Pedagogy in a pandemic: Emergency remote teaching during COVID-19

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ABSTRACT The COVID-19 pandemic disrupted higher education in the spring of 2020 as colleges and universities across the United States moved classes online mid-semester to slow the spread of coronavirus. Survey data were gathered at a small, regional state university to ascertain faculty experiences during the shift to emergency remote teaching (ERT). Findings suggest adaptations to ERT were designed to accommodate perceived student needs and preserve the integrity of disciplinary content; faculty relied heavily on instructional design and technology specialists to facilitate teaching; and the shift to online course delivery was difficult, but allowed learning to continue during the health crisis. Recommendations are offered to allow institutions to improve transitions to ERT amidst the ongoing pandemic and in future crisis situations.

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INTRODUCTION

Social institutions across the globe experienced unprecedented upheaval as a result of the COVID-19 pandemic. In March of 2020, the coronavirus began rapidly spreading across the United States when colleges and universities were in the middle of the spring semester, forcing dramatic changes in higher education. Although a few schools responded by suspending classes altogether, most universities closed their campus and moved courses online for the remainder of the semester. With little warning, classes that were designed for face-to-face instruction had to be restructured for remote delivery.

Designing a college course requires time and careful planning of assignments, assessments, and activities. Faculty consider a variety of factors in constructing courses, including learning objectives, class size, required equipment and resources, and the teaching environment. Modifying a course that was intended for in-person delivery to online instruction is a massive undertaking. Yet in the midst of the pandemic, faculty across the country transitioned their courses for online delivery in a matter of days, allowing students to complete courses and continue progress toward their degrees. The question is how faculty were able to accomplish this remarkable crisis response.

A crisis "marks a phase of disorder…of over-whelming complexity and ambiguity" (Saurugger, 2016, p. 72). The

COVID-19 pandemic precipitated a crisis in higher education that required immediate and creative solutions. The purpose of this study is to examine how faculty adjusted their courses to ERT and the resources they used to rapidly adapt their courses for remote delivery. Data gathered at a small, regional state university indicate that institutional infrastructure was essential in helping faculty modify their courses to accommodate student needs, preserve the integrity of disciplinary content, and maintain learning during the disrupted semester. Suggestions for strengthening campus resources are offered to make future crisis response transitions smoother.

EMERGENCY REMOTE TEACHING AS "PEDAGOGICAL TRIAGE"

Education experts agree that with appropriate pedagogical adaptations, online teaching can be as effective as classroom-based instruction (Nilson & Goodson, 2018). However, high quality distance education requires significant training, carefully planned course design, preparation, and instructor support (Crawford-Feree & Wiest, 2012; Jackson et al., 2010). Ideally, faculty voluntarily teach online because they are motivated by the intrinsic desire to experiment with new pedagogical techniques or to renew their passion for teaching (Wingo et al., 2017). Developing and teaching a high-quality online course requires managing a myriad of complex tasks, and therefore generally takes "more time than traditional courses to teach" (Crawford-Feree & Wiest, 2012, p. 13). As evi-

dence of the amount of work required to teach an effective online class, Nilson and Goodson (2018) provide a seven-page checklist of tasks for developing a high-quality online course and the current 6th edition of the Quality Matters rubric that many universities use to evaluate online instruction includes "a set of eight General Standards and 42 Specific Review Standards" (Quality Matters, n.d., "Course Design Standards" section).

By any measure, the remote teaching delivered in response to COVID-19 was not representative of online instruction, but instead was "pedagogical triage" designed to salvage student learning for the remainder of the semester (Skallerup Bessette & Frigberg, 2020, para. 8). The abrupt transition to online instruction that occurred mid-semester did not allow for careful course planning and was involuntary for both faculty and students. Faculty who were untrained in online pedagogical practices and technologies were thrust into the virtual teaching environment; even those faculty with online teaching experience and training did not have time to make changes to their courses based on best-practice checklists and rubrics.

The terms "emergency remote teaching" (Hodges et al., 2020) and "emergency remote instruction" (qualitymatters.org) describe the online instruction delivered in the initial phase of the pandemic. Hodges et al. (2020) define emergency remote teaching (ERT) as "a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances" ("Emergency Remote Teaching" section). Rather than replicating existing educational delivery methods, the goal of ERT is "…to provide temporary access to instruction and instructional supports in a manner that is quick to set up and is reliably available during an emergency or crisis" (Hodges et al., 2020, "Emergency Remote Teaching" section). To make swift transitions in instructional design, faculty must have support from offices that specialize in pedagogical and technological applications.

INSTITUTIONAL INFRASTRUCTURE SUPPORTING EMERGENCY REMOTE TEACHING

Colleges and universities have an array of institutional resources to support distance learning including technology departments, librarians, university teaching centers, and instructional design offices—an infrastructure that was invaluable to preserving education during the pandemic-precipitated shift to ERT (Skallerup Bessette et al., 2020). Instructional design centers in particular serve as a resource for faculty, staff, and students who use technolo-

gy for teaching and learning. These centers provide faculty professional development in designing and delivering online courses, introduce them to new teaching technologies, and ensure that online and hybrid courses maintain high standards.

Instructional design centers, which vary in title, size, and structure across campuses, were critical in facilitating the shift to ERT. At the university where the present study was conducted, the instructional design office, called the Digital Education Collaborative (DEC), has a small staff of two instructional designers, two instructional technology specialists, and eleven instructional technology collaborators (ITCs). The ITCs are student workers who provide one-on-one support to faculty, staff, and students regarding their use of instructional technology. Prior to COVID-19, ITCs provided much of the basic level support to users over the phone, in-person walk-ins, and in-classroom appointments. However, when the university transitioned to remote instruction in the spring of 2020, the professional staff in the DEC assumed all ITC responsibilities because student workers were no longer on campus and needed to focus on their academic work. Despite the decrease in staffing and vast changes in support structures, the DEC expanded their hours of operation to meet the increased demands on the office when classes were moved online. Additionally, the DEC rapidly designed and hosted faculty trainings for Canvas and Zoom, created videos to teach faculty about a variety of technologies, and continued to offer one-on-one support for faculty, staff, and students over the phone and through e-mail.

The pandemic had the potential to completely halt learning in colleges and universities. However, as the findings from this study indicate, faculty quickly assessed the pedagogical challenges they were facing and resources they needed to deliver their courses online and used the expertise offered through instructional design services to continue teaching in the midst of the unprecedented crisis.

DATA AND METHODS

The data examined in this study were gathered from two surveys distributed five weeks apart to faculty at a small, regional state university in the spring of 2020. The surveys examined how faculty experienced moving their courses online mid-semester as a result of the COVID-19 pandemic. On March 11, shortly after returning from Spring Break, faculty and students were notified by the university president that in-person classes would be temporarily suspended and moved online to protect the health of

the campus community. Nine days later, the president announced that classes would remain fully online for the remainder of the semester. The first survey was sent to faculty the day after they learned that in-person classes would not resume to capture their experiences in the initial transition to ERT. Faculty were sent a second survey on the last Friday of classes to measure their perceptions and experiences at the end of the semester of the sudden shift to online instruction.

Both online surveys were distributed to a non-random, convenience sample of 130 faculty across the university, representing every department in all three colleges on campus. Faculty participation in the survey was solicited through e-mails, yielding 60 responses (46.1%) to the first survey and 54 responses (45.5%) to the second survey. Each survey asked open- and closed- ended questions regarding perceptions of the decision to move classes online, changes they made to their classes and why, and resources they needed and utilized in transitioning to ERT. Faculty also were asked about what they believed were students' most serious concerns in the transition to online course delivery.

Closed-ended survey questions were analyzed using descriptive statistics, comparing faculty responses in Time 1 and Time 2. Table 1 shows the demographic composition of the sample. An open-coded approach (Charmaz, 2006; Esterberg, 2002), in which statements and themes in respondents' writing are identified, was used to code open-ended responses. Of faculty who completed each survey, 95% of faculty answered at least one open-ended question in Time 1, and 96% answered an open-ended question in Time 2.

FINDINGS

The findings suggest faculty decisions about how to modify their courses were designed to meet the perceived needs of students, supported by multiple resources, and allowed learning—albeit somewhat compromised—to continue. In adapting their courses for online delivery, faculty made changes that they believed best accommodated students' needs and simultaneously preserved the integrity of their course content. Faculty were resourceful in utilizing a variety of resources, both technological and professional, to facilitate their instruction. At the end of the semester, faculty acknowledged that the transition to ERT was difficult and disrupted student learning, but ultimately was manageable and more desirable than canceling classes altogether.

Adapting Courses

During the transition to ERT, faculty adapted their courses for online instruction based primarily on two factors: perceived student needs and pedagogical considerations. In both surveys, faculty were asked what they believed were students' top concerns in the move to remote learning. As indicated in Table 2, faculty perceived balancing work, school, and family responsibilities as students' top concern in both Time 1 (25.5%) and Time 2 (57.4%). In the initial transition to ERT when planning changes to their courses (Time 1), faculty also perceived changes to course material (18.6%), missing important campus events (16.9%), and restricted one-on-one time with instructors (13.6%) as students' primary concerns. Limited internet access and communication hurdles were identified as primary student concerns to a lesser degree.

Faculty perceptions of students' challenges in this crisis situation affected the decisions they made in the transition to ERT. One of the first decisions they made was whether to deliver course content synchronously, asynchronously, or a combination of both methods. Regardless of the choice they made, in open-ended survey responses faculty described how their perceptions of students' needs shaped their pedagogical decisions: [I'm teaching] mostly asynchronous to allow students to schedule around the many demands and unique situations—but I do advise them that this takes discipline, planning and scheduling; some things don't work as well asynchronously… so some synchronous class meetings are needed for my classes. (Faculty 057, Time 1)

Several of my students have stated that they have family obligations (such as looking after younger siblings and/or grandparents). I like to give them the time they need to manage their time to their needs. They may not be able to meet with me at 10am as they would on campus (due to internet or family) so I give them an assignment and a due date and trust them to get it done as their other classes/family/internet allow. (F051, Time 1)

In addition to accommodating perceived student needs, pedagogical concerns were also a motivating factor behind the decisions made during ERT. As faculty prepared to transition their courses online, they considered the original learning objectives of the course and the norms that were established in their face-to-face classroom settings. Faculty indicated the importance, especially in prerequisite courses, of maintaining academic rigor to ensure students were meeting the necessary learning objectives to be successful in future courses. Additionally,

faculty made changes to their courses based on the nature of the discipline, class size, and whether the course was lecture-based or had an experiential component, for majors or non-majors, undergraduate or graduate, or entry-level or upper-level. For example, I'm using both [synchronous and asynchronous]. Synchronous for the upper-level seminar (because it lets us continue very fruitful classtime discussions and even hold onto a slight sense of normalcy); asynchronous for all lower-level surveys (because the numbers of students involved is too large). (F035, Time 1)

I teach Spanish so I have to have them speaking and Zoom and synchronous is working. I could do it asynchronously but I would need to create MANY more activities so they could listen/watch videos in Spanish, and so they could record themselves and interact with Spanish. Not practical for me. I am not able to spend the time to create all of the functionality that requires on the spot with no lead time. (F042, Time 1)

Based on these perceived student needs and a host of pedagogical factors, 48.1% of the faculty surveyed in Time 2 reported using asynchronous classes, 9.3% used synchronous classes, and 42.6% of the faculty used a combination of both.

Institutional Resources Faculty Needed and Utilized

Faculty were asked on both surveys what tools were most essential in helping them teach effectively online. As indicated in Table 3, technology and technological support made teaching possible during the pandemic. Access to the internet, computer hardware (such as laptops and webcams), and computer software, which aided in recording videos and video conferencing with students, were among the tools faculty deemed essential for ERT. A clear majority of the faculty surveyed also indicated that support from the Information Technology (IT) department and the DEC were critical in the transition.

Faculty were resourceful in acquiring different technologies to facilitate teaching in their disciplines. In an attempt to preserve continuity and content, faculty sought out technologies that would allow students to participate in online discussions with their peers, complete virtual labs and simulations, and streamline communication between faculty and students. The resources faculty respondents most often mentioned using were Canvas for organizing course materials, Panopto for recording video lectures, and Zoom for video conferencing with students. However, the educational technology available

to facilitate teaching is rich and robust, giving faculty many choices for how to deliver course content. Faculty reported using a wide variety of technologies during ERT including Camtasia, Face Time, Flipgrid, Skype, Slack, WebEx, Google Docs, and textbook resources.

Beyond the technology itself, faculty overwhelmingly mentioned the instructional design and technology support from DEC as of the utmost importance in helping them transition their teaching online. When asked to describe what helped them the most in moving classes online mid-semester, faculty responded with comments such as: "The folks from the DEC have talked me down from the ledge on multiple occasions. They have been terrific." (Faculty 014, Time 1); "The folks from DEC have been AWESOME. I have them on speed-dial!" (Faculty 003, Time 2); and "[T]he DEC has responded quickly in having many trainings and working to address new additions to Canvas and other technology needs" (F040, Time 1). Internal data collected by the DEC show that at the end of the fall semester of 2019, 68% of the faculty at the university used the Canvas learning management system (LMS). By the end of the spring semester of 2020, in large part due to training and assistance provided by DEC, approximately 95% of the faculty at the university were using Canvas.

Faculty also acknowledged that previous training and online teaching experience facilitated the transition to ERT. Prior to the outbreak of COVID-19, faculty were required to complete an eight-week training course hosted by the DEC to be eligible to teach online and hybrid courses at the university. Time 1 survey data indicate that 82% of the respondents had taught at least one online class before the transition to ERT. Faculty consistently acknowledged that the knowledge they gained from the DEC training course, and extensive use of Canvas in their face-to-face course made the transition to ERT much more manageable, as the statements below illustrate:
[I was aided by] the DEC and their continued support over the years of training and assistance they have provided. I'm so appreciative of them and I wish the professional development that they provide regularly was incentivized better so that more faculty were better prepared for inclusive teaching techniques. (Faculty 057, Time 1)
I use Canvas so extensively that the change wasn't too disruptive. I have had the [DEC online training] three times, which helped tremendously. My PowerPoints, quizzes, and assignments have all been posted since the beginning of the semester, so I was quite prepared to go all online. (F020, Time 1)
Faculty also explained that their previous experience with online teaching was invaluable in easing the shift to ERT.

As one respondent stated, "I've never been more thankful for my previous experience with teaching online classes—that has definitely helped the most with avoiding a steep learning curve!" (Faculty 058, Time 1). The experiences described by faculty indicate that instructional design support is an invaluable institutional resource to facilitate instruction during a crisis.

Difficult but Doable

As a part of the second survey, faculty were asked to reflect on their experiences in transitioning their courses online mid-semester. The responses emphasized the immense challenge of ERT. The increased workload and limited time to prepare created stress for faculty who were already feeling the pressure to meet student needs and uphold academic rigor. In response to the transition online, Faculty 003 lamented, "I hate it. The students hate it, but we are doing what we must to deal with this…. It has been frustrating and exhausting." Other faculty, while acknowledging the difficulty of ERT, remarked on the satisfaction they had for the work their students were able to accomplish despite the emergency circumstances. For example, Faculty 007 stated:

It was difficult, but I managed it. I think I was able to deliver actual content to my students (though not as much as during a regular semester). The students, by and large, have been really good and have kept a positive attitude. I feel like we are all in it together.

Another resounding theme of the faculty reflections was the importance of the work completed during the spring semester of 2020. Faculty were concerned about their students' ability to learn in these unprecedented circumstances, but however time-consuming, stressful, and difficult ERT was for the faculty, the goal of providing a rigorous and equitable learning experience for students remained a top priority. Faculty learned new technologies, modified assessments and lab experiences, and created course content at record speeds to achieve course outcomes and meet student needs. Faculty 036 described the spring semester of 2020 in the following way: "The suckiest thing I've ever had to do, professionally. Also, and unquestionably, the most important."

Lessons Learned

Although crises can disrupt institutions, they also provide opportunities for growth. As Boin' & t'Hart (cited in Voss and Lorenz, 2016, p. 47) explain, a crisis can be a "'window of opportunity,' that holds out the prospect of making the changes necessary to avoid future traumas…." The COVID-19 pandemic provides an opportunity for higher education to identify procedures that can be established to allow for a smooth transition to online instruction in future emergent situations. Although based on a convenience sample at a small university, the lessons learned from the present study suggest practices that institutions, instructional design centers, and faculty can implement to facilitate sudden transitions to online instruction.

Institutions must prioritize instructional design centers as a critical part of their infrastructure. Funding must be provided to ensure instructional design support services are staffed with a robust team of well-trained professionals. As the findings of this study make clear, faculty rely on the advice, training, and assistance from instructional design and technology specialists to transition courses online, particularly during a crisis. Additionally, institutional policies should guarantee that all faculty are adequately trained in online technologies and best practices. Incorporating online instructional workshops into new-faculty orientation is necessary to provide all incoming instructors with training in the campus LMS and technologies that facilitate teaching in various disciplines. Training in online pedagogy and technologies should be periodically renewed by requiring and providing incentives for continuing faculty to participate in faculty development in digital instruction.

Instructional design and support centers that rely heavily on student workers should develop contingency plans for workload distribution in the event of a crisis that closes the campus. To keep the office running effectively, support centers should replicate models of in-person support by leveraging video conferencing platforms to deliver services remotely. Contingency plans also should specify which professional staff members will handle triage cases (Level 1), offer individualized instructional consults (Level 2), and design professional development during ERT (Level 3).

In the COVID-19 pandemic, faculty modified instructional delivery to simultaneously respond to what they believed were students' circumstances and protect the integrity of their courses. Faculty demonstrated their resourcefulness in identifying and incorporating new technologies to facilitate student learning. However, the transition to ERT was difficult, frustrating, and exhausting. To best prepare for future crises, faculty should become comfortable with instructional technologies that help students master learning objectives in their discipline and incorporate

them, as often as possible, into face-to-face instruction. By establishing an online presence for their courses from the beginning of the semester, faculty will have materials more readily available and students will be accustomed accessing information remotely should a crisis arise. As the experiences of faculty in this study suggest, the transition to ERT was easier and less stressful when online learning materials already were prepared and integrated into existing courses.

Crises are unpredictable. However, institutional infrastructure, instructional support services, and pedagogical preparation can minimize the disruption crises create in higher education.

Table 1. Descriptive Statistics of Sample (Time 1 and Time 2)

	Time 1	Time 2
Gender		
Female	*55.9%*	*47.1%*
Male	*30.5%*	*33.3%*
Prefer not to answer/Other	*13.6%*	*19.6%*
Race		
White/Caucasian	*78.0%*	*76.5%*
Black/African American	*1.7%*	*2.0%*
Latino/Latina	*1.7%*	*0.0%*
Asian/Asian American	*0.0%*	*0.0%*
Prefer not to answer/Other	*18.6%*	*21.6%*
Teaching Status		
Tenured	*76.7%*	*66.7%*
Tenure-Track	*20.0%*	*25.5%*
Non Tenure-Track	*3.3%*	*7.8%*
N	*60*	*54*

Table 2. Faculty Perception of Student Concerns (Time 1 and Time 2)

	Time 1	Time 2
Balancing work/school/family	25.5%	57.4%
Changes to course material	18.6%	1.9%
Not having enough one-on-one time with faculty	13.6%	13.0%
Communication transparency	5.1%	9.3%
Missing important events on campus	16.9%	0.0%
Access to the internet	5.1%	7.4%
Other	15.2%	11%

Table 3. Most Essential Tools for Faculty (Time 1 and Time 2)

	Time 1	Time 2
Support from the IT and DEC departments	73.3%	64.2%
Workshops offered on campus	31.7%	35.8%
Online materials from an assigned textbook	20.0%	34.0%
Online tutorials available through outside sources	40.0%	30.2%
Access to the internet	96.7%	94.3%
Computer hardware	88.3%	79.2%
Computer software	85.0%	81.1%

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