilities to access and use quality websites, texts, data sets, images, drawings, and videos for coursework and assignments. This includes the option for lecture content, for example, delivered in video or written transcript form or for design ideas to be presented as texts or graphic images, perhaps using a tool like Pinterest as a platform for sharing information.

Moreover, students should be encouraged to produce deliverables in a wide range of modes to enhance learning. Educators must collaborate with librarians and other university partners to ensure these foundational notions apply not only to physical space, but also to the digital world of curriculum development and support.

Figure 2.2
Underlying these topical areas for study and using a variety of hand and digital skills, students engage visual representation alongside spoken and written communication to gain information literacy. Image credit: Turner and Lucas.

Recognizing the potential of these strategies to notably impact student learning and faculty teaching, our school strategically forged relationships with librarians and the library system, our professional advisory board, a number of student learners, and educational consultants in our Center for the Enhancement of Learning and Teaching. Doing so reminds us that working as a team provides opportunity for more collective impact than we could ever hope to accomplish on our own. As a group, we designed approaches for a single class, a pair of sequenced courses, and a program-wide platform of resources available to students and faculty, all in support of more meaningful teaching and learning. As a result of these efforts, by the completion of our undergraduate program, young designers have accumulated a breadth of knowledge across an array subject areas: history of the profession, environmental theories on human behavior in space, technical aspects of how buildings are constructed and function, physical materials that build and finish a space, the importance of light and color in experience of space, and business processes of the designer as a professional and communicator of ideas (figures 2.2 and 2.3).

Amid building individual and sometimes overlapping resources accessible to students only during a course through our course management system, our faculty quickly recognized a need for developing an interior design–specific knowledge database through an online portal, known as the Design Drive (figure 2.4). Through this platform, our faculty regularly deploy digital means to deliver lectures, demonstrations, readings, experiences, and guest lectures, thus creating and inculcating hybrid instruction as a pedagogical paradigm shift. The Design Drive has also fostered moments of connection by bringing content into dialog among faculty and students across the program. For instance, one professor might find and share a video about concrete, which illustrates how it is made and how it can be used in building projects. The history course might then use this video to introduce students to the material, but also to indicate how the material has changed since the ancient Roman era, when it was originally created. Then, the interior construction systems course could reference this video to discuss the structural capacity of concrete. Similarly, the interior finish materials course may have students watch the video as a way of expressing the properties and characteristics of concrete as it relates to human interaction, as in a countertop. Finally, a student in a project-based studio course could review the video when specifying and implementing concrete as a design component.

Figure 2.3
To balance the digital content, our school also committed to experiential and active learning, beyond traditional modes of delivery and deliverables, such as field trips, campus building visits, and other forms of engagement. Image credit: Turner and Lucas.

Ultimately these multimodal and hybrid approaches to teaching and learning resulted in making lessons from the classroom relevant to twenty-first-century students in our school and to aspiring young designers as they make their way into professional practice. In the end, we believe our faculty and initiatives have reversed the usual polemic of one-way instruction—handing down of the lore of the discipline from master to apprentice in the studio and classroom—replacing it with a more earthy, nuanced, and immersive experience and introducing a variety of ways to analyze and communicate about design in the past, present, and future. Our students now receive a radically different system for education efforts, which have been recognized by other educators and, more importantly, students in the program. In 2017, the faculty received a national award from the International Interior Design Educators Council (IDEC) for revision of the history and theory course sequence, while one student from the class of 2019 indicated that learning in this hybrid manner supported by online content helps to "form the next generation of design students into impactful leaders who are curious and desire to grow while also finding ways to give back, through design, to our communities."

Impacts

As participants in a professional degree program accredited by the Council for Interior Design Accreditation (CIDA), the majority of our graduates enter practice with a need to successfully *apply* lessons from the classroom and studio, not just memorize examples for an exam. So our strategy is simple: place some material online in order to free time in the classroom and studio for experiences that allow students to encounter design in the everyday environment with people who live, work, play, and worship in that world alongside peer learners and faculty as guides in the process. Basic understanding comes from online instruction; breadth and depth come from profound, active, and collective experience in the field, sending students to the upper end of Bloom's *Taxonomy of Educational Objectives* and the higher levels in Maslow's Hierarchy of Needs.[4] This approach also permits students to learn more at a self-regulated pace and in an environment suitable to their own learning preferences.

This pedagogical approach has revealed impacts at the course, sequence, and program levels. For instance, in the design introduction course, nonmajors creatively explored emerging ideas about design by examining an object, space, building, or place and its social, historical, and cultural contexts, using a blog as a regular tool to curate their work over the entirety of the experience. Notably, the use of blogs in other courses serves as a method for collecting and curating individual work resulting in unintended consequences where students can use that online catalog to prepare materials for a course in the third year of the program focused on portfolio and personal brand development. Further, utilization of online tools and content in the systems courses has enabled our faculty and students to garner time and space to engage topics directly with local materials, furnishings, and lighting sales representatives and in showrooms. By learning background information online, then seeing materials, furnishings, and lighting firsthand, students experience the tactile qualities of the wide variety and rapidly changing realm of design. Using information learned online alongside experiences in showrooms and sites, they seek materials, furnishings, and installation techniques, then share those to the back to the Design Drive for other students, who then have access to the latest materials in this mercurial world.

Taking advantage of the Design Drive and online content, our faculty have connected students with professionals in a series of five scaffolded interiors profession courses spread across their four undergraduate years. In the first of these courses, students learn about the place of interior design within the varying disciplines of design (architecture, product design, industrial design, urban design). In the second course,

students explore pathways they can pursue with an interior design degree. The third course provides space for students to develop their individual brands through a portfolio and website. The fourth class takes students into the field for a shadowing experience. And, finally, in the last course, students learn about business practices and approaches that help them make an easy transition to the world of work. Development of specific online content has allowed more flexibility in taking these courses, for example, while abroad and thus meeting the goal of the program for students to have international experience.

Within the history and theory sequence, unit summaries and case studies provided important moments of synthesis, the former about big ideas in units, the latter about the ideas applied to a specific building or design idea in time and space. For these assignments, students pulled ideas from online content, experiences, and their own lives to demonstrate how lessons of history and theory impact the everyday world. As a summative moment for each course in the two-semester sequence, students created a movie. In the first semester, the movie assignment focused on demonstrating proficiency of reading, observing, and recording the built environment. In the second, students examined their own developing approaches to storytelling by reflecting on issues covered in class. Two teaching assistants now lead the teaching in this course under the supervision of a single faculty member, which has allowed undergraduates to have content from the faculty experts who created the content, but has freed these experts to develop other materials and to bring the lessons from the digital realm to other courses in our school.

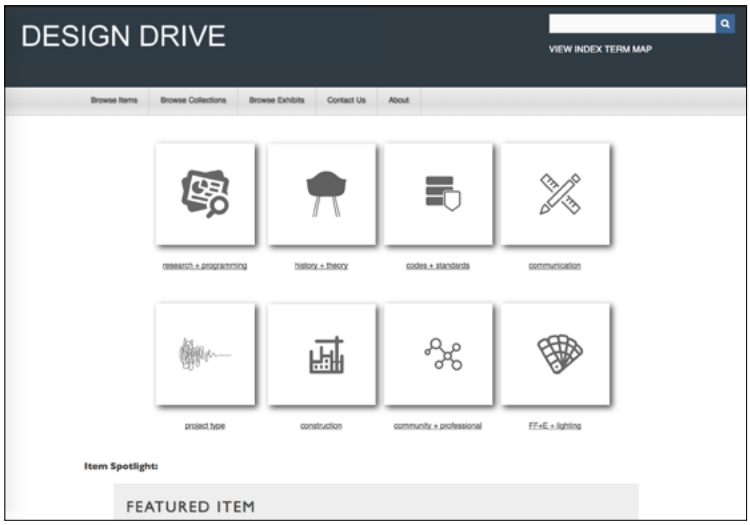

Figure 2.4
As a single-source digital database, the Design Drive serves as the location for wide-ranging materials associated with both the technical and theoretical aspects of interior design necessary for instruction as our school envisioned. Image credit: Turner and Lucas.

Above all, students used digital content and the Design Drive to support their active studio practice. They regularly accessed and utilized information gathered on design process, communication techniques, codes, materials, systems, and lighting, initially introduced in other courses. From a studio perspective, students revisited the collected and curated materials as tutorials to help bolster skills and as reminders of approaches, thus saving time and energy of faculty, who would otherwise have to repeat content or instruction that students had undertaken previously. As an extension, the move toward a hybrid digital approach across our curriculum has resulted in students having access to a wider range of materials at a lower cost. Though significant time and resources have been invested in the digital approach to date, the returns are just now being measured. Particularly in a design program where students invest substantially in model making, fabrication, and drawing supplies, the last thing they need to purchase is a textbook that they will use for one class and sell back to the bookstore for less money. We hope the advice in the following section will help others align cost savings with deeper educational opportunities for students, no matter their major.

Best Practices

As design educators, we associate movements and strategies with principles and practices. Thus, the advice presented in this section engages the language of design as a series of best practices determined through reflection on our work over the last three years. As we imagine our initial forays into curating technology for learning in design, we are reminded of the work of mid-twentieth-century design luminaries Charles and Ray Eames, who would advise anyone to remember that design connects at all scales and, as a result, designers should think about both micro- and macroapplications. Similarly, in digital technology, it is helpful to *think both big and small about how technology can be woven with other modes of instruction* in a studio, classroom, and community setting. In addition, in terms of access, the technology should connect to instructional efforts for individual courses as well as contribute to the development of a systems-wide application for all courses in the curriculum. The Eameses would also admit that they do not know everything, but instead bring content and process to

help them think holistically. Thus, our admonition is to think like a librarian and, when possible, include librarians in conversations about access, finding quality information, and helping humans understand opportunities for connection.

Working from the perspective of a human-centered process, our faculty initiated a wide range of online content, but also continued to acknowledge the value of in-person lectures and interactions as impactful and necessary for some student learning. Hence, the faculty advocated for all courses to rely on a spectrum of digital opportunities balanced with interpersonal experiences. Our team thus relies on the strengths of individuals or a group of collaborators for generating new and innovative ways of working. Borrowing on an age-old design philosophy, wherein *the whole is greater than the sum of its parts*, these partnerships also catalyzed new modes of thinking and delivery, which eventually trickled down to include student input—from upper-level students as teaching assistants, and eventually primary instructors of some courses, to empowerment of students as generators and contributors of knowledge.

Good designers follow the advice to *measure twice and cut once* to avoid mistakes by thoughtfully considering and accurately proceeding in incremental steps. Given the wide variety of technology and resources available, care should be taken to understand technology before using it and for thinking through how it works before curating into use. Structuring the information within a digital resource like the Design Drive has reminded us that the structure of the resource is also just as important as the content. We also help ourselves think like students by measuring twice through the testing and checking of resources and their access before releasing them. A final lesson of measuring twice reminds us to consider different users and approaches modeled after universal design principles of equitable use, flexibility, intuitive use, and adaptability.

We often tell our students to *work smarter, not harder*, and we believe the Design Drive or other online portals of information create space for shared work and resources, making it easier and more seamless for students and faculty to share in learning. Because faculty guide students and serve as curators and generators of knowledge, they ask that students gain control of their own learning. Faculty and librarians then have the opportunity to serve as facilitators and help guide students to appropriate processes and logical sequences to both access and utilize information in the digital sphere. We assert that this sustainable way of working helps all learners contribute to their own education, thus deepening and enriching collective experience, which benefits not only scholastic endeavors, but also practice beyond the academy.

We believe that conversations about explicit (rather than implicit) student learning objectives, course goals, and curricular strategies are an effective way of moving the enterprise of educating future designers forward. In terms of online content, we have learned that online "lectures" should be shorter and more numerous as opposed to the typical forty-five-to-fifty-minute oration in a face-to-face format. We have learned to celebrate our course management system by leveraging both its shortcomings and strengths. Course evaluations from early days of the process indicated students were struggling with content due to their inability to understand how to access it. As an electronic calendar was put in place, the number of comments decreased significantly. This fine-tuning resulted in greater satisfaction in the courses. Finally, we place a high priority on keeping track of details such as logistics and liabilities, copyright issues, university information technology parameters, metadata, and more. As we do so, we remember that librarians have intimate knowledge in many of these areas and will help with their implementation to make an online foray into education of twenty-first-century learners an unmitigated success.

Acknowledgements

These experiences with digital and physical approaches to hybrid teaching and learning were made possible by capitalizing on opportunities and offerings of university grants, people, offices, and equipment. For instance, faculty in our school made significant use of the e-Learning Innovation Initiative (eLii) internal grant in three sequential years to transform a single course, followed by a course sequence, and then to foster programmatic change through the creation of the Design Drive. Under these grants, our faculty developed lectures for online delivery in the Faculty Media Depot recording studio, fashioned supplementary websites on specific aspects of design, and curated blogs and other online content for a wide variety of courses and student populations to access throughout their undergraduate years. As part of the scaffolded and hybrid pedagogical approach, three faculty members participated in learning communities to help support and facilitate this educational experience. Bringing an even broader perspective to learning, three faculty members also participated in the university's Quality Enhancement Program on multimodal learning (mandated by accreditation requirements). To align hybrid instruction with concerns over rising textbook prices, two faculty members received support from an alternative textbook program to consider ways of providing and implementing student access to open educational resources (OERs).

Notes

1. Allison King, "From Sage on the Stage to Guide on the Side," *College Teaching* 41, no. 1 (1993): 30–35.
2. Tim Brown, *Design Thinking* (blog), accessed March 9, 2018, https://designthinking.ideo.com.
3. "Universal Design For Learning," Center for the Enhancement of Learning and Teaching (CELT), University of Kentucky, accessed March 7, 2018, http://www.uky.edu/celt/instructional-resources/getting-started/universal-design.
4. Benjamin S. Bloom, ed., *Taxonomy of Educational Objectives, Book I: Cognitive Domain* (White Plains, NY: Longman, 1956); A. H. Maslow, "A Theory of Human Motivation," *Psychological Review* 50 (1943): 370–96.

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