Using Design Thinking to Teach Creative Problem Solving in Writing Courses

Integrating design thinking methodology into writing courses can help students to develop creative approaches to problem definition and solution development. Tracing how students work with and through written genres common to design thinking reveals the possibilities and potential of learning new patterns of inquiry and argumentation. Developing these creative habits of mind empowers students to explore and invent solutions to complex, multidimensional problems across the broad range of their disciplinary, professional, and civic lives.

The act of creating ideas, not finding them, is at the heart of significant writing.
—Linda Flower and John Hayes, “The Cognition of Discovery”

Recent years have seen an increased interest in developing teaching strategies to foster students’ creativity in writing courses. The Framework for Success in Postsecondary Writing, jointly published in 2011 by the Council of Writing Program Administrators, the National Council of Teachers of English, and the National Writing Project, defines creativity as “the ability to use novel approaches for generating, investigating, and representing
ideas” (5). The Framework identifies creativity as one of the “habits of mind” students need to develop in order to succeed in college writing across a range of fields and disciplines (5). Richard E. Miller and Ann Jurecic build on this framework in their 2016 writing textbook Habits of the Creative Mind, which they deliver as a series of essays and exercises for students that “provide a time, a place, and an environment in which the focus is on nurturing curiosity, creativity, and the other allied habits of mind that define a richer, fuller engagement with the world, its challenges, and its beauty” (13). Because “divergent, creative thinking can’t be taught by rote,” Miller and Jurecic provide students with repeated practice in “paying attention”—“seeing and reseeing the places, people, things, ideas, and processes that define their many worlds”—and in learning through “experimentation, failure, and trying again” (13). Similarly, in his 2015 CCC essay “The UnEssay: Making Room for Creativity in the Composition Classroom,” Patrick Sullivan helps scholar-teachers think about how to design assignments and develop pedagogical practices that give students opportunities to analyze, practice, and reflect on creativity. In his course, Sullivan’s students work through a special unit in which they read essays on creativity; compose poems and short stories; experiment with artistic creativity in media beyond language, such as music, sculpture, and photography; and compose an “UnEssay” in which they consider a range of questions exploring “the fine arts as a knowledge domain” oriented around creativity (24). Collectively, then, these scholars begin to answer the Framework’s call to help students develop the creativity needed to meet complex challenges in their academic, civic, and professional lives.

Here I respond to this call to make opportunities in writing courses for students to develop creative habits of mind. Specifically, my curricular and pedagogical approach centers on design thinking methods integrated into upper-division writing courses, both required general education courses and electives within a professional writing minor.
creatively defining and solving problems. People who use design thinking methods develop innovative solutions through direct, regular engagement with people; students in my course, for example, observed and interviewed first-year faculty about their experiences and iteratively built and tested prototype solutions with them. While the design thinking process is results oriented, as people use these methods to craft innovative, implementable solutions, it also prioritizes learning throughout the process. My students learned about first-year faculty’s experiences and values, and they learned about how particular solution designs did or did not fit the contexts of new faculty’s personal and professional lives. These learning activities that fuel and focus problem definition and solution development make design thinking methods a meaningful way to foster students’ creativity in writing courses.

Several composition scholars have already begun to explore the value of design thinking approaches and perspectives in rhetorically based writing courses. In a 2009 *CCC* article, Richard Marback argues that design thinking can help writers learn to be more conscious about how they define problems in relation to stakeholders’ values, how they account for the range of available resources for responding to a rhetorical situation, and how they anticipate and assess the ways audiences will respond to and put their texts to use. Matthew Newcomb in his 2012 *CCC* article draws the clearest connection between design thinking, writing pedagogy, and creativity. He calls for assigning design projects in writing courses as a means both to help students learn how to make “an innovative response to a perceived situation and need” and to help them understand how “[c]reating with design” involves deeply rhetorical activity, as students do not simply make objects or products but rather “make new contexts and associations” (594). James P. Purdy, writing in *CCC* in 2014, calls less for an explicit engagement in design projects and more for simply attending to the parallels between design thinking and writing processes. Purdy suggests that focusing on design processes could improve students’ engagement with the writing process, particularly in terms of how design thinking’s approaches to brainstorming can prompt writers to keep their focus similarly broad through the invention stages. In the same way Purdy uses design thinking to invigorate students’ invention practices, Carrie S. Leverenz writes in *Computers and Composition* in 2014 about how she used design thinking in a cyberliteracies course as a means to teach students how “to
use available language resources”—writing, talking, drawing, composing with digital tools, testing solutions with stakeholders—“to make something new” (11). And most recently in a 2018 issue of Programmatic Perspectives, Jennifer Bay et al. have demonstrated that by integrating design thinking methods into their technical communication courses, they have been able to teach students “how to be more empathetic to the needs of others; how to be more confident in situations that require creativity and innovation; and how to reframe existing problems and apply new technologies . . . to solve complex problems” (188).

Like Marback, Newcomb, Purdy, Leverenz, and Bay et al., I discuss how design thinking can enrich students’ experience in a rhetorically based writing course, but unlike those scholars, I describe in detail and analyze in depth how I have fully integrated design thinking into upper-division writing courses, making it central to students’ research and writing activities. Much like in Newcomb’s discussion, though, my focus is not what solutions students created by the end of these courses but rather how they used writing and the design thinking process for creative problem solving, that is, how they used design thinking—echoing Flower and Hayes in the epigraph—to create ideas, not simply find them. In this way, I offer a detailed articulation of Miller and Jurecic’s vision of students learning to use writing “as a technology for thinking new thoughts” (4) and for “confronting, engaging with, and responding to the unknown” (4). While Miller and Jurecic set this exploration as a goal in and of itself, however, I integrate design thinking methods into writing courses as a means for students to inquire into the unfamiliar and then use writing to creatively define and solve problems.

My analysis of students’ writing activities in design thinking is informed by genre theory, with a particular focus on how students’ working with and through written genres common to design thinking has redirected them away from typical patterns of inquiry and argumentation in professional writing courses. Specifically, I examine how students use written genres in design thinking “to mediate activity,” especially “to work as aids to thinking and action” (Prior 17). In this way, we can see how written genres
central to design thinking methods function “as [sites] in which invention itself takes place” (Bawarshi 8). As Anis Bawarshi explains, “genres maintain rhetorical conditions that sustain certain forms of life—ways of discursively and materially organizing, knowing, experiencing, acting, and relating in the world” (9). My study, then, examines how specific genres are written and talked through by students in my design thinking–oriented writing courses toward the end of developing and sustaining creative problem solving as a means of acting in their academic, civic, and professional worlds.

Situating Design Thinking in the Problem-Solving Writing Course

My initial investment in design thinking pedagogy came from my concerns, as director of a general education writing program at a large suburban public university in the Northeast, with how we teach inquiry and invention in our required upper-division professional writing courses. We teach a rhetorical, process-based approach to writing, and we teach a series of linked assignments in which students identify and propose a solution to a localized problem. The typical writing project sequence asks students to define a real-world problem that needs to be solved, identify and analyze stakeholders in that issue, propose a solution to it, assess the feasibility of that solution, and finally deliver both printed and oral arguments in support of this solution.

During my first three years directing and teaching in our professional writing program, however, I came to see that we did not teach students either how to analyze and define these problems in creative ways or how to develop innovative solutions to them. Too often in the first weeks of these projects, in fact, students didn’t even engage in deep analysis or precise definition of the problem. Instead, they jumped right to proposing a solution. This type of proposal locks students into a limited understanding of the problem they are trying to address and, in turn, narrows their ideas about how to solve it. Consider these examples, which students proposed in the early weeks of a sustainability-themed section of my professional writing course:

I came to see that we did not teach students either how to analyze and define these problems in creative ways or how to develop innovative solutions to them.
We will create a policy that encourages recycling in our county.

We will start a recycling club for students in our county’s public schools.

These groups have already decided, in the first weeks of the semester, what they think the source of the problem is—in the first example, the lack of a policy; in the second, the lack of a student activity—and what they think is the best way to solve it. As Carolyn D. Rude warns, however, students who adopt a position early in the semester approach their remaining work as an exercise in defending that thesis. “Invention [from this perspective] means finding the evidence and arguments to support a thesis,” she explains, rather than investigating the deeper underlying causes of a problem and exploring, creating, and analyzing multiple ways to solve the problem (185). Rude suggests that as a result, students in their written proposals often represent an “alternative position . . . with only enough strength to make its inevitable defeat seem to be an accomplishment” (185). Ultimately, Rude argues, these students do not pursue authentic rhetorical inquiry but instead seek only to convince readers to accept their solutions. The groups mentioned above have left little room for creatively imagining and discovering the experiences, worldviews, needs, desires, and motivations of the people who live where the problem exists—what really are their recycling behaviors and, even more importantly, what knowledge and values motivate their actions? I contend that design thinking methods offer one way to help students, in Miller and Jurecic’s words, “practice resisting the allure of knowingness” (12), which is a critical practice in learning how to creatively engage with complex questions.

As it has been developed and promulgated by Stanford University’s Hasso Plattner Institute of Design—“the d.school”—design thinking is a methodology that people use to approach and solve complex, multidimensional problems in creative ways, such as those related to public safety and human resources. As Marback explains, design problems are “wicked problems” in that they
are highly contextualized, value-laden, and solvable in more than one way. Design thinkers embrace this wickedness by taking a human-centered approach. They work to deeply understand people’s values by listening to stories about their experiences and to create solutions that meet their needs and fit the contexts of their lives. Design thinkers creatively solve problems by moving through these five modes:

1. **Empathy Mode**: Students immerse themselves in learning so as to understand people who live, work, or play in the particular context where they perceive a problem exists. Students conduct observations and interviews to understand people’s everyday experiences as well as their physical, intellectual, and emotional responses to the problem.

2. **Define Mode**: Students synthesize this empathy research and craft a meaningful, actionable problem statement, one that defines the design challenge they will work to solve.

3. **Ideate Mode**: Students engage in collaborative, concentrated, semi-structured brainstorming, generating a wide range of ideas for possible solutions and then selecting those possibilities that have the greatest potential to solve the problem.

4. **Prototyping Mode**: Students create artifacts that represent particular aspects of the solution.

5. **Test Mode**: Students create situations that allow users to engage with the prototype. This testing gives designers the opportunity to generate valuable information and insights about how users interact with and respond to key elements of the solution design.

This entire design thinking process is purposefully recursive. When working in the define mode, for example, students might determine they need to conduct more empathy research, and when testing a prototype, students are conducting another form of empathy research as they watch how users interact with a solution. Teams also work through multiple stages of prototyping and testing, developing different or more refined prototypes—and, consequently, designing different or more refined solutions—along the way.

From a pedagogical perspective, the belief that motivates design thinking is this: by teaching students specific methods to understand problems
and generate, select, and develop solutions to them, we help them become more creative problem solvers. More particular to our concerns in writing studies, the chain of oral and written genres that students compose through the design thinking process can mediate the kinds of creative thinking that students need to develop in order to succeed rhetorically through college and into their civic and professional lives beyond school.

While I have taught a design thinking–oriented Gen Ed writing course on three separate occasions, in this essay I describe how students practiced creativity by using design thinking methods in an upper-division course in our professional writing minor. This course centered on a project commissioned by my university’s Office of Faculty Affairs (OFA). The leaders in this office asked me to teach a course in which students created videos for the new faculty orientation held each fall. OFA originally envisioned these videos simply showing glimpses of student life at our school, but I reframed the course as a design thinking project. Students would first identify problems that new faculty experienced in their first semesters at our school, and then working within the constraints of the video medium, they would compose creative solutions to those problems. Integrating design thinking methods into this course prompted students to develop video projects that were more attuned to the experiences, thoughts, and emotions of faculty participating in the orientation and moving into their first semesters on campus.

**Defining Problems through Creative Inquiry**

The first two phases of the design thinking process, the empathy and define modes, involve working to understand the values and experiences of the people for whom a person or a team is designing solutions. The work of inquiring into the lived experiences of people and of synthesizing that research into a concrete problem statement is facilitated by several specific textual genres. Students use writing in the empathy and define modes to shape their inquiry into and their definition of the problem they subsequently try to solve. These research and writing activities prompt students to check their assumptions and develop curiosity about other people’s experiences,
giving them opportunities, in Miller and Jurecic’s words, to practice “seeing and reseeing the places, people, things, ideas, and processes that define their many worlds” (13).

Composing Research Questions “Whose Answers Need to Be Listened To”

Undercutting the belief that organizations can creatively solve problems by huddling in a conference room, entrepreneurship educator Steve Blank instead urges students to “get out of the building” in order to talk with and observe people. Design thinkers aim to generate knowledge through observing and talking with community members and other stakeholders, knowledge that in turn helps them to define—from a particular stakeholder’s point of view—the problem in need of solving. Engaging students in empathy research activities, then, promotes an understanding that writers, like and as designers, make meaning about the world through interaction and communication, particularly in terms of listening to people’s stories as a first step toward creatively imagining their underlying needs.

Empathy research in design thinking demands a more probing inquiry than simply crafting surveys or asking people what they would change about their current lives. Listening to how people answer such a question might help a design thinker to “fine-tun[e]” aspects of a person’s existing life (Kelley 33), but it rarely helps designers “unearth” a range of “human needs and desires” (23). As essayist Leslie Jamison explains, empathy “comes from the Greek empatheia—em (into) and pathos (feeling),” which “suggests you enter another person’s pain as you’d enter another country, … border crossing by way of query” (6). Certain types of questions facilitate this travel more than others, for, as Jamison suggests, “Empathy isn’t just listening, it’s asking the questions whose answers need to be listened to” (5). She continues, “Empathy requires inquiry as much as imagination. Empathy requires knowing you know nothing. Empathy means acknowledging a horizon of context that extends perpetually beyond what you can see” (5). Design thinking methods, then, present opportunities for students to pursue inquiry in creative ways, as they try to identify and ask those questions that draw forth detail-rich stories from horizons of experience they cannot see through traditional library research or surveys.

Indeed, students’ analysis of faculty lives would not get too deep if they thought only about the contexts in which they normally engaged with
faculties, namely during office hours and in the classroom. Two textual genres facilitated students’ creative inquiry. First, students worked with the genre of User Empathy Cards to better understand how different faculty prioritized their time and their activities during their first semesters on campus. For this particular research project, my teaching collaborator from the university’s Academy for Innovation and Entrepreneurship and I composed a deck of eight cards that listed different activities and experiences likely common to new faculty at our university (see Figure 1).

Students asked faculty to quickly browse through the cards and then roughly order them according to criteria such as importance, quantity of time, or frustrations and joys. As faculty sorted the cards, students asked questions about why the faculty member ordered the cards in a certain way, but the specific ordering itself wasn’t necessarily the most important part of the empathy interview. Rather, this User Empathy Card genre helped students initiate conversations with first-year faculty and gain insight on the activities and experiences that matter to them.

Beyond the empathy cards, the questions and open-ended prompts students composed were the second textual genre that enabled them to elicit new knowledge and dislodge them from their preconceived positions

<table>
<thead>
<tr>
<th>Getting to know the area</th>
<th>Learning campus culture</th>
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<tbody>
<tr>
<td>(i.e., places to live, local schools for my kids, where to shop and eat)</td>
<td>(i.e., how to tap into university pride and spirit)</td>
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<table>
<thead>
<tr>
<th>Improving my teaching</th>
<th>Balancing life stuff</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i.e., learning new methods of teaching, building skills in teaching)</td>
<td>(i.e., adjusting to new schedule and department needs while also figuring out how to live life fully in a new place)</td>
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<tr>
<th>Starting my research</th>
<th>Accessing campus resources</th>
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<tbody>
<tr>
<td>(i.e., diving into new territory, exploring funding opportunities, setting up my lab or office)</td>
<td>(i.e., benefits, amenities, learning about who to talk to and when)</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Identifying growth opportunities</th>
<th>Building relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i.e., what it takes to move up in the ranks, getting tenure, working on topics/issues I care about)</td>
<td>(i.e., with fellow faculty, communities of interest/research areas, graduate students, staff, or administrators)</td>
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Figure 1. User Empathy Cards for new faculty activities and experiences
about faculty lives. Students asked questions that helped them travel with new faculty to the “horizon of context” (Jamison 5) beyond what students often assume or see. In their empathy interview questions, then, students did not ask questions like “What has a typical day been like in your first semester at our school?” and “What could have helped you the most in your first semester at our university?” Instead, students used prompts such as “Describe a moment from your first year when you felt frustrated in your transition to this school” and “Tell me about a time when you left campus feeling energized and thinking, ‘I love working here.’” Here they asked faculty questions that drew out specific stories as a way of helping students more deeply understand not only what professors do but also how they feel about their professional lives.

Focusing students’ inquiry on the local context and prompting them to talk to faculty jarred students out of a staid practice of defining problems based on their own assumptions and experiences. These genres of empathy cards and empathy questions inspired inquiry into faculty lives in ways that traditional library research they conducted—such as our class readings from the Chronicle of Higher Education, Inside Higher Ed, and the Association of American Colleges and Universities—did not. Empathy research questions prompted faculty to tell detail-rich, value-laden stories about their professional lives, in all its breadth and depth. The genres of empathy cards and empathy questions helped students “cros[s] by way of query” (Jamison 6) into the spaces and moments where faculty experienced frustrations and joys in their first semesters on campus. These genres helped to strip away many misconceptions students had about faculty lives and, in so doing, primed them to think more creatively about how they would define and attempt to solve user problems.

Writing Problem Definitions from a New Point of View

As student-teams interviewed and observed first-year faculty, they shaped and articulated the meaning of their research in the Define Mode through two specific written genres, User Empathy Maps and Point of View Statements. After conducting empathy interviews in pairs, students came back to class and joined together in a design thinking activity called Story Share.

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& Capture. One person took a turn reading her detailed interview notes—not simply summarizing those interviews but rather reading the notes line-by-line—while teammates used sticky notes and markers to jot down key words, phrases, and quotes from the empathy interviews like these:

- I didn’t know where to turn for help.
- I found lunch buddies.
- Faculty from other departments became my best friends.
- Felt money pressures.
- on university’s daycare wait list
- I had to pay for a nanny when I got here.
- I felt vulnerable when that student challenged my authority in the classroom.
- I regret snapping at that student.

Students wrote just one item per sticky note. As they recomposed their empathy research into a different textual form—dividing their pages full of handwritten notes into small, individual pieces—students began to analyze and synthesize this empathy research in creative ways.

Having captured key words and phrases from the interview on sticky notes, students then used a design thinking genre called a User Empathy Map to begin to synthesize their data across several interviews. Students discussed each note and determined how to classify it:

- things the person *says,* or memorable quotes or defining words from a narrative the person told
- things the person *does,* or descriptions of the person’s actions within the narrative
- things the person *thinks,* or statements that reveal what the person believes about the experience
- things the person *feels,* which are phrases that uncover the person’s emotions about the experience

Students then plotted these different types of notes onto the “map.” Creating a User Empathy Map helped students visualize and identify relationships
between faculty members’ actions, words, emotions, and needs (see Figure 2). The analytical benefits of the User Empathy Map became even clearer as students layered notes from several different interviews onto it, for they began to see clusters of similar thoughts and feelings emerging in the lived experiences of faculty members. For example, students noticed that several first-year faculty in STEM disciplines expressed feelings of “academic loneliness”—a direct quote from two different interviews—as they faced the time- and energy-intensive work of creating their own research teams for the first time, while several humanities faculty members felt both hopefulness about the possibility of integrating diversity and inclusion issues into their courses and trepidation at not feeling like they knew how to do it well. As they textualized their empathy research during Story Share & Capture and synthesized these notes with the User Empathy Map, students dislodged the too often unimaginative ways they go about problem solving. They pushed past their preconceived notions about faculty lives and practiced a creative approach to understanding their user’s values and experiences.

As students synthesized their empathy research using User Empathy Maps, they created unexpected knowledge about users’ experiences and needs that they then shaped into a sharply focused Point of View statement, which takes the templated shape shown in Figure 3.

<table>
<thead>
<tr>
<th>USER EMPATHY MAP</th>
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<tr>
<td><strong>NEEDS</strong></td>
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<tr>
<td><strong>Use &amp; Usability</strong></td>
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<tr>
<td><strong>SAY</strong></td>
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<tr>
<td>Quotes &amp; Defining Words</td>
</tr>
<tr>
<td><strong>DO</strong> (or Say They Do)</td>
</tr>
<tr>
<td>Actions &amp; Behaviors</td>
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Figure 2. User Empathy Map
Using this template might seem to undermine students’ creativity, but in fact this POV Statement genre supports students’ creative problem-solving practice in two important ways. As mentioned in the earlier example of students working on sustainability topics, many students’ tendency is to identify a specific solution early in the problem-solving process. Contrast that with the POV statements composed by students working on the first-year faculty experience project:

Nathalie, a first-semester biology professor starting a research lab for the first time, needs a way to experience connection and companionship with other researchers on campus, because she has felt “academic loneliness” since stepping on campus and not immediately joining an already vibrant, communal research team.

The POV statement directs students to articulate the overall problem they need to solve rather than to write a specific solution into the problem definition. That is, the POV Statement template prompts students to focus on creating a way to do or experience something rather than already identifying a specific thing the person needs. This more open-ended POV statement keeps students’ creative problem-solving practice open to inventing a wide range of potential solutions to the problem rather than narrowing their focus too early in the process to developing one particular type of solution. Moreover, since solving persistent problems requires understanding...
not only what people say they need but also learning about their deeply engrained habits and values, the POV Statement directs students to foreground insights about the emotional depth and breadth of a person’s experiences rather than only their material needs. In this way, then, composing this POV statement genre underscores Cathy Birkenstein and Gerald Graff’s argument that templates can “have a generative quality, prompting students to make moves in their writing that they might not otherwise make or even know they should make” (xiii).

To culminate the problem definition phase of this course, students textualized their knowledge into research posters that showcased their POV statements, relevant clusters of notes from their User Empathy Maps, and revealing quotes from their empathy interviews. Students presented these posters to OFA staff; textualizing their Empathy and Define Mode work this way drew out stories from OFA staff’s own experiences with faculty, stories that in some cases resonated with and enriched students’ POV statements and in other instances prompted students to revise or reshape their problem definition. Ultimately, the analytical techniques students used and the texts they composed in design thinking’s Empathy and Define modes supported their creative problem-solving practice, not only helping them to generate knowledge about often overlooked dimensions of users’ experiences but also prompting them to frame users’ problems in a way that keeps students open to inventing a variety of solutions.

**Creatively Solving Problems through Collaborative Invention**

While design thinking methods deepened students’ understanding and practice of inquiry, they also helped students learn to practice a focused, coherent approach to collaborative invention. Too often in our university’s professional writing courses, students would stop with the first good solution they thought of and then begin to develop it fully from there, or they would hunt for solutions developed in other contexts and search for reasons to transplant them to the local context. Design thinking methods
Instead engaged students in extended, structured brainstorming activity that enabled them to generate a larger number and wider range of ideas to inform their solution design. As Rude explains, genres relate to “strategies for structuring intellectual activity” (172), and several informal, in-process genres were critical to helping students develop creativity in their problem-solving practice.

**Writing to Prompt Invention**

The Ideation stage of design thinking involves a semi-structured, team-based approach to brainstorming solutions, and two writing practices in particular enable student-designers to mobilize knowledge from their problem definition stage and propel it through early problem-solving invention work. First, students compose How Might We (HMW) questions, which energize and focus students’ brainstorming work. To compose HMW questions, students slightly reframe the needs and insights in their team’s POV statements—which were, as mentioned earlier, composed in a way to focus on the goal a potential solution should meet rather than to identify a specific solution itself. In a similar way, then, student-designers composed HMW questions that were broad enough to draw forth a wide range of solutions yet narrow enough that they focused the team on inventing solutions that fit the user’s contexts and needs. The team that had composed a POV statement focused on STEM faculty’s “academic loneliness,” for example, crafted HMW questions such as these:

- HMW make STEM faculty feel comforted and supported in those weeks before they have their research teams in place?
- HMW make creating a research team the most cheerful part of STEM faculty’s first year?
- HMW help STEM faculty create a supportive community in their research team?

Marback suggests that wicked problems, since they are so context bound and value laden, demand “inventing a solution” rather than simply “discovering an answer” (W400), that is, designing a solution that embodies knowledge about the constraints and potentials of a particular context rather than searching for and importing a solution from some other time, space, and community. As they composed HMW questions, students mobi-
lized the knowledge embedded in their POV statements, particularly those empathetic insights about people’s thoughts and emotions, and reshaped it into actionable HMW questions that could launch their creative invention of solutions.

After teams selected three HMW questions to use as brainstorming prompts, they set up their brainstorming space, with butcher paper on the wall and sticky notes and markers in hand. We role-played several “bad” examples of brainstorming in order to establish norms of effective brainstorming: deferring judgment about ideas; building on each other’s ideas; and “headlining,” that is, jotting down a phrase or drawing a basic picture, slapping the sticky on the board, briefly explaining it, and moving on. Quickly writing or drawing ideas on sticky notes might seem to be insignificant, but composing this small-scale genre during brainstorming sessions supports collaborative creativity. In fact, many design thinkers see the sticky note’s restricted space not as simplistic or a limitation but as a critically important constraint for innovation, for it prompts collaborators to get more ideas in the open rather than trying to flesh out lots of details and elements of any one idea before sharing it. This use of sticky notes reflects how during ideation design thinkers focus “less on making decisions” and more on “creating options from which to choose” (Osterwalder and Pignaur 143). This ideation stage presents a moment and space for teams to amplify their physical and mental energy toward generating a greater quantity of ideas, to imagine solutions in creative ways without concerns of getting dismissed. Students’ HMW questions propelled this invention, pushing them to think in imaginative yet structured ways about the problem and solutions and to generate kernels of ideas, knowing they would decide later which solution ideas to toss aside and which ones to develop more fully.

**Selecting Creative Ideas**

The next major step in the ideation mode, Idea Selection, provides direction for thinking through another challenge writing teachers often confront in trying to foster students’ creativity and innovative thinking. Even if students engage in robust, fruitful invention activity, many imaginative yet undeveloped ideas get lost when students analyze and assess them in terms of our most commonly used evaluative criteria: feasibility. Indeed, the final major project in most of our program’s professional writing courses is a feasibility report, which prompts students to consider whether or not
a specific solution can and should be implemented. Feasibility in and of itself isn’t a bad criterion, of course, but focusing on it as the criterion too soon in the problem-solving process shuts down potentially creative solutions with the phrase “It’ll never work.” Design thinkers instead pursue innovation by selecting ideas that seem like they have the potential to make a significant breakthrough in addressing those needs at the heart of the POV statement, knowing they can address feasibility concerns later in the design thinking process.

To push students toward creative problem-solving practice, students voted for the ideas generated during brainstorming according to several different criteria. I tallied the votes and then assigned the four video projects this way:

- one team to develop the solution identified as “most likely to succeed,” (or, in other words, the “most feasible” solution): a video project where STEM undergraduate students and postdocs share their experiences joining and integrating with new research labs and newer STEM faculty discuss their experiences creating a supportive, collaborative culture in their new research teams

- two teams to work on the two project ideas deemed “most likely to delight the user”: a video project in which students describe how teachers “connect” with students and why that connection is important, and a video project showcasing students and faculty from a range of disciplines who share experiences and insights on what “good teaching” means

- one team to pursue the idea labeled as the potentially “biggest breakthrough”: a video in which faculty discuss their motivations and strategies for integrating topics of diversity and inclusion into their courses and students share their experiences in these courses

This particular idea selection activity was revealing, for it showed that while we often explicitly promote creativity and innovative problem solving in our professional writing courses, the values written into our writing assignments, such as our overpowering emphasis on creating feasible proposals, can and often do undermine these efforts. In my class, then, rather than having each team try to solve a problem in a way they felt assured would work, we explicitly used a range of criteria to evaluate potential solutions
in order to redirect students to invest time and energy in developing creative solutions.

**Composing Multimodally to Design with Users**

Dorothy Winsor argues in *Writing Like an Engineer* that “although the goal of engineering may be to produce useful objects, engineers do not construct such objects themselves. Rather they aim to generate knowledge that will allow such objects to be built” (*Writing Like 5*). A similar purpose motivates design thinking’s prototyping and testing modes. Student-designers create rough prototypes of a solution that helps users experience what their lives would be like with the solution in it; testing the prototype with users generates knowledge about how the solution idea does or does not address user needs, align with user values, and fit the contexts of users’ lives. Student-designers then use this knowledge to continue developing and refining the solution idea through subsequent iterations of the prototype and test modes.

Given this aim to generate knowledge about their solution ideas, students must decide what prototype genres to use in order to help users experience, interact with, and give feedback on the solution design. Student teams in my professional writing courses typically compose one or more of these multimodal prototyping genres:

1. Annotated sketches that highlight key features of a solution.
2. A storyboard, in which teams create a series of sketches or photos to outline a sequence of events or highlight specific details of an activity.
3. Role-play prototyping, in which the team creates key props and then has users role-play through an experience.
4. “Works Like/Feels Like” prototyping, in which the team creates a very basic physical object that gives users the opportunity to see, hold, play, and work with that object or to virtually walk through a space.
In my professional writing course focused on first-year faculty’s experiences, students were constrained by the OFA’s demand for video projects; consequently, student teams composed their prototypes within the storyboard genre. Both before starting and as they worked through the process of generating content for their video projects, students created eight-panel storyboards, shared them with first-year faculty, and gained their feedback. Testing these storyboard prototypes generated new knowledge about users’ values and experiences and about how specific aspects of the video project could best meet first-year faculty’s needs and desires. Student-designers integrated this knowledge into their continuing video project work, seeking new voices for interviews to feature in the videos, creating new thesis statements for their videos, framing their video projects in new ways, and even creating different tones and visual styles.

Teaching prototyping genres—annotated sketches, storyboards, role-playing, and “works like/feels like” objects—accentuates how multimodal composing not simply supports or stimulates students’ and community members’ collaborative invention but rather is a creative knowledge-making activity itself. Prototype testing in design thinking operates as a form of distributed cognition, which Winsor describes as a phenomenon in which “people and their tools ac[...t] in concert . . . to accomplish a kind of cognition that no individual could achieve separately” (Writing Power 6). The aim of creating and testing prototypes, in other words, is not to seek confirmation about a solution idea but rather to bring designers together with users to think with and through the prototype-as-tentative solution—to generate new knowledge about users’ experiences that didn’t emerge through earlier empathy research and about how the solution could best fit the contexts of users’ lives. Ultimately, over subsequent rounds of prototype composition and testing, the solution design comes to embody the knowledge generated in this distributed fashion among designers, users, and prototype genres.
Pitch Learning, Not Products: Reworking the Presentation Genre

One mental image many of us have about innovation and startup culture is “the pitch.” Entrepreneurs perform this genre as a way to attract investors, often trying to “Wow!” them with short, slick, high-energy presentations that showcase their new product’s great features and that predict the tremendous profits it will generate. These pitches reinforce the image of innovative designers as uniquely smart, visionary people who develop new solutions through their individual brilliance. Similarly, the typical final presentation in our professional writing courses seems to push students to say that their solution is fully developed and ready to go, as students fear their course experience and major project otherwise will have felt like a waste of time.

As I hope I’ve demonstrated through this essay, design thinking methodology deeply engages students in creative, collaborative practices of inquiry and invention. The traditional approach to pitching solutions does not showcase that learning, however, even as this learning and iterative development of a solution could help decision makers and other stakeholders better evaluate the logic of a creative solution and its potential for solving users’ problems. To more explicitly reinforce students’ creative processes, not simply the products of that process, my AIE collaborator and I redesigned the final “pitch” presentation genre in our course in a way that prompts students to make arguments about their solution design based on their learning through the design thinking process.

Whereas in the earliest versions of my professional writing courses students delivered pitches that highlighted key features of their solutions, the new oral presentation genre prompts students to deploy and synthesize two different narratives for their final presentations:

- Innovation Story: Students describe who their user group is and what they learned about them through empathy research, how they defined the users’ particular needs, how they designed their solution to meet that need, and how users’ lives will be different with the solution integrated into it.
• Learning Story: Students tell the story of how they generated knowledge about the fit between user needs and solution design through several iterations of prototype testing.

As they shape their presentation genre, students weave these two narratives together. First they introduce their user groups and describe their empathy research, then they tell the story of how they designed their prototype and what they learned by testing it, and finally they describe how the solution will fit into the context of users’ lives. Shifting this presentation genre from a product-focused pitch to a learning-centered story—albeit one that still showcased the solution in its present form—helped reinforce the emphasis on students’ creative learning through the design thinking and the writing processes.

My initial motivation in integrating design thinking into my professional writing course was to help students learn new methods for analyzing, defining, and solving local problems through writing. That being said, this teaching experience has also illuminated spaces where writing studies can lend critical insight to design thinking and innovation pedagogy, particularly in terms of our attention, following Michael Carter, to how writing projects can be strategically designed to enhance specific ways of knowing and doing in a particular discipline. Redesigning the presentation genre prompted students to foreground what and how they learned through the problem-solving process. Pivoting away from the typical product-focused “pitch” genre and toward this “learning story” emphasizes the necessary social action of persuading stakeholders on more substantive, empirical grounds about the design of creative solutions. That particular social action highlights a potential opening for writing studies scholars to shift thinking in these types of design thinking methodology courses, teaching students not simply how to close a deal and secure funding but rather how to engage deeply in and reflect on the processes of iterative learning at the heart of creative research methods.

Conclusion: Fostering Creativity through and beyond Design Thinking Writing
Throughout the design thinking–based writing course, students compose in a range of genres, for varied audiences and for varied purposes, that help them develop creativity and problem-solving skills. These genres of writ-
ing—both formal and informal composing—direct them away from typical patterns of inquiry and argumentation in many writing courses. Common proposal and feasibility report assignments too often allow students to describe problems from their own self-interested perspectives, encourage them to move too quickly to proposing solutions, or allow them simply to import solutions used elsewhere or develop new solutions from the comfort of the classroom. The research and writing activities threaded through the design thinking process, on the other hand, prompt students “to get out of the building” (Blank), engaging with users and other stakeholders in order to discover new insights on problems and to develop creative solutions.

Simply framing the commissioned faculty orientation video assignment as a design thinking project, in fact, fostered students’ creativity in ways that the Framework for Success in Postsecondary Writing recommends, encouraging them to “take risks by exploring questions … and ideas that are new to them” (Council 4). Design thinking methods forced students to move past saying, “We know what faculty need to hear in our orientation videos,” and the empathy research questions they composed—and revised many times—didn’t directly ask new faculty “What do you want or need?” but rather drew out detail-rich stories about faculty members’ first semesters on campus. Students also learned “how to reframe existing problems” (Bay et al. 188) both as they created User Empathy Maps, a genre within which they recomposed and synthesized their empathy research notes in order to generate deep insights about faculty members’ experiences, thoughts, and feelings; and as they drafted Point of View Statements and How Might We Questions, which they wrote in ways that helped them focus their brainstorming while also keeping it open to a wide range of solution ideas. Students used writing “to work as aids to thinking and action” (Prior 17) in the ideation stage, as well, composing and drawing in the compressed genre of the sticky note in order to create space for generating a large quantity of ideas, and they discovered that expanding the range of criteria used for screening potential ideas can inspire them to pursue creative ideas farther into the problem-solving process. Students then composed multimodally in the prototyping stages as a means to think with, learn from, and iteratively develop solutions with users. Indeed, composing prototypes and engaging users in dialogue with them illustrates Miller and Jurecic’s belief in using writing “as a technology for thinking new thoughts” (4) as well as Newcomb’s assertion that design work involves making not simply objects
or products but also “new contexts and associations” (594). Moreover, as students reworked the typical “pitch” genre to showcase how their creative solution designs were developed through deep, iterative learning—learning about people’s experiences and values and learning about how different solutions fit or even reshaped the contexts of their lives—they reinforced Flower and Hayes’s argument that “[t]he act of creating ideas . . . is at the heart of significant writing” (22). Ultimately, as students focused, sustained, and invigorated their invention work within design thinking’s formal and informal genres, they gave life to Bawarshi’s claim that “genres maintain rhetorical conditions that sustain certain forms of life” (9)—in this case, conditions that draw out and support students’ creativity.

While integrating design thinking methods into problem-solving-oriented writing courses can help students develop more creative approaches to inquiry and invention, design thinking methods can and should be practiced alongside and enmeshed with theories and methods in students’ respective disciplines. Take, for example, the professional writing minors in my course working on the video projects commissioned by the Office of Faculty Affairs. They used design thinking research methods to generate user-centered insights about problems and potential solutions, but they also drew on their disciplinary theory and skills in multimedia composition to create the orientation videos for first-year faculty. In short, design thinking methods do not supplant but rather complement students’ education in the standards and theories of the disciplines in which they learn and work, and we should frame our writing projects in ways that encourage students to draw on that disciplinary knowledge and skills as they design, iterate, and communicate solution ideas to users and stakeholders.

Miller and Jurecic argue that creative thinking in writing courses involves “resisting the allure of the familiar and the easily proven” (113), and this article demonstrates how design thinking-based pedagogy has prompted students to move past their preconceived notions about problems and to develop deeper, more creative insights about those problems through empathy research. At the same time, teaching design thinking also requires “resisting the allure” of thinking that design thinking is the only method to use in solving contemporary problems. The way design thinking narrows students’ focus on specific user groups’ needs highlights opportunities to introduce other modes of humanistic research into the design process. As historian Peter N. Miller suggests in a Chronicle of Higher Education article,
Design thinking research “is all conducted in the present tense, with no sense that the past matters to the present. . . . Libraries, archives, museums, the great repositories of the human past are rarely called upon for help.” Design thinking’s approach, Miller argues, reveals a significant contradiction in its claim to be a human-centered practice, for it seemingly ignores how the past shapes and lives on in a particular community’s present life.

Students may indeed create sharp, focused POV statements that reveal deeper, often unacknowledged insights about a person’s experience, but they also potentially strip away some of the social, cultural, and political complexity of human behavior. I could design this particular professional writing course, for example, in a way that prompts student-designers to engage with sociological and psychological examinations or perhaps even literary representations of faculty experiences in higher education. Design thinking research methods do prompt students to dive more deeply into the cultural community they are working with, but this deep dive should also include the types of humanistic and social research that happen through reading, watching, and listening to a wide range of cultural artifacts produced by and for a community. Ultimately, by integrating design thinking research methods with more traditional approaches to library and archive-based research, we can create even greater opportunities for students to develop the habits of mind necessary for creative inquiry into problems and invention of solutions across the broad range of their disciplinary, professional, and civic lives.

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Works Cited


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