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Facing wicked problems during a pandemic and beyond: A case study in using design thinking for CTL development and growth

Jenna Pack Sheffield and Devon Moore

Abstract

In this article, the authors share the challenges we faced as we launched a center for teaching and learning during the COVID-19 pandemic, and we describe how we used design thinking as a strategy for working through these challenges. The article presents an overview of the design thinking process, a case study of our application of the process, and recommendations for how educational developers can leverage design thinking as a strategy for solving problems related to limited resources and low faculty engagement.

Keywords: design thinking, faculty development, CTL development, COVID-19, wicked problem

When the COVID-19 pandemic arrived on our campus in March 2020 and caused a move to remote teaching and learning, the whirlwind resulted in many challenges. Our faculty were wrangling with learning new technologies, worrying about academic integrity, managing their workload, and wondering how they would teach labs remotely, to name a few concerns. As we entered the world of remote work, our instructors craved a space to exchange ideas—to seek support, offer

suggestions, and share epiphanies. At the same time, they felt overworked and overwhelmed in their personal and professional lives, making it difficult for them to find the time to engage in teaching workshops or even reach out to a colleague for teaching support. Given the sudden transition to remote instruction, teaching support at our university largely existed in triage mode. When it was determined that the University of New Haven (UNH) would be offering flex, hybrid, and in-person courses for the Fall 2020 semester, it became clear that there was a need for a formalized entity, a centralized space, that would facilitate opportunities for instructors to solicit guidance from one another and find a supportive community for a challenging semester ahead. Out of this chaos emerged the UNH Center for Teaching Excellence (CTE).

Tasked with building the CTE during this challenging time, Jenna (Author 1) and Devon (Author 2), the CTE interim director and assistant director, respectively, turned to design thinking as the problem-solving approach and theoretical framework to build the CTE. In this article, we share how we used design thinking to address the "wicked problem" of building a CTL during a pandemic. Although our wicked problem was how to build the CTE during the pandemic with no budget and two staff members, our central argument is that others can use design thinking as a strategy for addressing a wide range of problems in the development and growth of CTLs and other faculty development opportunities on their own campuses.

We begin by sharing the challenges we faced as we built the CTE, how we responded to the challenges, how design thinking informed our practice, and what other educational developers might take away from our successes and failures. Specifically, we share how a design thinking mindset can be applied to faculty development initiatives during times of crisis, or at practically any time when a CTL is faced with a difficult challenge. Our experience might be best viewed as a case study for creating a CTL in times of crisis with minimal support.

Design Thinking as a Problem-*Improving* Strategy

Design thinking is a process for systematically, strategically solving (or at least improving) difficult problems—"wicked problems," as they are called in the design thinking literature. Wicked problems are challenging problems that do not have an immediate "right answer" and, some would argue, cannot be ultimately solved. According to Rittel and Webber's 1973 article that originally introduced the term *wicked problems*, wicked problems are difficult to solve for a variety of reasons: they are typically unique, involve stakeholders with competing interests and priorities, and are often considered a symptom of another larger problem (Rittel & Webber, 1973). Wicked problems are challenging to even define because, as Rowe (1986) notes in *Design Thinking*, there are different possible formulations of a given wicked problem and those formulations imply different solutions, which are not necessarily correct or incorrect (p. 41).

While design thinking is often used to address wicked problems in engineering, architecture, or design settings, it has begun to gain popularity in other areas, such as business and education (Foster, 2021; Moggridge, 2010). Across businesses, design thinking has proved to have favorable outcomes, such as better economic performance in the marketplace (Matthews & Wrigley, 2017). There are some slightly different methods to implementing design thinking, such as the approach articulated by Tim Brown, chair of global design company IDEO, who suggests there are three "overlapping spaces" of design thinking: inspiration, ideation, and implementation (Brown, 2008). Yet each method holds at its core the importance of empathizing with one's "user" and rapidly ideating or generating a wide range of solutions. We align with the Stanford d.school's (Doorley et al., 2018) approach, which has five phases: empathize, define, ideate, prototype, and test:

- **Empathize.** In this stage, designers seek to empathize with "users" by getting insights into their needs through research, such as observations or interviews.

- **Define.** Using what they learned about their users in the empathy phase, designers then seek to define the real problem they are working to solve (or improve). The goal is to create a well-defined, actionable problem statement that represents a specific point of view on the issue at hand.
- **Ideate.** In the ideate mode, designers generate ideas to wrangle with the wicked problem they have defined. Designers are encouraged to come up with a wide range of ideas—some that even seem crazy or impractical. They are also encouraged not to let constraints (such as budget concerns) limit their ideas at this stage.
- **Prototype.** To prototype, designers create an early, rudimentary model or tactile representation of their ideas. Prototypes can take virtually any physical form (Doorley et al., 2018). The goal of prototyping is not to finish. It is to learn about the strengths and weaknesses of the idea and to identify new directions that further prototypes might take. Design thinkers are encouraged to prototype quickly and often.
- **Test.** In the testing phase, designers should seek out users to try their prototype and offer feedback, using that feedback to improve the prototype.

We argue that two aspects of design thinking make it stand out among other problem-solving strategies and make it particularly applicable to developing and managing an effective CTL: its human-centered, empathy-driven nature and its recursive, reflective process of problem-solving (Buchanan, 1992, pp. 9–10). The first, and arguably most important, phase of design thinking (empathize) is about walking in your "user's" (in our case, faculty who would use the CTL's services) shoes; if a designer cannot truly understand the user's perspective, they cannot effectively resolve the problem. Design thinking is recursive in the sense that each mode might feed back into another and cause shifts or changes in a former mode. For example, as a designer works on the prototype, they might discover that their selected idea is not meeting the user's needs, and the designer might need to revisit

the "define" mode to better frame the problem at hand. These two aspects of design thinking—its focus on empathy and recursiveness—are what helped us build a successful CTL during the pandemic. They are also the aspects of design thinking that we feel may, in some ways, differentiate our approach from that of other educational developers. In *Faculty Development in the Age of Evidence: Current Practices, Future Imperatives*, Beach et al. (2016) shared the results of a large-scale study of educational developers in North America and Canada, and although their helpful work shares many common practices across study respondents, they also noted that it raised further questions, including the following: "What strategic planning approaches best help developers prioritize the needs of individual faculty members and the institution as a whole? What reflective planning approaches best help developers assess their own expertise and capacities, and how can developers incorporate those into the center's and institution's needs?" (p. 53). We suggest that design thinking is one such approach that helps faculty development professionals strategically plan to meet the needs of individual faculty members and reflectively plan for the future.

Wicked Problems: Challenges and Opportunities in a Time of Crisis

The literature on faculty development chronicles many challenges faculty developers face, such as issues related to enacting valid assessment practices, ensuring the sustainability of CTLs both financially and in terms of administrative support (Gillespie et al., 2010), and cultivating a strong institutional teaching culture (Shaw et al., 2021) that is supportive of experimentation in teaching and "accepts the associated risk" (Condon et al., 2016). We faced many of the same challenges, and we viewed our problem of how to start and sustain a CTL during the pandemic as a wicked problem because it was a challenge connected to other substantial problems on campus, one with many

people and opinions involved, and one with no "right" answer. Before detailing these challenges, we offer brief context about our university and the context surrounding our CTE.

UNH is a regional comprehensive university in the Northeast with approximately 6,500 students, primarily undergraduate. UNH faculty had been advocating for a CTL for years, although the first director of our university's CTE was not appointed until 2019. Due to shifts in administrative roles, and due to the pandemic, little progress occurred in Academic Year 2019/2020. Many faculty across campus were unaware that the CTE even existed. The director left the university in May 2020; Jenna was asked to step in as interim director, and she brought on Devon as the assistant director. We settled into our roles in early August 2020, in the midst of various crises. It became our wicked problem to decide how to move forward a CTE that had been promised to the faculty for years. We needed to decide how to take it from a much-talked-about possibility to a useful, accessible, and robust service. And we had to determine what "useful, accessible, and robust" would look like in a pandemic and amid social and political unrest. Our wicked problem of delivering on a long-promised resource was further complicated by the campus climate. As a private university that relies heavily on tuition and housing for revenue, our university, like many others, faced financial hits when the need to refund students after our March 2020 campus closure became apparent. When we took on our positions in the CTE, the university was certainly at a better place than it was in March when campus quickly moved to fully online instruction because we had spent the summer preparing for a variety of teaching scenarios. Yet much of what teaching in a pandemic would look like for UNH was still in flux due to changes in state guidelines. Our CTE had been tasked by administration with important items such as new faculty orientation, adjunct faculty onboarding, preparing fall/spring teaching workshops, and providing teaching support for faculty who were facing many challenges. These challenges ultimately informed our own set of challenges as educational developers in this time of crisis. Some of these problems were as follows:

- **New Course Delivery Modes.** As we noted, UNH reopened in Fall 2020. While many faculty and administrators supported this decision because we knew our students wanted to be back on campus and we had strong health and safety measures in place, this decision necessitated that faculty teach in ways that were largely new to them—hybrid, flex, remote synchronous, and so forth. Most faculty were assigned to teach hybrid sections, which meant that due to social distancing requirements, half of the class would attend class in person one day per week and the other half would attend the other day, while the rest of the course content would be online asynchronous.
- **New LMS.** Our university also switched to a new learning management system (LMS) in Summer 2020. This commitment to improving the online learning experience for our students was an important shift. Yet it certainly added more stress and time commitment, including summer training, to faculty members' already full plates.
- **Faculty Workload Concerns.** As a cost-saving measure, university administration announced over the summer that they were increasing most tenure-track and tenured faculty members' teaching loads by an additional course per semester. This left some faculty concerned about research progress toward tenure, and many were already worried about teaching their courses in entirely new delivery modes.
- **Faculty Morale Issues.** Due to budget cuts, increased teaching loads, lack of in-person connections, and other personal factors outside of work, our faculty community suffered from low morale, as was likely common at many universities during this time.
- **Lack of Resources.** Our CTE did not have a dedicated physical space. In addition, some of our faculty were teaching fully online, and our general campus approach to the pandemic was to de-densify campus when at all possible to reduce possible health risks. As such, we needed to hold all programming online, which limited, or at least changed, how we might have otherwise envisioned CTE programming being enacted. We also did not have a budget, further limiting what we were able to accomplish.

- **Student Concerns About Diversity and Inclusion.** After George Floyd's death, a group of students became more vocal about how the university should be responding to diversity and inclusion issues on campus. The situation added tensions to a campus climate that was already stressed, and it revealed another priority area for faculty development.
- **Student Concerns About Instruction Quality.** Although our students generally responded positively to surveys about the quality of academic instruction they received after campus closed, it became clear that faculty members' abilities with the LMS, web-based engagement tools, collaborative online documents, web conferencing tools, and so forth varied widely. Hearing about these issues further concerned university administrators who were committed to, and worried about, retaining students.

A significant challenge, then, was determining how to meet faculty at their various skill levels while balancing our own time and resources as a low-staff, no-budget center.

Ultimately, the importance of teaching effectiveness was brought into the spotlight on our campus when the pandemic reached us. Across higher education, students wanted tuition and housing refunds. Faculty were forced to grapple with the corporate side of education and to see how their performance as teachers was connected not just to student learning but also to student retention and, frankly, revenue. There was heightened attention to teaching evaluations at a time when faculty also felt particularly vulnerable and were struggling to deliver instruction while balancing caregiving responsibilities, childcare, and new delivery modes.

Most of these challenges impacted faculty buy-in, their ability to attend or lead CTE workshops, their willingness and ability to innovate in their courses, or their interest in learning new strategies. It is easy to see how building the CTE became a wicked problem. We had to wrangle with questions of what to prioritize, if we should frame our approaches as formative or evaluative, and how to balance demands

from administrators in order to secure buy-in and support, all while focusing on faculty needs and student needs. There were many competing opinions, priorities, and issues that were intricately connected, and there clearly would not be one "right" answer.

Given the myriad problems involved in this process, readers may wonder why we chose to build a CTE during such a trying time rather than continue in triage mode. One reason is because at that time, more than ever, our faculty were expressing a desire for more teaching support, and we wanted to offer the best version of that support that we could possibly muster. Another reason is because many faculty and administrators had been pushing for a CTE for years, so we felt that we would lose faculty and administrative buy-in if we did not make substantial progress in getting the CTE off the ground.

Responding to Challenges Through Design Thinking

To respond to the constellation of challenges that impacted our goals for the CTE, we adopted design thinking as a mindset that informed our approach.

Empathize

A study by Kornish and Ulrich (2012) asked consumers to indicate purchase intent for a product idea. The researchers found that purchase intent ratings from ordinary consumers more accurately predicted market sales than outcomes predicted by experts in consumer product development and marketing. In the same spirit, as we engaged in the empathy process, we opted to prioritize soliciting feedback on the needs of our "user" (instructors) directly from the users themselves rather than attempting to follow models set by other CTLs or focusing on the requests of central administrators. One major aspect of the empathy phase, therefore, was conducting a faculty needs assessment, which was sent to all full-time and part-time faculty on

our campus. Prior to creating the needs assessment, we had sought other ways to gather information about faculty members' needs, concerns, and interests. We held focus groups in which faculty offered insights about what the CTE might look like and offer. And we also used insights from a Microsoft Teams site Jenna created in response to the move to all online courses in March 2020, where faculty shared articles, ideas, and frustrations about teaching during the pandemic. This was perhaps our most strategic way of stepping into the shoes of our "users" to understand how we could best meet their needs, as we were also both teaching during the pandemic and joined the team as colleagues experiencing similar issues. Every faculty member, full-time and part-time, was invited to join the team, and a little over half joined and engaged. The Teams site gave us a jump start on creating a community around sharing teaching and learning ideas. It also allowed instructors to feel supported, knowing that they weren't the only one facing a particular problem.

Armed with a faculty needs assessment shared on the POD Network as a starting point (Collins-Brown, 2009), we considered the input we received from the previously held focus groups, anecdotal suggestions from colleagues, and trends we identified in Microsoft Teams, and we developed a needs assessment covering topics that seemed important to our faculty, such as course and curriculum design; assessment; classroom facilitation, management and inclusion; and other center services (mentor program, book club, mid-semester evaluations, engaging students in undergraduate research, etc.). We also inquired as to preferred delivery for workshops and panels (asynchronous videos, live Zoom workshops, one-on-one consultations), duration (30 minutes, 60 minutes, half day, etc.), and time of day for each topic category (see Needs Assessment Survey in Appendix A). We felt that gathering this data would help us gain important insights into some of the issues we were concerned about, such as faculty members' time commitments, willingness to participate in workshops on certain topics, and preferred modes of delivery. The survey launched in mid-September and ran through the end of the month. We received 88 responses to the needs

Table 1. Needs Assessment Respondents by Appointment Type

Appointment type	Respondent percentage
Tenure-track instructor	33%
Adjunct instructor	31%
Non-tenure-track instructor	23%
Practitioner in residence	8%
Other (PhD student instructor, staff, professor emeritus)	5%

Table 2. Needs Assessment Respondents by College

College	Respondent percentage	Distribution of instructors teaching in Fall 2020
College of Arts and Sciences	43%	41%
College of Criminal Justice and Forensic Science	23%	20%
College of Engineering	16%	17%
College of Business	9%	10%
School of Health Sciences	9%	8%
No college designated	0%	4%

assessment, yielding a response rate of 12% when compared to the 716 instructors actively teaching in Fall 2020.

These response rates are representative of the instructional staff at the university. Responses were distributed across the colleges as noted in Table 2.

While the response rate was low, the distribution of respondents across colleges closely matched the distribution of instructors teaching in Fall 2020 (see Table 2). Between the needs assessment, focus groups, Microsoft Teams site, and open forums (described below), we felt we were hearing many faculty members' voices and giving everyone opportunities to engage.

After analyzing the needs assessment, we created a mission statement that was informed by all our previous empathy data. While it is common to create a mission statement for a CTL, these statements are often driven by institutional priorities or are predetermined before a majority of faculty can have input. By gathering the empathy data before determining the CTE's mission, we felt the mission strongly tied

to faculty members' needs. We then created a visual that mapped our services to the four elements of our mission statement (see Appendix B). Then we held two open forums that any faculty member could attend. The goal of these forums was to share the results of the needs assessment and describe our tentative plans for services and events we would hold based on the results. Our goal was also to make it clear to the campus community that the CTE was being built on a foundation of transparency and feedback. We sought to gain more insights from our colleagues on the direction they wanted to see the CTE moving. As such, in the true recursive spirit of design thinking, we were already testing our prototype (our slide deck presentation that visualized the CTE's plans with the mapping project) within days of gathering empathy data, but at the same time, the feedback we received during the open forums further informed our plans, leading us back to the empathize and define stages.

Define

The Stanford d.school describes the "define" mode as the mode in which designers unpack the empathy findings and "scope a meaningful challenge," creating their own unique point of view (Doorley et al., 2018, p. ii). To define the problem statement, according to the Interaction Design Foundation (IDF) (n.d.), designers need to combine three key ideas: user, need, and insight.

Our most substantial, overarching insight was that faculty members' primary need was to build community around teaching. This helped us gain a sense of our purpose and mission. In a similar vein, faculty were not interested in, and perhaps even intimidated by, the thought of teaching observations or being evaluated in any way—given some of the challenges we described above. One other overarching insight was that faculty had a keen interest in using student input to shape courses in progress, such as learning how to deploy effective mid-semester evaluations or design opportunities for regular check-ins with students.

On a more granular level, faculty were most interested in workshop and training opportunities that centered on how to engage students in active learning when teaching in new delivery modes such as flex and remote synchronous modes and how to leverage technologies for efficiency. Some of the highest-scoring topics were building community in the classroom, creating effective discussion forums, leveraging technologies for efficient grading, and creating effective micro-lecture videos. Our faculty were less interested in broader, more theoretical topics such as avoiding bias in the classroom or using the Universal Design for Learning (UDL) framework for inclusive design. From our past experience leading faculty development initiatives across campus, the opposite was typically true, meaning faculty tended to be more interested in theoretical discussions. There is no doubt that this shift was likely due to changes in instructional delivery modes caused by the pandemic, but even though we were not surprised by this finding, it was helpful in narrowing the scope of our problem statement.

We also found that faculty wanted workshops live via Zoom rather than one-on-one sessions with CTE staff, asynchronous workshop recordings, or online professional development courses. In hindsight, we realize this finding is likely connected to faculty members' need for a community, for the "we're-in-this-together" sense of camaraderie that was harder to achieve as we worked remotely and then only partially in person. We also learned quickly where not to invest our time—as readers might imagine, there was very little interest in a CTE book club! We suspect that responses to items such as this were mainly related to faculty members' limited time.

In reality, then, we had multiple problems to define. If we revisit the IDF formula of user-need-insight, our problem might have looked like what follows:

- Faculty (users) want guidance, support, and resources to become more student-centered, nimble instructors who can adapt effectively and efficiently to changing situations in a socially and politically charged, pandemic-ridden environment (need). They want the CTE

to be the centralized space for building a community around these concerns and for the CTE to be a non-evaluative space unrelated to tenure and promotion processes (insight).

We should note, too, that when we say "student-centered," faculty members' interests were specifically about how to use student input to shape their courses in the moment (as opposed to using course evaluations to improve the course for the next semester).

Ideate

Design thinking often has innovation as its ultimate goal, and we certainly found it to be a useful process for innovating; however, our process also confirmed that we needed to engage in some of the common building blocks for CTLs. For example, Beach et al.'s (2016) study showed that the top five areas in which faculty developers offer services are (1) new faculty orientation/development; (2) integrating technology into traditional teaching and learning settings; (3) active, inquiry-based, or problem-based learning; (4) assessment of student learning outcomes; and (5) course and curriculum reform. This research contributed to the options we provided in our needs assessment, and the value of the design thinking process was as a method for us to continually verify that our ideas for services were connected to our empathy data and connected to the guiding concepts from the problem statement. We did, therefore, also prioritize some more conventional approaches as well.

Looking at insights from the empathy phase, we had to consider how to:

- encourage involvement when instructors were already spread thin;
- design services that would support faculty's interests in a non-threatening way (given heightened tensions between faculty and administration around teaching); and
- boost morale among instructors and show that the CTE is not for remediation.

Although it is beyond the scope of this article to share every idea, below are some of the ideas that connect with our problem statement and its associated challenges. Some are currently in prototype, whereas others are being tested as we continue to hone our approach:

Open Pedagogy Project. Through a survey our university sent to students about the university's transition to remote instruction, we learned that students wanted more input on course design and materials. We also learned that faculty were interested in open educational resources (OER) and learning more about technologies that would support students' learning online, but they did not necessarily have the resources. Using brainstorming principles delineated by the Stanford d.school, such as maintaining a "yes, and" attitude and deferring judgment about the feasibility of ideas, we came up with a variety of ideas that would allow us to offer these learning opportunities. Eventually, Jenna and a colleague wrote a grant proposal to a higher education foundation and received funding to support Open Pedagogy Fellowships. The grant supported three years of funding for faculty to learn how to develop OER and use student input on those materials to transform their courses. This included offering students a stipend to become trained to give faculty feedback on their course materials. Jenna and a colleague used this opportunity to jump-start the CTE by making OER and student input key to its services, and the grant funding allowed us to later leverage additional resources and secure a budget for the CTE in the future.

Faculty Fellows. While many CTLs incorporate some version of a faculty fellows model, our specific version emerged from the immediate impact of the pandemic and our insights about what faculty needed in the moment. We proposed a Faculty Fellows initiative, in which selected faculty would design a workshop and deliverable (position paper, report, podcast, etc.) focused on a topic of their own expertise. These faculty members would work as CTE staff, and while they would eventually offer teaching observations and consultations, this was not our initial focus because the needs assessment showed that faculty were not as interested in, and even intimidated

by, teaching observations. We began by having faculty fellows work on their projects so faculty would get to know and trust them as colleagues invested in teaching excellence, and then as we worked on our protocol for developing observation training for the fellows, we made sure to emphasize that observations were formative rather than evaluative, and they were optional. Taking the time to position the fellows' observation and consultation work in this way was an important task, given the needs assessment feedback. By asking fellows to create a deliverable and to speak to the impact their deliverable could have on the campus community in their application, we were offering upper administration tangible artifacts that could have a different impact than our workshops or other development opportunities. This was a key way for us to secure resources to give the fellows a stipend and course releases for their work. Jenna and Devon were also able to leverage the success Jenna had with the Open Pedagogy Project to justify funding for the fellows. We also felt that the Faculty Fellows initiative would connect with the community-building need we had identified because it would bring more faculty into the CTE who were innovative and engaged teachers across campus, since administration was not open to new external hires.

Services. Teaching workshops are central to the functioning of most CTLs (Beach et al., 2016), and the design thinking process confirmed for us that this should be one of our first priorities because it would not only be an effective way of offering faculty resources and support, but it would be a way to build community. However, we made additional shifts to make workshops more community oriented. We created exercises, such as putting faculty in breakout rooms to debate controversial statements about teaching practices via the mind-mapping tool Padlet. We used Zoom and Mentimeter polls to gather faculty members' insights on or feelings about the pedagogical topic we were exploring, and, eventually, we started morphing panel presentations into discussion/role-playing scenarios. Although these are granular strategies, they helped us break down barriers as faculty became more comfortable sharing, venting, and asking questions.

To encourage involvement and acknowledge faculty members' limited time, we were strategic in terms of how we planned our workshops. We sought presenters from a variety of departments to involve multiple perspectives and encourage wide participation. We also asked instructors to participate in panels rather than lead individual workshops to lessen the workload. For each panel, we held a corresponding brainstorming session in which CTE staff and presenters collaboratively crafted the presentation together. We felt that this approach would emphasize our partnership while still allowing panel members autonomy to share their perspectives. We also designed a "workshops to go" program so that departments or colleges could request workshops for smaller communities on campus.

Another idea we generated included an "open classroom day," in which faculty could observe one another's live Zoom classes. Connected to the need for community and not evaluation, we chose to not include a formal observation write-up as part of the process and instead created a "kudos" form on which faculty could quickly write a comment about something they enjoyed during the observation, and we shared the kudos on our website.

"Quick and Dirty" Resources. Via our Microsoft Team, we reached out to ask if any faculty were using new technologies to engage students and if they would do a quick, simple screenshare recording, explaining how they use the tool. Faculty shared short tutorials via Teams and allowed us to post them on our CTE website. To increase the reach of our programming, in addition to recording our workshops, we also started writing summaries of workshops to share on our blog. Strategies such as these allowed us to address some of the challenges, such as faculty members feeling that they did not have the time to learn something new, while building community through a sharing-oriented environment.

Student Involvement Initiatives. It became clear during the empathy phase that faculty wanted more feedback directly from students: from wanting to know how an assignment appeared in the LMS from the students' perspective to wanting to develop the syllabus alongside

students in the classroom. We began to generate a variety of ideas for how the CTE could serve faculty based on this insight. The Open Pedagogy Fellowship was an obvious fit, but we also decided to invite an undergraduate and graduate student to become members of our CTE advisory board so that ideas related to workshops and guest speakers would be shared with and vetted by students. We also ran Zoom workshops focused on ideas for using student input to shape a course in progress, and we began inviting students to become panelists at our workshops/presentations. We also began an initiative in which students were hired to work as pedagogical partners, pairing with a faculty member to give them feedback on their course materials. This initiative became known as Chargers as Pedagogical Partners (CAPP). The program began as a small cohort of student-faculty pairs. Students were trained on how to give effective feedback to faculty during weekly staff meetings, and then they met with their faculty partners to discuss student-centered changes to assignments and class activities.

Services Not Provided. The empathize-define-ideate process also helped us see items that we did not need to focus on right away. For example, while our initial mission statement included a goal of supporting faculty on scholarship of teaching and learning (SoTL) projects, we chose not to start any projects related to SoTL due to increases in teaching loads and other pressures on faculty members' time.

Prototype

Prototyping at early stages allows program developers to open up the opportunity for visualization, conversation, and revision and is particularly helpful in solving complex problems (Berglund & Leifer, 2013). Two tangible products served as early prototypes for us: the slide deck we created for our open forums and a mock-up of our website. The slide deck was like a short-form business plan. We included the results of the needs assessment; a draft of the CTE mission statement; a tentative schedule of upcoming workshops; and descriptions of short-term goals, long-term goals, and services we hoped to offer (in the map

format). We spoke with faculty about how the survey results informed our decisions and then elicited feedback.

Creating a website was a top priority for developing the center because during the COVID-19 crisis, the website was our only presence. Practically speaking, we needed a place where people could come to learn more about the CTE and our offerings; however, the website also became a visual manifestation of our vision for the CTE. The website launched by early November 2020 complete with blog posts, forms for instructors to propose workshops, a space for departments to request "workshops to go," space to request one-on-one consultations, a page for student shout-outs to faculty, resources, event announcements, and more. Essentially, as we started building our website, it helped us flesh out our ideas and see how they connected, and it allowed us to performatively demonstrate the values of the center. Even in prototyping the website, we began to hone our ideas further. As we considered the layout, location, and description of site elements, it led to important conversations about our priorities and mission.

In the spirit of allowing the prototype stage to help us identify strengths and weaknesses, we also sent a satisfaction survey after each event or one-on-one consultation. These were reviewed regularly so we could understand how to adapt our offerings to our participants. In some ways we seek to always remain in this stage; we hope to be continually adapting to the changing needs of our students and faculty.

Looking back, we realized that the Microsoft Teams site also served a prototype role. The site has been a helpful method for simulating the types of conversations instructors might have as they stop by the CTE's theoretical physical space in the future. It has allowed us to share our own concerns or questions related to teaching, and it has allowed us to identify themes and trends in terms of instructors' concerns, but in a non-evaluative way.

Test

Testing, or getting faculty members' feedback, has been a constant and important part of our process. We created multiple ways for faculty

to give us feedback on our prototypes as well as our programming, most of which we have already discussed. A hallmark of design thinking is that the prototype phase isn't meant to be "finished." Instead, the goal is to learn about the strengths and weaknesses of a design and to reveal paths that future prototypes might take (Brown, 2008, p. 3). By considering our plans (such as the Open Forum presentation) as prototypes, we were able to quickly and nimbly launch programming under the CTE's framework. We were able to move forward from the initial prototype phase with a solid framework and clear direction, but in many ways, we will be in a continuous loop of the ideate-prototype-test process for years to come. We will also continue to ideate new programs, which will be built (prototyped), launched and solicited for feedback (tested), improved (prototyped again), and launched and tested again. The way we continually ask for feedback from our colleagues has been built into our framework from our first needs assessment and continues with our satisfaction surveys. In further support of this is our advisory board and general commitment to evolve and improve. We hope to adapt and reshare the needs assessment regularly, to keep a pulse on how the interests of our colleagues will develop. We recognize that our 2020 needs assessment was largely informed by knowledge gaps related to teaching in a pandemic. As we gain new insights, we will continue to employ the design thinking framework to develop future programming.

Understanding Program Success

We marked our first year as an opportunity to gather the baseline data on which we'll track our future progress. We are tracking website analytics, participant satisfaction surveys, attendance numbers, anecdotal feedback from participants and presenters, delivery of programming based on needs assessment, and achievement of goals.

In the first eight months of our operation, we sponsored 26 panels/presentations and 26 one-on-one consultations. Our events were

attended by 231 unique instructors, and we involved over 30 instructors/staff as presenters. In terms of participant satisfaction:

- 90% agreed or strongly agreed: I learned something new in this workshop.
- 89% agreed or strongly agreed: The workshop was thorough and helpful.
- 88% agreed or strongly agreed: Participating in this workshop was time well spent.
- 86% agreed or strongly agreed: Students will benefit from information I learned in this workshop.
- 85% agreed or strongly agreed: I plan to use or apply a concept I learned in this workshop to my teaching.

Thinking back on our initial problem statement, it is clear, from the limited metrics collected so far, that our instructors are learning from one another, they are beginning to apply these lessons to their courses, and they are even seeing how their students will benefit. Given the positive feedback we received about the value of the workshops, we feel that we have been successful in beginning to create the community that our colleagues were looking for.

Our success has been framed by the design thinking approach. Following this process, we have empathized with our users and defined a unique problem statement that is embedded in each facet of our center. As we continually evaluate our outcomes at each step in the process, we already see an opportunity to evolve our needs assessment to a "brand health study" in which we will seek to gather data about faculty members' perceptions of our center, potentially uncovering more layers and new wicked problems. We will continually be able to identify problems and return to the design thinking framework to address them.

As we grow, we will seek additional ways to involve students, we will examine the relationship between faculty development and improvement of student learning outcomes, and we look forward to discovering how design thinking will help us to deliver on the needs of our users.

Lessons Learned

We recognize that starting a CTE during a pandemic is a unique situation, but we learned many lessons through this process that can be applied more broadly to CTL development, innovation, and sustainability initiatives, especially when CTLs are faced with issues such as limited resources, administrative pressures, and faculty burnout, which are not likely to disappear as quickly as the pandemic (hopefully) will. Design thinking, we argue, can serve as a helpful strategy for educational developers as they confront their own wicked problems.

While any strategy for innovating or sustaining a CTL must be adapted to the local context and we can only share what worked for our center and our faculty, we suggest that design thinking is a broad, generative tool that can be adapted to a wide range of educational development problems. We suggest retaining the core principles of design thinking—empathy and recursiveness—as key elements to generating ideas that attempt to move toward problem solutions. Related to empathy, when Jenna first proposed the idea of a faculty needs survey, she was told no because "faculty don't know what they don't know." We chose to disagree. We chose to dig deeper because we know we work with amazing faculty, but we wanted to know more about what they needed in the middle of a public health crisis. Collecting this data was an incredibly important part of beginning to solve our puzzle, our wicked problem.

In terms of the recursive nature of design thinking, this is one element of our process that truly stands out. We are constantly adapting and changing. In our approaches, we are modeling the flexibility that our campus faculty wanted to hone for their own teaching. We imagine that our prototyping and testing will lead to new problem definitions and that we will continue to take new directions based on the generative process that is design thinking.

Similarly, if it were not for the "crazy ideas" ethos of design thinking, for instance, we surely would not have succeeded in persuading administration to support stipends and course releases for faculty

fellows during a time when every expense on campus was being questioned. Design thinking gave us a framework and space for coming up with "crazy ideas" and a process to help move our center from an idea to a well-used resource. Although our wicked problem and its circumstances may be unique, we share our experience in hopes that other educational developers can benefit from using design thinking as a helpful strategy for working with their own wicked problems.

Biographies

Jenna Sheffield is the Associate Vice President for Academic Affairs and Dean of Undergraduate Studies at Salem College. She holds a PhD in Rhetoric, Composition, and the Teaching of English from the University of Arizona and is a former CTL director. Her research focuses on the intersections of multimodal composing, writing program administration, and tenure and promotion processes. Sheffield's work has been published in established journals, including *College English*, *Computers & Composition International*, and *The WAC Journal*.

Devon Moore currently works in the Office of Development at Yale University. She was previously the Associate Director of the Center for Teaching Excellence, Co-director of Writing Across the Curriculum and Adjunct Instructor in the English Department at the University of New Haven. She holds a Master of Science in Teaching English to Speakers of Other Languages and has a background in market research and brand marketing.

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Appendix A: Center Needs Assessment Fall 2020

Q1. Please indicate your level of interest in the following:

[Very interested |Somewhat interested | Neutral | Not very interested | Not interested at all]

COURSE & CURRICULUM DESIGN	Creating a course from scratch Redesigning a current course Syllabus design Identifying and selecting course material (including open educational resources) Connecting assignments to student learning outcomes Using the Universal Design for Learning framework to adapt to the needs of varied learners Designing effective assignments Designing courses that facilitate high-impact practices, such as study abroad or service-learning Converting a face-to-face course for hybrid, flex, or online delivery Understanding the curriculum development process at UNH How to integrate publisher material with instructor experience and course development

Q1a. Preferred format for topics in this category?

- Live Zoom workshop
- Asynchronous video workshops/tutorials
- One-on-one via Zoom

Q1b. Preferred workshop length for topics in this category?

- 30 minutes
- 45 minutes
- 60 minutes
- 75 minutes
- 90 minutes
- 120 minutes
- Half day

Q2. Please indicate your level of interest in the following:

[Very interested |Somewhat interested | Neutral | Not very interested | Not interested at all]

ASSESSMENT, GRADING, AND FEEDBACK	Developing fair, inclusive grading standards Technologies for efficient grading How to give feedback and make sure students apply it Rubric design and implementation Program assessment Creating effective tests and quizzes Designing effective assignments Designing and evaluating meaningful reflection exercises

REPEAT Q1a & Q1b

Q3. Please indicate your level of interest in the following:

[Very interested |Somewhat interested | Neutral | Not very interested | Not interested at all]

CLASSROOM INSTRUCTION, FACILITATION, MANAGEMENT, AND INCLUSION	Avoiding bias in the classroom Accommodating students with disabilities Leading effective discussions Multiculturalism: how to incorporate into courses and have difficult discussions Creating community in the classroom (with emphasis on online and remote instruction) Facilitating student collaboration and group work Teaching the art of argument/use of evidence to support claims Active learning strategies Engaging students in the same class who have different levels of knowledge/ability Handling grade grievances Creating effective videos/micro-lectures using Studio, Zoom, and/or Kaltura Inclusive teaching strategies Preventing academic integrity issues Applying research about how students learn to your classroom practices Designing visually appealing course materials

REPEAT Q1a & Q1b

Q4. Please indicate your level of interest in the following:

[Very interested |Somewhat interested | Neutral | Not very interested | Not interested at all]

OTHER POSSIBLE CENTER SERVICES	Receiving confidential teaching observations Observing someone else's class (including via Zoom) Learning how to use presentation tools other than PowerPoint Learning about web-based engagement tools and apps, such as polling, live quizzes, games, etc. Using mid-semester evaluations and other types of input to adjust your course as you are teaching it Engaging students in undergraduate research Conducting scholarship of teaching and learning (SoTL) Participating in an interdisciplinary community of practice on a teaching topic of interest Participating in a teaching-and-learning-focused book club Participating in a "share-your-best-idea" teaching forum focused on key topics such as assignment design or student engagement Being connected with a teaching mentoring partner

REPEAT Q1a & Q1b

Q5. Please indicate your level of interest in the following Canvas-related topics:

[Very interested |Somewhat interested | Neutral | Not very interested | Not interested at all]

CANVAS	Modules Assignments Discussions Grading Zoom integration

Q6. We realize there are many potential topics to cover and we have likely only skimmed the surface here. Below, please let us know any other topics you are interested in learning more about:

OPEN

Q7. Which days and times would you most likely be available for live training or workshops? [Repeat list for each day M–F] [In practice, we may send out Doodle poll per workshop to work around availability of interested parties.]

- 8:00am – 9:15 am
- 9:35am – 10:50am
- 11:10am – 12:25pm
- 12:45pm – 2:00pm
- 2:20pm – 3:35pm
- 3:35pm – 5:10pm
- 5:30pm – 6:45pm
- 7:05pm – 8:20pm
- Other_____

Q8. Which college do you teach in primarily?

College of Arts and Sciences
Pompea College of Business
Henry C. Lee College of Criminal Justice and Forensic Sciences
Tagliatela College of Engineering
School of Health Sciences

Q9. What is your appointment type?

TT
NTT
PIR
Adjunct
Other

If you are interested in hosting a workshop or being part of a panel discussion on a particular topic, send an e-mail to CTE@newhaven.edu

Adapted from POD Network https://sites.google.com/a/podnetwork.org/wikipodia/Home/topics-for-discussion/assessing-faculty-development-programs

Appendix B: Center Mission Mapping

Figure B1. Mission Element Related to Programs and Services

Note. The mission element is in yellow; short-term, related projects are in green; and long-term projects are in orange.

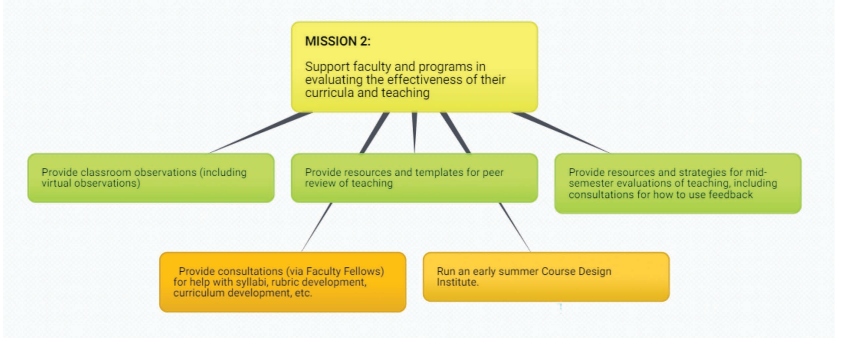

Figure B2. Mission Element Related to Assessment/Evaluation

Note. The mission element is in yellow; short-term, related projects are in green; and long-term projects are in orange.

Figure B3. Mission Element Related to Community Building

Note. The mission element is in yellow; short-term, related projects are in green; and long-term projects are in orange.