# The Twain Shall Meet

Shakespeare, Design Thinking, and Technical Communication Pedagogy

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It all began with a coupon for a bowl of orange chicken . . .

On Wednesday, March 11, 2020, I walked back to my faculty office from the student union with a bit of pep in my step. I had just come off a very successful marketing event in which I talked to over one hundred prospective students about careers in technical and professional communication (TPC), and if the joy of meeting so many potential students was not enough to excite me, the coupon in my hand for an orange chicken bowl—a small thank you provided to the faculty that participated in the event—convinced me that this was going to be a great day. When I got back to my office, however, an email was waiting in my inbox that would direct the course of my life and career in ways that I could have never imagined. The university-wide communication indicated that, due to the emerging COVID-19 crisis, all classes, activities, and university business was suspended, with the email further instructing us to wait at home for more details. In reading that one email, I came crashing down, falling from cloud nine to the depths of uncertainty, fear, and anxiety felt—I am sure—by many of those reading this article.

Amidst the trepidation caused by that email, I forgot all about the delicious promise of syrupy sweet poultry. Instead, new concerns swirled in my mind. I assumed that the veiled message implied that we would be moving to an all-online course modality, mirroring several other US universities

who made the switch that same day, yet the move to an online setting did not preoccupy my thoughts. Instead, anxiety about my students' well-being and success welled up inside me. Did they have the resources to move to an online class setting? Did they have the support to continue providing for their families and themselves while navigating this change in course modality? What other obstacles were they facing that I knew nothing about but would drastically impact their performance in the class? How could I develop and adapt my pedagogy to help meet their shifting learning needs?

As I mulled over these questions and more, my training as a technical communicator—and more specifically my knowledge of user-experience (UX) and design thinking—kicked in, offering me a set of tools I could pull from as I sought to create courses that reflected the quickly shifting needs of my students. Design thinking—a five-part, user-centered heuristic developed by a team of Scandinavian designers in the 1980s—asserts that the most effective designs come from a partnership between designer and user. Rather than passive consumers of a product, users are seen as vital members of the design team, providing mission-critical information at every phase of the design and implementation process. In the field of writing studies, scholars have noted design thinking's ability to offer a structure for addressing complex problems in an equitable way (Purdy 2014: 612-14), with others in TPC expanding this research by examining the impact of design thinking on TPC pedagogy (Tham 2021), socially responsible communication in engineering (Leicht-Scholten and Steuer-Danker 2020), and patient-centered communication (Ponce 2021).

For all the uncertainty I felt in those first weeks of the pandemic, there was at least one thing of which I was sure: if I wanted to redesign my courses to meet the needs of my students most effectively, then I must involve them in the course creation and design process. While I did my best to quickly ask students about their needs for my spring 2020 courses, which were already underway, I focused most of my redesign efforts on the fast-approaching courses of summer 2020, namely, a senior-level Shakespeare seminar I had picked up because of the death of a dear colleague. It was during that time of course preparation, which took place from April 2020 through May 2020, that I applied the collaborative design principles associated with design thinking to my course creation. In doing so, I partnered with my students in the cocreation of the course, empathizing with their needs as the primary users for the class and allowing our partnership to direct almost all aspects of course creation, from text selection and assignment creation to course modality and grading structure. I will discuss how this approach expands the limited con-

versations about course co-creation, a practice that leads to more effective and equitable course designs, and I will additionally use my experience employing design thinking in the creation of my Shakespeare seminar course as a case study, demonstrating the value that the collaborative nature of design thinking has for our pedagogy.

## But Literature Is Not the Same as Technical Communication...Right?

Yet before I begin discussing what design thinking can offer us as teachers, I would like to first address reservations many will likely feel about the application of a technical communication theory to the construction of a literature course. The place of TPC under the larger umbrella of English studies has been a question long discussed, with one TPC scholar perceiving that her colleagues in literature and composition were ashamed of the field's "close relations to business, science, and technology" (Rentz 2001: 188). As a scholar who wrote a dissertation in early-modern English literature but quickly shifted to a research focus in TPC, I have personally felt this tension, with many of my mentors from my time as a literary scholar questioning my attempt to make the transition and, dare I say, to syncretize some of what I learned in literary studies with my new focus in TPC. Through conversations, emails, and chats over coffee, they essentially paraphrase Rudyard Kipling's opening line to The Ballad of East and West: tech comm is tech comm, and literature is literature, and never the twain shall meet.

This distinction espoused by my mentors is not without cause, yet the theories and practices of TPC have much to offer practitioners of other disciplines, particularly in their classroom. As TPC struggled to define itself as a discipline, researchers developed complex explanations of how the field differed from other fields in English studies. For instance, Alan D. Manning (1988) differentiated literary studies and TPC through his definition of literary writing, a perceived substitute for reality, and technical writing, a method for evaluating reality. Latching on to these distinctions, many assert an incompatibility between TPC and other humanities disciplines. I would argue, though, that this distinction, though true, does not render TPC and its theories and practices incompatible with the study of literature. Indeed, within larger conversations about disciplinarity, others have noted that we need not fear interdisciplinarity as the death of disciplinarity. With regard to writing studies as an independent discipline, Charles Bazerman (2011: 8) asserts that, because of its aims and nature, writing studies can find its disciplinarity in its "questions and goals, allowing us to draw on the resources of many disciplines" without the fear of becoming subsumed or subordinated to

them. More recently, David Damrosch (2014) has gone as far as to argue that the rigid disciplinarity of twenty-first-century higher education, a systemic attribute built into the American university structure over a century ago, actually hinders researchers, preventing them from utilizing all tools at their disposal to answer questions our global society desperately needs answered. While it is true that TPC is distinct from other fields, its focus on communication as an instrument of problem solving makes it a powerful tool for interdisciplinary collaboration, particularly within the literary studies classroom.

## **Literary Analysis Teacher as Technical Communicator**

Because of their course outcomes and objectives, teachers of literary analysis enact the work of technical communication in their classrooms without realizing it. At its core, literary analysis aims to answer interpretive questions posed by interactions with texts, thereby solving analytical problems that arise when various audiences interface with those texts. Viewing the act of literary analysis as problem solving is nothing new (see, for example, Chatman 1963). In her book aimed at those new to the world of literary studies, Celena Kusch (2016) describes the literary critic as a kind of detective, a problem solver looking for clues both inside and outside the text to solve a mystery within it. Teachers of literary analysis are thus concerned with conveying the tools, skills, and practices associated with successfully solving these interpretive mysteries, training up a new generation of literary critics ready to tackle the slippery and recursive problems found within the most dense of texts. The aim of all technical communication, in comparison, is to help a user (the person engaging the communication in order to take action based on what they learn) complete a task, make a decision, or solve a problem. Technical communicators thus focus their energy on developing the most effective method for conveying information, with the goal of empowering their user with the knowledge, skills, and confidence to act. Without realizing it, teachers of literary analysis engage in the work of technical communication, conveying the vocabulary and methodological approaches of literary analysis so that their student users can in turn use that information to produce their own critical intervention, typically in the form of a term paper.

Though teachers of literary analysis may not know they have donned the mantle of technical communicator, the responsibilities that accompany that role still rest on their shoulders, not least of which is ensuring a successful user experience. The terms *usability* and *user experience* have become staples in the TPC world, with both concepts centered on creating a deliverable experience that most effectively empowers the user to act (see Marcus and Rosenzweig 2020; Sauro and Lewis 2016; Barnum 2021; Marsh 2016). In other words, the success of the user rests, in part, with the technical communicator's ability to organize, craft, and deliver information most effectively. As teachers, we face similar constraints. The ability of our students to successfully complete assignments set before them relies, in part, on our course design: the structure, organization, and delivery of course content.

While I am not the first to describe teachers as technical communicators and students as users, keeping this mindset at the fore enabled me to craft courses that empowered my users within the unique context generated by the COVID-19 pandemic (see Borgman and McArdle 2019; Getto 2021). I knew that if I was enacting the work of technical communication in my Shakespeare class, then I would need to focus my efforts on facilitating a strong student user experience, thereby increasing the likelihood of user success. From my research in user experience, I knew that the strongest and most effective designs come through collaboration between technical communicator and user at every level of the design process. This meant that I would need to find a way to collaborate with my students at every level of course construction—a tall order indeed.

## **Design Thinking Course Co-creation**

Despite the success experienced by those who have experimented with course co-creation, the practice remains rare in higher education, with research focusing not on collaboration between instructor and student but rather between student peers. Student-to-student collaborative pedagogies, while engendering active and engaged learning, could not offer me the level of cocreation that I knew I needed to craft an excellent user experience (see Blinne 2013; Braa and Callero 2006; Chow et al. 2003). And the little research that has been done on course co-creation lacks a consistent, systematic methodology for instructor-student collaboration, making it difficult to replicate across disciplines (for examples: Jafar 2016; Hess 2008; Hudd 2003; Blau and Samir-Inbal 2017). The principles of design thinking, on the other hand, provide an intellectual schema that allows creators to partner with users in an infinite number of contexts.

Although it may have begun as a regional movement in Europe, design thinking has had worldwide impact, emphasizing collaboration between designer and user in all aspects of the design process. Design thinking's extensive impact stems from its highly adaptable five-part heuristic:

Empathize—an exchange based in active listening between designer and user that leads to the designer empathizing with the user

- Define—the co-creation of a definition of the issue at hand by designer and user
- Ideate—a gathering of all possible solutions to the issue co-defined, including those from both designer and user
- · Prototype—the assembling of the best ideas from designer and user
- Test—a recursive process in which deliverables are used and redesigned to meet the shifting needs of the user

Rather than a set of linear steps, the components of design thinking help foster an attitude of alliance, a mutual respect, trust, and value between designer and user. In this framework, the end user is not merely a passive receiver of the deliverable but also a valuable partner in developing the strongest designs that address the most difficult of problems.

Because of its ability to help formulate solutions to contextualized problems, design thinking resonates with the needs of pedagogues seeking to adapt and tailor their course creation to the needs of their student users. Researchers (Marback 2009: 399) have demonstrated design thinking's ability to address "wicked problems," or problems that have no single, lasting solution but instead are ambiguous, contingent, and recursive, needing to be solved over and over again. Solutions to wicked problems are always contingent on a localized context. As problems change in response to shifts in context, so also must solutions change. In this way, wicked problems are not unlike course creation. From course to course, semester to semester, the needs, desires, and goals of our student users change in response to local contexts. What works well in one section of a course often falters in another, with instructors needing to adapt and adjust course material and delivery to better articulate within the new, distinct context. It was this kind of collaborative and iterative framework—sensitive to local context—that I needed to help me craft a course that would best meet the needs of my student users and, consequentially, best equip them with the knowledge and skills necessary to be successful literary scholars—problem solvers who utilize the methodologies of literary analysis to stake a novel critical claim.

## Co-creating a Shakespeare Seminar through Design Thinking

With the five-part framework of design thinking in hand, I was confident that I had the intellectual scaffolding necessary to develop an outstanding student user experience through the co-creation of our Shakespeare course. Design thinking, while placing heavy emphasis on collaboration and co-creation, does not, however, diminish the importance of the subject matter expert, making it an outstanding pedagogical tool. All parties involved—from

designer to subject matter expert, to user—possess mission-critical information that must be used in the creation of an optimal deliverable, whether that deliverable be a technical document, a product, or a course. At its heart, design thinking seeks to involve all stakeholders in the design and creation process, simultaneously creating a more equitable and highly effective deliverable. By engaging the five-part design thinking framework as follows, I placed my subject matter expertise in early modern English literature into harmonious concert with the needs of my student users.

# **Empathize**

To empathize with the users in my upcoming Shakespeare course, I had to invest significant time in getting to know them before the start of the class. Design thinking's effectiveness rests on empathy gained through active listening, an exchange between designer and user. To better understand the users in my upcoming class, I reached out to those registered in the course via Microsoft Teams message and email, asking them if they would be willing to chat with me via phone or video call about our upcoming class and what they needed from me as an instructor. Given the recent lockdown and isolation we had entered, I felt that talking to a person (rather than a survey) would yield both better data and a stronger feeling of empathy.

From my conversations with my students, important trends about our course context emerged. These trends fell into two primary categories: (1) student's work constraints and (2) student's caregiving constraints.

## Work Constraints

During my conversations, I discovered that 90 percent of the students I talked to were either working or looking for work because of a loss of income due to COVID-19 lockdowns. To place this number into context, the U.S. Bureau of Labor Statistics reports that during the month of May 2020, 82.4 percent of those surveyed through their monthly Current Population Survey (US Bureau of Labor Statistics 2021) did not receive pay "at some point in the last 4 weeks because their employer closed or lost business due to the coronavirus pandemic." Given that the majority of jobs impacted were part of the service industry, a segment of the economy in which my students often find their employment, I knew that the downturn in the economy was hitting my students hard (Xiang et al. 2021). When my unemployed students did find work, they told me it was often shift-based, requiring them to many times work overnight, midnight to 8 a.m.

## Caregiver Constraints

Of the students I talked with, 50 percent indicated that they were a primary caregiver. With the K-12 schools in our area shut down and other care services limited in what they could offer, I knew this would impact what my student users needed from the course design. I understood first-hand how much caregiving had changed within the context of the pandemic. Every meeting I had with students was invariably interrupted by my asking, "can you hold on a sec?" while I ran off to help my three-year-old or my mother, who has a neuromuscular disability. To ensure a great student user experience, I would have to account for the pressure placed on many of them by this constraint.

#### **Define**

After talking with all the students who wanted to participate, I collated my findings to create a one-sentence definition of what my student users needed out of the course. Through more conversations, messages, and emails, we workshopped the definition until we came up with the following co-created sentence: "Students taking Shakespeare this summer need the class to be flexible in its format and delivery so that students can take the class while working and caring for loved ones." Rather than assuming what my users needed based on my isolated observations, research, or subject matter expertise, I made room for my student users to speak for themselves. Although doing so took more time, the final statement more equitably and accurately reflected the needs of my users.

#### Ideate

Based on our co-created definition, I began to toss out ideas about how we might structure the class and assignments. With the concept of flexibility in mind, we all kicked various ideas back and forth until we came up with the following initial plan for our texts, assignments, and course modality.

#### Texts

Given the work and caregiving constraints many users had at that moment, purchasing a large anthology was out of the question. While there is great benefit from purchasing a well-edited and annotated version of Shakespeare's plays, that kind of text did not meet the needs of my student users, who needed flexibility and portability. We then considered paperbacks and e-texts designed to be read on a mobile device. While this option fixed the portability issue, it did not address other constraints placed on the user by changes in employment and caregiving. The possibility of films was floated, yet I

was a bit hesitant because of how difficult it might be for students to locate quotations for assignments. This problem was solved by coupling the Globe Theater's (Shakespeare's Globe n.d.) productions of plays with the complete works of Shakespeare hosted by the Massachusetts Institute of Technology (MIT 2021). Students could watch or listen to the plays when working, cooking, or caring for loved ones. They could then look for quotations later by using the search function on the MIT Shakespeare website, hunting by words and phrases they could remember from what they watched. This combination offered us the flexibility we needed while also enabling students to perform the literary analysis associated with the course outcomes.

## Assignments

Similar concerns about flexibility informed our discussion concerning assignments. In a traditional face-to-face classroom setting, I typically combine short, closer-reading papers with discussion to form the foundation of our assignments. These kinds of assignments, while replicable in the online environment necessitated by the pandemic, were not ideal for my users because they required them to have extended time in front of a computer rather than a phone or tablet. Instead of response papers, we opted for a string of video discussions hosted in Canvas through the FlipGrid interface. For each discussion, students would watch a "prompt video" in which I would pose a question, splice in scenes from the play we were discussing, and then invite my students to respond. Each student then recorded a ninety-second response in which they (1) answered the question, (2) provided specific textual evidence in the form of a quotation or paraphrase, and (3) connected their response to other topics addressed in the play. The students then replied to two other students by (1) identifying whether they agreed, disagreed, or questioned their peer's textual analysis and (2) using specific textual evidence in the form of a quotation or paraphrase to support their evaluation.

### Modality

Before the university knew the pandemic would force all classes online, my Shakespeare course was scheduled as a five-week class meeting Monday through Thursday from 8 a.m. to 9:50 a.m. While we considered meeting live in Microsoft Teams during that time frame, a synchronous setup would not offer us the kind of flexibility my student users needed. With children running around and shift-based work schedules, many of my students simply could not block a two-hour window four days a week. While we all desired interaction, an asynchronous modality was simply a better fit for us.

# **Prototype**

With our texts, assignments, and modality in hand, my students and I set out to bring the course to life. To that end, I constructed a syllabus and sample unit 1, sharing them with the group for workshop. I described this process to a colleague as inviting my students into the messy, dark underbelly of education. They saw the unfinished product; they saw my second guessing; and they saw how difficult it was to balance the various constraints placed on us by course objectives. Together we tweaked and refined until we were ready to launch on June 2, 2020.

#### **Test**

Despite what some may think, the first day of class did not end our cocreation efforts. I made it clear to my students that the course we created together was in a continual state of test, needing to be constantly evaluated to ensure optimum effectiveness. We approached our course co-creation with the starting assumption that working together would help produce a stronger deliverable tailored to the localized needs of users. With time, those needs shift and change, which, in turn, could necessitate a change in our co-created definition of need or that we return to ideation because some portion of the course no longer meets the needs of the user. Through check-ins and coffee talks (hours I would schedule throughout the day and night where students and I could get together for a "live" meetup in Microsoft Teams) we dialogued about the effectiveness of the course, adjusting where needed.

#### Student Feedback

The quantitative feedback about the course was extremely positive, evidenced both by enrollment trends and survey data. While universities across the country saw the largest decline in enrollment over the past fifty years (Dickler 2021), the Shakespeare course filled to capacity and had a wait-list eighteen students deep. Once a second section was opened to accommodate those wait-listed, it also filled to capacity. When I talked to the students in the second section about why they took the course, almost all found out about the course format from a friend in the first section and wanted to take the course because its design met their needs. Through a survey taken after the course, 100 percent of respondents selected "very true" on a range of "very untrue" to "very true" when asked if they felt the course was "designed to meet student needs without sacrificing quality." When asked to what extent the format of the course helped improved their learning experience, 75 percent indicated very much and 25 percent indicated somewhat. This data helped confirm

what I had felt all along, that partnering with my students in the creation of the course would have a strong, positive impact on their learning. The quantitative data alone, though, does not fully reflect the impact of the course.

Through their long-form responses to the survey, students demonstrated the connection between the information gathered during the "empathize" and "define" phases to the choices we made in the co-creation process. One student noted, "This class was the first of 6 virtual 'COVID' classes. I also have two children taking virtual classes.... The video learning was extremely effective." Pressure-inducing enough to mention it in the survey response, caregiving indeed played a major role in this user's experience. By taking the new caregiving context into account, my students and I were able to collaborate and find ways for material to be accessible to users while still effective. Another student commented specifically on the video response assignments, noting that the flexibility of the format did not diminish the quality of their work but rather enhanced it, saying, "Recording myself talking forced me to be aware of what I was trying to say prior to recording, and I had to be aware of myself as if I was presenting. I had to be prepared for each assignment!" This comment reflects the deep level of engagement I saw as I reviewed video responses each morning. Leveraging the flexibility of the format by submitting responses from workplace break rooms, from home late at night after kids had gone to bed, and even from the passenger seat of a parked car, students engaged deeply with prompts, amazing me with their attention to detail and intertextual connections.

## **Implications and Conclusions**

Although the Shakespeare course described here produced wonderful outcomes by meeting the needs of my student users, I am fully confident that I could not replicate this exact course design next summer and expect it to be as successful. Sure, I have kept some aspects of the Shakespeare course, integrating them into the TPC classes that dominate my teaching load. But the reality of design thinking is that it enables us to solve wicked problems, the kind with no lasting solution because they are localized to a particular context.

The takeaway, then, is not that people should use videos rather than textbooks, or that close-reading papers need to be supplanted by FlipGrid. Those were choices made by my students and me in response to a particular context for a specific set of users, a set of variables neither others nor I will encounter again. Nor do I think that all teachers have the extra time in their schedules like I did during lockdown to engage in such an extensive use of design thinking. Instead, the findings here attest to the power that design thinking's attitude of alliance can have on the success of a course. Engaging student users and accounting for their needs, no matter how small, in the course development process, will have a positive impact on their user experience, and a stronger user experience leads to more successful users.

On Wednesday, August 25, 2021, I walked into my first face-to-face classroom setting in seventeen months. As I stood there looking at the desks that would soon be filled by my students, I reached into my pocket and, to my surprise, felt a slip of paper—an expired coupon for a free bowl of orange chicken. Having not worn my more formal clothes during the months of online teaching, my khakis perfectly preserved this relic, an artifact from what seemed like a past life. I stood on the sill of a new era in my life as a teacher and researcher, and without a doubt I was not the same person who placed that coupon in my pocket. Through my extensive use of design thinking in the co-creation of my Shakespeare class, I had learned valuable lessons about the power of forging an intellectual alliance with my student users, a coalition seeking to find the optimal class design to ensure success. Though I no longer have the extra time I once did while teaching from home, nor do I have an army of students desperate to talk with anyone outside their apartment while on lockdown, I was confident that the spirit of design thinking an understanding that I, course designer and subject matter expert, do not alone have everything needed to create the optimal course for my student users—would inform every pedagogical choice I made going forward. And, in doing so, I have stronger, more equitable, and more usable courses for my student users.

## **Works Cited**

Barnum, Carol M. 2021. Usability Testing Essentials: Ready, Set... Test! 2nd ed. Cambridge, MA: Morgan Kaufmann.

Bazerman, Charles. 2011. "The Disciplined Interdisciplinarity of Writing Studies." Research in the Teaching of English 46, no. 1: 8-21.

Blau, I., and Shamir-Inbal, T. 2017. "Re-designed Flipped Learning Model in an Academic Course: The Role of Co-creation and Co-regulation. *Computers and Education*, no. 115: 69–81. https://doi.org/10.1016/j.compedu.2017.07.014.

Blinne, Kristen C. 2013. "Start with the Syllabus: HELPing Learners Learn through Class Content Collaboration." *College Teaching* 61, no. 2: 41–43.

Borgman, Jessie, and Casey McArdle. 2019. Personal, Accessible, Responsive, Strategic: Resources and Strategies for Online Writing Instructors. Fort Collins, CO: WAC

- Clearinghouse, an imprint of University Press of Colorado. https://doi.org/10.37514 /PRA-B.2019.0322.
- Braa, Dean, and Peter Callero. 2006. "Critical Pedagogy and Classroom Praxis." Teaching Sociology 34, no. 4: 357-69. https://doi.org/10.1177/0092055X0603400403.
- Chatman, Seymour. 1963. "Reading Literature as Problem-Solving," English Journal 52, no. 5: 346. https://doi.org/10.2307/810456.
- Chow, Esther Ngan-Ling, Chadwick Fleck, Gang-Hua Fan, Joshua Joseph, and Deanna M. Lyter. 2003. "Exploring Critical Feminist Pedagogy: Infusing Dialogue, Participation, and Experience in Teaching and Learning." Teaching Sociology 31, no. 3: 259-75. https://doi.org/10.2307/3211324.
- Damrosch, David. 2014. We Scholars: Changing the Culture of the University. Cambridge, MA: Harvard University Press. https://doi.org/10.4159/harvard.9780674430815.
- Dickler, Jessica. 2021. "College Enrollment Notched the Largest Two-Year Decline in Fifty Years, Due to COVID." CNBC, October 26. https://www.cnbc.com/2021/10/26/due -to-covid-college-enrollment-saw-largest-two-year-drop-in-50-years.html.
- Getto, Guiseppe. 2021. "Ensuring High-Quality Student User Experiences: PARS and the Technical Communication Online Writing Class." In PARS in Practice: More Resources and Strategies for Online Writing Instructors, edited by Jessie Borgman and Casey McArdle: 293-303. Fort Collins, CO: WAC Clearinghouse, an imprint of University Press of Colorado. https://doi.org/10.37514/PRA-B.2021.1145.2.17.
- Hess, Gerald F. 2008. "Collaborative Course Design: Not My Course, Not Their Course, but Our Course." Washburn Law Journal 47, no. 2: 367-87.
- Hudd, Suzanne S. 2003. "Syllabus Under Construction: Involving Students in the Creation of Class Assignments." Teaching Sociology 31, no. 2: 195-202.
- Jafar, A. 2016. "Student Engagement, Accountability, and Empowerment: A Case Study of Collaborative Course Design." Teaching Sociology 44, no. 3: 221-32. https://doi-org .ezproxy.uta.edu/10.1177/0092055X16644489.
- Kusch, Celena. 2016. Literary Analysis: The Basics. New York: Routledge.
- Leicht-Scholten, Carmen, and Linda Steuer-Dankert. 2020. "Educating Engineers for Socially Responsible Solutions through Design Thinking." In Design Thinking in Higher Education, edited by Gavin Melles, 229-46. Design Science and Innovation. Singapore: Springer Singapore. https://link.springer.com/chapter/10.1007/978-981 -15-5780-4\_11.
- Manning, Alan D. 1988. "Literary vs. Technical Writing: Substitutes vs. Standards for Reality." Fournal of Technical Writing and Communication 18, no. 3: 241-62. https:// doi.org/10.2190/UAKN-CMQF-4DFD-7VX9.
- Marback, R. 2009. "Embracing Wicked Problems: The Turn to Design in Composition Studies." College Composition and Communication 61, no. 2: W397-W419.
- Marcus, Aaron, and Elizabeth Rosenzweig, eds. 2020. Design, User Experience, and Usability: Design for Contemporary Interactive Environments. Proceedings of the Ninth International Conference, DUXU 2020, held as part of the Twenty-Second HCI International Conference, HCII 2020, Copenhagen, Denmark, July 19-24, 2020. Part 2, vol. 12201. Cham: Springer.
- Marsh, Joel. 2016. UX for Beginners: A Crash Course in One Hundred Short Lessons. Beijing: O'Reilly.

- Ponce, Timothy. 2021. "Technical Writing Pedagogy and Empathetic Medical Intervention: Using Design Thinking to Teach Wholistic Patient Care." *Stimulus: A Medical Humanities Journal* 1, no. 1. https://doi.org/10.32855/stimulus.2021.008.
- Purdy, James P. 2014. "What Can Design Thinking Offer Writing Studies?" *College Composition and Communication* 65, no. 4: 612-41.
- Rentz, Kathryn. 2001. "A Flare from the Margins: The Place of Professional Writing in English Departments." *Pedagogy* 1, no. 1: 185–90.
- Sauro, Jeff, and James R. Lewis. 2016. *Quantifying the User Experience: Practical Statistics for User Research*. 2nd ed. Amsterdam: Morgan Kaufmann.
- Shakespeare, William. n.d. The Complete Works of William Shakespeare (website).

  Massachusetts Institute of Technology. http://shakespeare.mit.edu/ (accessed December 5, 2022).
- Shakespeare's Globe. n.d. Globe Player. https://www.globeplayer.tv/ (accessed 5 December 2022).
- US Bureau of Labor Statistics. 2021. "Supplemental Data Measuring the Effects of the Coronavirus (COVID-19) Pandemic on the Labor Market." https://www.bls.gov/cps/effects-of-the-coronavirus-covid-19-pandemic.htm.
- Tham, Jason. 2021. Design Thinking in Technical Communication: Solving Problems through Making and Collaboration. Abingdon: Routledge.
- Xiang, Shihui, Saad Rasool, Yong Hang, Kamran Javid, Tasawar Javed, and Alin Emanuel Artene. 2021. "The Effect of COVID-19 Pandemic on Service Sector Sustainability and Growth." *Frontiers in Psychology* 12: 633597. https://doi.org/10.3389/fpsyg.2021.633597.