

A Case Study Approach to Exploring Resilient Pedagogy During Times of Crisis

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Abstract

In response to the COVID-19 pandemic of 2020 and the ensuing public health crisis, thousands of higher education institutions (HEIs) worldwide have had to grapple with rapid pivots to emergency remote online learning modalities with relatively little time to prepare, and the need to maintain these modalities continues to extend longer than most institutions anticipated. However, this is not the first time HEIs have had to enact an emergency switch to online learning in a time of crisis, and there is perhaps much to be learned from examining the experiences of institutions that have been through this before. Resilient pedagogy is an emerging field in education, but it is intrinsically tied to online learning in a crisis insofar as it describes the ability to intentionally and effectively shift instructional tactics given a change in environment or context. Using a case study approach, this paper explores indicators of resilient pedagogy in emergency pivots to online learning following crisis situations—including the COVID-19 pandemic—in the United States, New Zealand, and South Africa. The data informing this research are qualitative, derived from interviews with faculty members and students in each higher education context.

Keywords: Resilient pedagogy, emergency remote teaching, online teaching, higher education, COVID-19 pandemic

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As with so many other areas of human society, COVID-19 has redefined teaching and learning to such a degree that the highly significant differences between the pre- and post-pandemic educational environment must be acknowledged. World events are such that “business as usual” has been irrevocably disrupted, and it is difficult to imagine a full return to “normal” in any sphere. To respond to the COVID-19 pandemic and the ensuing public health crisis, thousands of higher education institutions (HEIs) worldwide have had to grapple with rapid pivots to emergency remote online teaching modalities with relatively little time to prepare, and the need to maintain these modalities continues to extend beyond what most institutions anticipated. In March of 2020, UNESCO estimated that 850 million individuals worldwide had transitioned to alternative forms of teaching and learning in a two-month span (UNESCO, 2020). In addition to the pandemic, throughout the United States, and indeed elsewhere in the world, issues of racial tension and injustice contributed to the stress experienced by students and staff at HEIs. The world of higher education—and certainly education at large—is experiencing an unprecedented shift in learning that leaves many HEIs struggling to cope. This includes issues of curriculum and pedagogy as well as institutional infrastructure and management.

This current moment, however, is not the first time HEIs have had to navigate an emergency switch to online learning in a time of crisis, and there is perhaps much to be learned from reflecting on the previous experiences of institutions (Johnson et al., 2020). Using a case study approach, this paper explores indicators of resilient pedagogy in emergency pivots to online learning following crisis situations—including the COVID-19 pandemic—in the United States, New Zealand, and South Africa. The data informing this research are primarily qualitative data derived from interviews with faculty members and students in each higher education context.

Review of Related Literature

The growth of online learning in the 21st century and especially after the COVID-19 pandemic has altered how HEIs are able to respond to crisis. Difficult circumstances such as political unrest, natural disasters, and pandemics have impacted HEIs’ ability to offer traditional on-campus courses. The advent of online learning provided a way for HEIs to regroup and redeploy learning in a different format after a crisis, hopefully with minimal disruption. Online learning can be defined as learning through the internet in an asynchronous or synchronous web-based environment where students engage with instructors, other students, and content with time and place agency (Singh & Thurman, 2019). Anderson (2008) proposed a theory of online learning based on the How People Learn framework (Bransford et al., 1999). Anderson’s online learning theory examines how current and future internet-based technologies impact effective learning through four overlapping lenses: community-centered, knowledge-centered, learner-centered, and assessment-centered. Each lens provides insight into affordances of the internet that can be used to make learning effective. For example, online learning can use synchronous and asynchronous communication technologies to address community-centered learning online. Resilient pedagogy is an emerging field in education that is intrinsically tied to online learning in a crisis. During earlier crises, HEIs did their best to pivot to online learning. With resilient pedagogy, faculty have an opportunity to be prepared for online teaching prior to the crisis

Emergency Remote Teaching vs. Online Teaching

It is important to first address the terms “emergency remote teaching” and “online teaching” as they will be used in this paper, as there is a distinction to be made between them,

and how they apply to the various types of educational experiences presented in the case studies that will be examined. Emergency remote teaching (ERT) can be defined as a transitory move to an alternative instructional delivery format due to a crisis (Hodges et al., 2020). ERT is meant to take the place of face-to-face instruction for a brief period, and is not necessarily concerned with recreating a robust learning ecosystem in an online environment (Hodges et al., 2020). ERT is meant to be quickly implemented and widely accessible, but with short-term scope (Colton & Phillips, 2021). Understandably, it has been the mode of instruction that has most commonly been used during the COVID-19 pandemic. This stands in contrast to true online teaching. Effective online teaching experiences are pre-planned and designed with evidence-based instructional methods. Online teaching is comprehensive and sustainable, providing formal, informal, and social resources to the students and faculty members involved (Hodges et al., 2020). Online teaching is more than a mode of delivery, and the design of an online course (whether synchronous or asynchronous, blended or fully online) must be carefully considered. In this type of learning environment, instructors will use specific strategies for student engagement, assessment, and support that are specifically designed for teaching online (Bates, 2020).

In short, although ERT has been a necessary tool for countless educators in moments of crisis, it is an insufficient view of what can/should be achieved in any kind of meaningful, sustainable shift to online teaching. This is where we turn to resilient pedagogy to help frame further ideas about effective shifts to online teaching and learning.

Resilient Pedagogy

Resilient pedagogy is an emerging field of study intrinsically tied to online learning in a crisis insofar as it describes the ability to intentionally and effectively shift instructional tactics given a change in the environment or context. Resilient pedagogy can be defined as “the ability to facilitate learning experiences that are designed to be adaptable to fluctuating conditions and disruptions” and resilient teaching as an approach that “take[s] into account how a dynamic learning context may require new forms of interactions between teachers, students, content, and tools” (Quintana & DeVaney, 2020, para. 8). Those who practice resilient pedagogy have the capacity to rethink the design of learning experiences based on a nuanced understanding of context (Quintana & DeVaney, 2020). Resilient pedagogy will have an influence on both the content of a course and its structure or mode of delivery, ultimately focusing on the types of interactions taking place between and among teachers and students. Furthermore, resilient pedagogy makes room for fluctuating student needs throughout a course of study and ensures instructor expectations will flex accordingly.

Chow et al. (2020) refer to this instructional approach as Crisis Resilience Pedagogy (CRP). In CRP, educators develop a method for teaching and learning that can be rapidly and creatively delivered without concern for the availability of physical space. CRP enables instructors and students to adapt within a crisis while engaging in courses that have been strategically designed to resist disruption. Crisis situations which impact the educational enterprise may include natural disasters, global health crises, social unrest, civil war, or perhaps a combination of these. CRP seeks to address obstacles that arise in times of crisis, including loss of infrastructure and a decrease in learning motivation due to the crisis (Chow et al., 2020). According to Chow et al. (2020), CRP consists of five key attributes: adaptability, creativity, connectivity, diversity, and endurance.

Schwarzman (2020) also makes a case for resilient teaching practices during a crisis, calling on many of the same attributes and themes (creativity, adaptability, and endurance) as

Chow et al. (2020). Schwarzman (2020) names *pivot pedagogy* as the act of preparing a course to be delivered in a variety of modalities in unforeseen circumstances (Schwarzman, 2020). Regardless of the chosen name, there is clear acknowledgement in the academic community that teaching and learning in the midst of a crisis—regardless of the discipline—requires specific attention and pedagogical considerations, and “resilience” seems to be at the center of it.

Resilient pedagogy, however, is not limited to individual instructors and their classrooms; it must also be practiced at the institutional level to the extent that impacted institutions practice creative problem solving in moments of crisis and obtain access to resources beyond what is normally available (SchWeber, 2008). Developing resilience at the institutional level allows HEIs to provide the resources necessary for resilience in the people they serve. Resilience begets resilience. In the aftermath of the 2018 Camp Fire in California, resuming school operations proved critical to providing stability for students in response to a traumatic event (Schulze et al., 2020).

Institutional resilience may take the form of institution-wide policy changes. In a recent, unprecedented example of resilient pedagogy at the institutional level, a large majority of HEIs across the United States switched their spring 2020 courses to a pass/no credit grading model—most of them in the middle of the academic term—in order to support students and faculty members struggling with the massive changes in learning modalities, as well as the traumatic nationwide protests and civil unrest (Grajek, 2020). As each of the following case studies will suggest, resilient pedagogy, both in the classroom and throughout the institution at large, is a significant contributing factor to the relative success of an online learning experience in a crisis.

Principles of Resilient Pedagogy

While Chow et al. (2020) and Schwarzman (2020) describe some key attributes of resilient instruction, Quintana (2020) proposes a more robust three-principle framework for resilient pedagogy which serves as a practical guide for course design and offers some clearer indicators by which we can more effectively analyze the presence of resilient pedagogy in an online learning environment. It should be noted, though, that the five attributes of CRP are largely embedded within Quintana’s three-principle framework. The three-principle framework includes designing for **extensibility**, designing for **flexibility**, and designing for **redundancy**.

A system is designed for **extensibility** if it allows the addition of new capabilities or functionality (Quintana, 2020). To design for extensibility in a course, instructors must first construct the most basic format which still allows it to achieve its objective or purpose. Then, the instructor may expand and extend the course format and tools to address additional needs, always keeping the primary goal or purpose of the course in mind (Quintana, 2020). Consider the metaphor of a vacuum designed to work with several different attachments. When using a vacuum with different attachment heads, the overall purpose of removing dust and dirt remains the same but using various attachments allows the vacuum to work differently and more effectively on varied surfaces. Designing for extensibility may be present in an individual course, or it may be present on a larger institutional level where the goal is to continue the educational enterprise during a crisis. For example, a university may have been using the learning management system (LMS) primarily for sharing course documents with students in a face-to-face course with lectures being delivered during class. However, if a crisis requires courses to meet remotely, instructors can pivot and use a streaming video add-in within the LMS to record and share lectures asynchronously. The authors consider extensibility as a means to address

macro-level issues for a system design, whereas the flexibility principle addresses specific stakeholder learning needs within the system.

Designing for **flexibility** involves anticipating and responding to potential changes in a learning environment (Quintana, 2020). Effective online learning experiences must be designed for learner variability, even in advance of meeting specific students in a given course. The principle of flexibility has much in common with the Universal Design for Learning (UDL) framework which originally came to prominence in the 1990s. UDL is a student-centered instructional design framework which prioritizes inclusive and equitable teaching practices using multiple methods of content representation, multiple means of student action and expression, and multiple modes of student engagement (CAST, 2018). As with UDL, instructors who design for flexibility will be prepared to meet the needs of a wide variety of students and will be prepared to respond to changes in the learning environment in real time. Designing for flexibility provides for multiple means of engagement with a range of circumstances in mind, including class size and modality (Quintana, 2020). Consider the metaphor of a tailor constructing a suit. The tailor follows a pattern and makes cuts to construct a suit ahead of time but makes sure to include enough extra fabric and loose stitching in the initial construction to be able to adjust the suit to fit the individual needs of the person who will be wearing it in the future. One way that instructors may demonstrate flexibility is by including additional learning activities in their courses for students who need to review or learn concepts that they were already expected to understand. These activities would not be required for students who already demonstrate proficiency in this content. Once again, designing for flexibility may be achieved on a smaller scale by individual instructors and their courses, or by an institution as it seeks to meet the individual needs of students, faculty, and staff participating in online learning.

Finally, designing for **redundancy** involves analyzing a course or system design to identify and address points of system failure. Designing for redundancy in a course allows an instructor to facilitate the same types of interactions using a variety of different methods depending on the needs of the moment or the demands of the modality (Quintana, 2020). Higher education faculty, staff, and administrators who design for redundancy always have at least one back-up plan so that they are ready for disruptions to the original plan. They also minimize dependence on any one tool, resource, or learning modality (Quintana, 2020). Instructors who practice redundancy make sure their materials and methods are diversified and provide students with a variety of options to demonstrate their learning (Quintana, 2020). In this instance, a metaphor for redundancy might be the act of having a backup generator, a flashlight, *and* candles on hand in case the lights go out. HEIs often have a contingency plan in place for their institutional operations in case of emergency, but this level of foresight does not necessarily trickle down to instructors as they design their courses. An example of redundancy would be providing alternative formats for lectures that were presented in person or synchronously through web conferencing software. Digital lecture recordings could be used by students who were unable to attend a real-time meeting. Providing multiple alternatives allows students to engage with the best-fit option for them and offers multiple access points to the material should one part of the system fail.

In summary, resilient pedagogy is present to the extent that stake holders can adjust, edit, add, remove, or exchange elements as needed along the way to still fulfill the original goals and purposes of an academic course, program, or, perhaps, the institution at large. In this research, the three principles just described were not considered mutually exclusive criteria, but rather

complementary to one another and able to mutually inform within the resilient pedagogy framework.

Research Questions

1. What indicators of resilient pedagogy can be found at the institutional level in case studies in which HEIs have had to pivot to online learning in response to a crisis?
2. What indicators of resilient pedagogy can be found at the instructional level in case studies in which HEIs have had to pivot to online learning in response to a crisis?
3. How can the principles of resilient pedagogy inform HEIs' current and future pivots to online learning in crisis situations?

Methods

Research Design

A descriptive case study approach was used in the present research. Case studies allow researchers to explore and examine individuals, relationships, communities, organizations, or programs within their real-life contexts, and they support the deconstruction and reconstruction of various phenomena (Yin, 2017). By examining multiple sources of evidence, including but not limited to, archival records, documents, interviews, and direct observation (Yin, 2017, pp. 126-130), the present study sought to explore the “how” and “why” questions—how HEIs and instructors therein pivoted and practiced ERT during a time of crisis and why certain strategies were effective—with the intent to uncover multiple interpretations of resilient pedagogy.

Selection of Cases and Data Collection

The selection rationale for the included case studies is twofold: 1) the relative availability of literature and research reflecting upon emergency online learning implementation in these instances, and 2) the relationship in crisis situations and their relevance to challenges being faced in 2020, including more unified responses to “external” trauma (i.e., natural disasters or a public health crisis) and morally complex “internal” trauma that involves socio-political upheaval (i.e., protests and civil disobedience).

Considering our research purpose and questions, the following inclusion and exclusion criteria were also established:

1. All case studies must take place in one or more higher education institutions.
2. All case studies must involve an emergency pivot to online teaching and learning in a moment of crisis.
3. In each case study, the crisis might include “external” trauma (i.e., natural disasters or a public health crisis) and/or morally complex “internal” trauma (i.e., socio-political upheaval, protests, and civil disobedience), but the crisis must have impacted normal campus operations such that an emergency pivot to online teaching and learning was required.
4. The case study must have taken place in a time where enough technological infrastructure existed to warrant a move to online learning.

5. The authors intentionally included case studies from international institutions and HEIs of differing types/sizes to search for indicators of resilient pedagogy in varied contexts.

Following the recommended case study protocols (e.g., Merriam, 1998; Yin, 2017), we analyzed both quantitative and qualitative evidence from documents, archival records, and interviews. Details of the case characteristics—the quantitative and qualitative data sources examined in this study—are summarized in Table 1.

Table 1

Case Characteristics and Types of Data Analyzed

Case	Event & Location	Timeline	Institution Type	Qualitative Data	Quantitative Data
1	Hurricane Katrina, United States	2005	Wide variety impacted and wide variety participated in offering classes: 135 institutions from 36 states	Interviews with students and instructors, email records*	SREB electronic campus catalog (e.g., registration numbers)
2	Earthquakes, New Zealand	2010-2011	Large Public University	Reflective narratives from five instructors	LMS (e.g., timeline, type of educational activities)
3	Student Protests, South Africa	2015-2017	Large Public University	Interviews with 16 instructors	None
4	COVID-19 pandemic and Socio-Political Unrest, United States	2020	Small Private Liberal Arts University	Interviews with 20 instructors	None

*Note: Exact numbers of interviewees were not provided by Lorenzo (2008).

Data Analysis

We approached qualitative coding of the data using thematic analysis to identify and describe commonly occurring ideas, topics, or patterns (Braun & Clarke, 2006). The analytic strategies and techniques used are consistent with what qualitative researchers have recommended for analyzing case study evidence, specifically in its reliance on theoretical propositions, pattern matching, explanation building, and cross-case synthesis (Yin, 2017, pp. 168-198). Because of our theoretical interest in the topic of resilient pedagogy, we followed a more theoretical and analyst-driven thematic analysis approach as opposed to a more inductive approach (Braun & Clarke, 2006). Two coders (the first and second authors), working independently, read and re-read interview transcripts and archival documents to identify any themes related to the three elements of resilient pedagogy, and then discussed convergent and divergent themes. The analytic process then progressed from a more semantic-level description (e.g., surface meaning of data) to a latent-level interpretation with the significance of the themes and implications for practice considered in relation to previous literature and our research questions (the “how” and “why” of resilient pedagogy during a time of crisis).

Several strategies were used to ensure data credibility and reliability (Merriam, 1998; Yin, 2017). First, the authors followed the recommended protocols to conduct the literature review, developed theory-informed research questions, and selected cases through purposive sampling (see inclusion/exclusion criteria above). Second, the notion of triangulation was evident throughout the research process including the selection of multiple data sources (e.g., review of published articles, archival records, and personal interviews), a multi-informant approach (e.g., interview with students and instructors). Third, researcher reflexivity was examined (see coders' disclosure of bias in the appendix). Finally, ecological generalizability was enhanced by selecting multiple higher education sites, both domestically and internationally.

Findings

Case Study No. 1, New Orleans, Louisiana and the Sloan Semester, United States of America

The first case study under consideration took place in New Orleans, Louisiana, and the surrounding areas of the gulf coast of the United States after Hurricane Katrina in late August of 2005. After the hurricane, the city of New Orleans was devastated, and thousands of university students—many of whom had just started fall semester—were displaced and unable to return to their college campuses or resume their studies in-person. The Sloan Consortium (funded by the Alfred P. Sloan Foundation) partnered with the Southern Regional Educational Board (SREB) to offer displaced students the opportunity to continue their studies in an online format while their universities recovered. In what came to be known as “The Sloan Semester,” 1,700 students registered in 1,345 courses offered free (online) by 136 higher education institutions across 36 states (Lorenzo, 2008). The Sloan Consortium is now called the Online Learning Consortium.

The initial efforts for the Sloan Semester were spearheaded by Consortium members Burks Oakley and Ray Schroeder. Having previously discussed a need to develop an emergency plan for online course delivery (citing the 2003 SARS epidemic in Hong Kong as an example), Oakley and Schroeder, both of whom were employed at the University of Illinois at the time, had already been working on contingency plans that would allow their residential university to continue courses in the event of an emergency (Lorenzo, 2008). After Hurricane Katrina, they channeled their energies and prior research into an emergency response for students in New Orleans (Lorenzo, 2008). It is undeniable that the foresight and preemptive efforts made by Schroeder and Oakley were pivotal in the overall success of the Sloan Semester and the rapid changes enacted at the institutional level by many universities in a very short amount of time. Using the “Sloan Semester” case study presented by Lorenzo (2008), several indicators of resilient pedagogy may be found:

Indicators of Resilient Pedagogy

Extensibility. Because instructor participation in the Sloan Semester was largely voluntary and offered by instructors outside of the hurricane-impacted region, many if not most of those participating already had experience with online instruction and/or had at least a brief preparation window to adapt their courses for a virtual environment. Some level of advanced preparation meant that most online courses were thoughtfully constructed and were meaningful extensions of courses that might otherwise be taught in person.

Registration and participation policies from host university student information systems (SISs) and LMSs were extended to allow receiving students to register and participate in courses without conforming to policies that may have delayed or prevented their participation.

Participating faculty members adjusted courses designed for students at a single university so these courses could be taken by students from multiple universities. For example, permissions for documents that may have only been accessible to students at a participating instructor's university were altered to allow access for students from other institutions.

Flexibility. Student and faculty reflections revealed that student-to-student interactions and class discussion created an opportunity for students to mutually give and receive emotional support; this was important for student well-being as they dealt with the aftermath of the disaster. Regarding the social dynamic of her online class, one Sloan Semester student noted that “there was a lot of open communication between students and the teacher. Everyone’s personalities showed through online.” (p. 26)

Participating faculty members intentionally designed courses to meet the needs of their students. This included condensing longer courses to fit into shorter sequences, adjusting curriculum and discussion boards to increase opportunities for students to connect course content to their current lives and circumstances, and even pivoting teaching strategies midway through to give students the maximum amount of flexibility when it came to pacing and due dates, knowing that for most impacted students, life outside of school was far from business as usual.

Support from the Sloan Foundation significantly subsidized the cost of the credits taken in the Sloan Semester. In most cases, students could take courses at no cost. The Sloan Semester made extensive use of academic advisors to help support participating students in the process of choosing and signing up for classes. Since students no longer had access to services that had previously been provided on campus, many benefited from the guidance, clarity and support offered in direct partnership with the Sloan Semester advisors. Student services are critical and must be considered as part of a healthy academic ecosystem, regardless of the medium of instruction.

Redundancy. Sloan Semester courses were offered by faculty members from a wide variety of institutions across 36 states. Due to the efforts of the Sloan Consortium, 136 universities across the United States matriculated students as providers in the Sloan Semester distance learning program, avoiding overreliance on any one institution or pool of instructors.

One of the most important factors contributing to the Sloan Semester’s success was the foresight of Oakley and Schroeder, who had already been drawing a blueprint for the use of online learning in an emergency that eliminated the use of physical classrooms. The value of emergency preparedness in this situation cannot be overstated.

Xavier University, a hurricane-impacted university, fared better than some of its counterparts because it had a pre-existing emergency website and institutional data backed up offsite, ultimately allowing them to continue communications and maintain student records without significant setbacks (SchWeber, 2008).

Although the Sloan Semester was considered a success on many fronts, one identifiable weakness was the immense amount of “outsourcing” which took place, making it difficult for impacted institutions to replicate the Sloan Semester approach on their own campuses. This in

turn slowed their ability to recover students and lost tuition dollars, as well as participate in more localized recovery efforts (resilience begets resilience). Lorenzo (2008) reported that some of these impacted institutions did not support credit transfer policies, resulting in many Sloan Semester students dropping out of courses. With respect to methodology, this case study was written in a “journalists/case-study style” with less formalized attention to traditional data collection techniques and documentation. Additionally, the author was a member of the Sloan Consortium, and thus may be subject to a biased representation of the overall efficacy of the Sloan Semester.

Case Study No. 2, Canterbury, New Zealand

A second case study examines the use of blended learning following a series of major earthquakes in the Canterbury region of New Zealand in September 2010 and February 2011. Then, a series of aftershocks destabilized the Canterbury region for many months. The February earthquake resulted in 185 fatalities, large-scale destruction, and a prolonged state of civil emergency (Mackey et al., 2012). In response to this crisis, faculty members at the University of Canterbury in New Zealand adopted technologically enhanced teaching practices that they referred to as “resilient blended learning”; these teaching practices ensured that teaching could proceed despite significant disruption and displacement (Mackey et al., 2012). The University of Canterbury remained closed for many weeks to ensure that the necessary safety assessments were completed, but even when campus reopened, physical classroom spaces were in short supply (Mackey et al., 2012). Reflecting upon resilient pedagogy as it was called for in this situation, Mackey et al. (2012) asserted that “[c]reative and innovative solutions are required if a sound academic program is to be maintained when faced with a lack of space and physical resources, interrupted schedules, dispersed students, and an extended period of civil emergency” (p. 130). Using indicators provided in the descriptive case study conducted by Mackey et al. (2012), several observations can be made about the use of resilient pedagogy in a crisis:

Indicators of Resilient Pedagogy

Extensibility. In the effort to redesign courses for online modality in an abbreviated time frame, some faculty members focused on reducing the amount of information exchanged in each class session, replacing lectures with practical application activities; in some instances, lectures became self-directed learning experiences.

The case study authors reported that they “adopted an inverted or ‘flipped-classroom’ model requiring students to take greater responsibility for their own learning.... Precious face-to-face time was reserved for workshops, hands-on activities, and discussions to explore what had been presented online.” The online environment was leveraged as a platform for course content “supported by new multi-modal resources including podcasts and video demonstrations.” (p. 128).

Faculty/staff established informal support networks to exchange ideas and better equip one another to work with new platforms and teaching modalities. Collaboration among colleagues was instrumental in improving the student and faculty experience. After the initial crisis, time/energy was spent reviewing and reflecting upon the experience to better prepare for future incidents, including sustainable changes in current course delivery models.

Flexibility. The semester was condensed to one that was shorter than planned, with teaching and assessments adjusted accordingly to meet student needs. Instructors recognized the need to be accessible and visible in a virtual space and responded quickly to students' questions and concerns. They also "identified practical strategies for supporting students, including streamlining and simplifying online course sites, revising course maps and outlines, highlighting course changes, providing additional resources...adjusting assessment tasks and assessment dates..." (p. 129).

Faculty members adopted a relaxed approach to attendance, encouraging students to manage their own blended learning experience and to opt-in to online or on campus course offerings according to what best suited their needs. Also, continued aftershocks in the spring prompted a university-wide move to replace exams and tests with take-home or online tests/assignments to avoid having large numbers of students sitting in lecture halls.

Redundancy. In the early days of the February earthquake, communications to staff/students were made available through the school website, email, social media, and the LMS in an effort to connect with students through at least one medium or platform. The university library was able to pivot quickly and provide many academic resources and readings in an alternate, virtual format. To ensure multiple points of entry and communicate equally with all students, some faculty members personally followed up with individuals in their courses who had not yet accessed relevant online course materials/sites to ensure students' ability to participate.

Increased collaboration among colleagues was a notable benefit in this case study. Mackey et al. (2012) noted that innovative teaching activities and course redesigns were results of a "grassroots" effort from instructors, with seemingly little assistance from the university's internal infrastructure (e.g., a center for teaching and learning or educational technology department). This certainly placed a greater burden on individual faculty members during the crisis, and it suggests that instructors might have benefited from more unified support efforts and guidance from within the university. Regarding methods, a limitation of this study was the small sample size of participating faculty members. In order to conduct "quick-response research" in the midst of the crisis, the study depended on documenting the lived experiences of five instructors from the impacted institution, and thus the data collection process was decidedly less traditional in scope (Mackey et al., 2012).

Case Study No. 3, Cape Town and Johannesburg, South Africa

The third case study occurred more recently in the country of South Africa. South African student demonstrations began at the University of Witwatersrand in Johannesburg in October of 2015. Students were effectively on strike in response to significant and prohibitive tuition hikes (over 10% from the previous year). Mass protests spread to the largest HEIs across South Africa, and students at the picket lines argued that the proposed hikes would financially exclude mainly black and poor students (Onishi, 2015). Because the cost of tuition was directly tied to government funding (or lack thereof), the protests became a nationwide political issue. Institutionally, the disruptions impacted all aspects of operations including course content and delivery (namely, the inability to hold classes in-person), tuition costs, and students' ability to prepare for end-of-year exams which determine their ability to pass or even graduate (Czerniewicz et al., 2019). South African higher education faculty members had little time to consider their options for moving their teaching online since "the circumstances in which this

was thrust upon them were unstable, unplanned and uncoordinated” (Czerniewicz et al., 2019, para. 17). Using the University of Cape Town case study from Czerniewicz et al. (2019), several observations can be made about the course offerings provided during the student protests in South Africa between 2015 and 2017:

Indicators of Resilient Pedagogy

Extensibility. The University of Cape Town instituted compulsory adaptations of blended learning techniques to allow teaching/learning to continue in a virtual format. Using the campus LMS, some instructors had already incorporated some amount of blended learning into their courses such that when the formal directive was given, moving courses online was not necessarily a prohibitive shift for the faculty or the students. Course timelines were adjusted in anticipation of current/future disruptions. One respondent noted that they strategically managed student engagement with material earlier on in the course “so that students wouldn’t require any face-to-face engagement after a certain date.” (p.10)

Flexibility. Instructors were not left entirely to their own devices. At the University of Cape Town, support staff showed instructors how to develop blended learning opportunities through the LMS, including making their courses less bandwidth-intensive and easier to interact with on mobile phones. Many instructors were sympathetic to the cause of the protests and the socio-economic/socio-political environment that resulted; this context was acknowledged in many classrooms, and it informed the way many instructors interacted with students in their courses as well as practical decisions around course design, curriculum, and the postponement of due dates.

Redundancy. Efforts were made to make online instructional materials accessible to students using phones as well as laptops. Department heads communicated to faculty members that they must make plans to move courses online because they needed a curricular backup plan to finish the school year.

Although this case study contained clear indicators of resilient pedagogy, Czerniewicz et al. (2019) noted that many (if not most) of the instructors interviewed ultimately viewed online teaching and learning as inferior to face-to-face instruction. Consequently, instructors’ willingness to fully engage in the pivot to online teaching was often tepid, looking more like emergency remote instruction and “putting materials up online” rather than true resilient pedagogy (Czerniewicz et al., 2019). Significant weaknesses in this study seem to have revolved around lasting stigmas about the efficacy of online teaching and learning, combined with a lack of meaningful professional development for instructors prior to, and throughout, the crisis. Like the previous case studies mentioned, data collection methods in this case study were impacted by the crisis such that access to willing faculty participants was limited and the sample size of those interviewed—as compared with those invited to participate—was relatively small. Those who received interview requests were still trying to navigate the ongoing impacts of the crisis themselves (Czerniewicz et al., 2019).

Case Study No. 4, Pacific Northwest Region, United States

The fourth and most recent case study took place at a small, private liberal arts university in the Pacific Northwest region of the United States. In response to the COVID-19 pandemic, this institution, like most HEIs in the US, shifted to a comprehensive, emergency remote online learning environment during the 2020 spring term. With relatively little time to make this switch, the university delayed the start of the term by two weeks to give instructors time to redesign their

courses for an online format. This also resulted in a truncated term, which comprised eight weeks instead of the usual 10 weeks. As online courses continued to be offered in summer 2020, instructors and students were also navigating the social unrest that occurred nationwide in response to racial tensions and injustices. Using resilient pedagogy as a conceptual framework, an examination of findings from the qualitative interviews conducted by the second author as part of a larger study allowed the researchers to explore indicators of resilient teaching practices.

Indicators of Resilient Pedagogy

Extensibility. For fall 2020, some courses that could not easily be reproduced in an online format remained face-to-face (e.g., lab classes) with appropriate social distance measures in place, while those that could be accomplished online were moved completely online.

Faculty members received support for adjusting course design and infrastructure from the educational technology department. Instructors reformatted lectures into asynchronous learning experiences, so that synchronous online sessions could be spent checking for learning and answering questions. One respondent described how they modified their course: “I really moved away from the idea that we have to meet like two or three times a week. So, I broke up my prerecorded lectures into a series of mini lectures” (Instructor 5). Instructors began to think about future planning for different teaching scenarios. One respondent reflected on how they worked to create a sustainable model for resilient teaching: “I had an eye to long term planning both for online teaching in the future and also to build the kind of resources and templates and that sort of thing that I could use should we ever go back to in-person teaching” (Instructor 5)

Flexibility. The university adjusted the start and end date of the academic quarters in response to the pandemic trajectory.

The institution implemented an undergraduate tuition reduction, effective autumn 2021. While the expectations and workload for faculty service remained largely the same, department and committee chairs were given the option to meet less often, thereby giving faculty members more dedicated time to adjust their courses and other work.

Instructors adjusted their expectations for student input (e.g., class participation) and output (e.g., performance). Instructors adjusted the time spent on learning activities in response to not having access to campus and to not having a full 10-week term. One respondent reflected on choices they made in response to the shorter timeframe: “I know that I made choices about what I would do and what I wouldn't do in the online class. I expected less output from the students. I assigned less and I gave up the final exam” (Instructor 10).

Instructors varied the types of asynchronous/synchronous learning activities for maximum learner engagement. One respondent described how they adjusted a course that had a lab component: “I left the online live portion of lab for when I wanted them to work in groups...and then everything that could be done individually they would do (asynchronously) outside of that one hour” (Instructor 4).

Redundancy. The institution adopted Panopto software for instructors to use for streaming video, which provided backup for Zoom meetings, including both audio and transcript versions of all recorded sessions.

Several instructors noted that they needed to be “creative” and adjusted course materials/equipment in response to not having access to on-campus resources. “I have specialized equipment in our lab that we would have used, but I adapted to like use paperclips

and stuff at home and be creative” (Instructor 1). Another respondent described using data sets generated from classes in years past to frame lab tasks during COVID (Instructor 18).

Instructors used technology to recreate social-emotional experiences that had been a part of the on-campus experience. One respondent described how they preserved an important interpersonal practice: “One of the things...I kind of missed out on was the before-and-after class conversations....I tried to create that by logging online 10 minutes early just to see who was there and ready online. There were always a few...” (Instructor 15).

A strength of this study was the relatively large sample size of 20 instructors for a qualitative study. Moreover, the participants represented a wide range of academic disciplines in both undergraduate and graduate levels. Although 65% of the instructors interviewed had not taught an online course prior to spring 2020, they demonstrated flexibility and willingness to adapt to the emergency remote online teaching environment and to reflect on the long-term implications of the modifications they made. A potential limitation of this study was that it took place at a small, urban, private, faith-based HEI, which may limit the generalizability of findings to other HEI.

Discussion

ERT is a modality that can be used in crisis situations for a brief period but it is not an end goal. Sustainability is the next step in education offerings and must shape the end goals in any situation where an emergency remote response is required. Strategies implemented now can be built upon and can increase institutional resilience in the future (Johnson et al., 2020). Especially considering the ongoing effects of the COVID-19 pandemic, HEIs worldwide are finding a need to develop comprehensive, sustainable, and resilient educational plans that can withstand the challenges and unknowns of what is yet to come (Johnson et al., 2020).

Successful implementation of ERT will look more like true online learning and embody attributes of resilient pedagogy, including institutional and pedagogical extensibility, flexibility, and redundancy. The authors found indicators of resilient pedagogy in each of the included case studies. It should be noted once again that in this study, the three principles were not considered mutually exclusive criteria. Rather, they were considered complementary to one another, at times overlapping within the resilient pedagogy framework. For example, some indicators might be considered examples of both extensibility and flexibility; in these cases, the authors coded the indicators according to their understanding of the best-fit principle.

Within the resilient pedagogy framework, extensibility refers to an institution or instructor having a plan for each course that goes beyond one format or relies on one set of tools (Quintana, 2020). In this study, a common challenge faced by the institutions was how to accommodate for the loss of instructional time, deciding which technologies could be used to best meet learning needs, and making sure that instructors and students had access to the technologies required for learning. The authors found that institutions showed extensibility by supporting macro-level changes in learning modalities. Resilient institutions provided the guidance, leadership, and practical support needed to help instructors move to blended or fully online formats, sometimes implementing policies in support of these changes. Institutional potential for extensibility was usually enhanced by the presence of pre-existing emergency plans for remote instruction and/or the effective use of the institution’s LMS. Instructors showed extensibility by modifying their course structure to fit new timeframes, using blended learning

strategies (e.g., flipped classroom), and by making use of new technologies to sustain learning activities.

Flexibility refers to the ability of an institution or instructor to anticipate and quickly respond to changes in the learning environment to best meet the individual needs of the stakeholders involved (Quintana, 2020). In this study, institutions demonstrated flexibility by adjusting tuition costs (when possible), implementing changes to the academic calendar, and reducing committee responsibilities for faculty members scrambling to change their course modalities. Furthermore, instructors showed flexibility by recognizing and responding with agility to the myriad social-emotional, cognitive, and physical needs that their students presented with because of each unique crisis. Examples included relaxed attendance policies and flexible course design which impacted how students consumed course content and demonstrated their learning. Other examples included leveraging the use of institutional services (e.g., academic advisors and library resources) to help instructors and students navigate the new learning environment.

Redundancy refers to an institution or instructor analyzing systems, including course design, for possible points of failure, always having a back-up plan and avoiding overreliance on any one aspect of the system. In this study, institutions showed redundancy by making sure information systems were sufficiently backed-up, using multiple platforms and methods to communicate with instructors, staff, and students, making sure materials were accessible on multiple device-types, and collaborating with other organizations/institutions. Instructors showed redundancy by checking in and following up with students to identify possible failures in the system, implementing a back-up plan that accounted for not having access to on-campus resources, and using multiple modalities to provide content and receive evidence of student learning.

These examples support existing research on resilient pedagogy by demonstrating the effectiveness of applying the three principles of extensibility, flexibility, and redundancy in a pivot to online learning in a crisis. All four case studies showed that HEIs and the instructors therein engaged in actions that align with the principles of resilient pedagogy because they felt that those actions were necessary to best serve their students. Although we may never be able to take the “emergency” out of a response to a crisis, the application of resilient pedagogy can help to make the transition to online learning during a crisis less traumatic for all involved. Furthermore, the principles of resilient pedagogy enhance course design and student experience in any context, regardless of a crisis, ensuring that instructors offer meaningful, varied, student-centered learning experiences in all circumstances.

Key Findings and Implications for Future Practice

The authors propose the following recommendations for future practice, based on the principles of resilient pedagogy and the case studies reviewed in this paper, in support of a successful pivot to online learning in a time of crisis:

Pre-existing emergency plans for instruction. Comprehensive emergency plans for online learning need to be the norm at the institutional level. In the New Orleans case study, a blueprint for emergency remote instruction already existed, allowing the Sloan Consortium and its partners to mobilize quickly. Emergency plans must address issues of technology access and campus infrastructure as well as course design, and these plans must be curated well in advance of a crisis. This will require significant effort, time, and resources on the part of an institution,

especially when it comes to training instructors and providing proper technological and pedagogical support.

Institutional support. Institutional support includes—but is not limited to—professional development, training, and technical support for online learning, adequate support staff for students and faculty that can still be accessed in a virtual format, attention to resources for students who might not otherwise be able to participate in online learning, and possible adjustments to tuition. This is an issue of equity. In three of the case studies, student access to the internet and needed devices proved to be a barrier to participation in online learning, and these needs were not always adequately addressed. Equitable learning should also translate to resilient classroom teaching practices in which instructors are able to flex and change their course requirements, curriculum content, and due dates according to student needs. This is especially needed in moments of crisis and trauma.

Digital literacy. As seen with the faculty members interviewed in the South Africa case study, it cannot be assumed that instructors will be willing/ready to engage in online teaching if the need arises. Training faculty members to engage in online instruction is an inevitability; perhaps it is time that a certain level of digital literacy is non-negotiable for current HEI faculty/staff and future faculty hires. Professional development opportunities that support the use of new digital tools and platforms, best practices in online teaching, and department-level collaboration must be a priority. In the South Africa case study, the professors most accustomed to using the LMS for some level of blended instruction prior to the crisis had the easiest time making the adjustment to teaching fully online when the situation demanded it. Even for residential universities that house students on campus and primarily conduct in-person classes, the COVID-19 pandemic has proven that no university is exempt from needing to think about dynamic learning options to best serve their students.

Limitations

These case studies were drawn from a search of the available published literature and therefore represents only those cases that were documented in this way. Furthermore, any potential limitations in those studies (e.g., small sample size; no control for subjective bias) could be considered limitations of this study as well.

A second limitation pertains to researcher's bias. While the two coders reflected on their assumptions and preconceptions and how these might affect their data analysis, and while all the authors regularly conferenced to cross-check bias, it is still important to acknowledge that the results and discussion in this study reflect the choices for inclusion and perspectives of the researchers and could be subject to other interpretations.

A third limitation is that the results gathered from the case studies included in this study represent scenarios and responses that are particular to the context of each case study (e.g., private, faith-based HEI in case 4). While the results may not be generalizable to other contexts, it is possible that HEIs in a different context (e.g., a minority-serving institution) can still identify with the ERT experience and benefit from learning about the principles of resilient pedagogy. They can extend or adapt the application of specific resilient pedagogical strategies identified in this study in their relevant contexts, thereby contributing to a richer understanding of the phenomenon of ERT.

Finally, resilient pedagogy is a relatively new topic of study in the field of education and therefore research on this topic is sparse. To the best of our knowledge, no validated instruments for resilient pedagogy have been published. This could be an area for further research.

Suggestions for Further Research

The principles of resilient pedagogy were used to analyze each of the four cases in this study and to devise the recommendations above. Three of the four cases examined in this study involved crises that occurred prior to the COVID-19 pandemic. It would be interesting to see whether the institutions in these cases fared better than others in their response to the COVID-19 pandemic because of their prior experience, and whether indicators of resilient pedagogy can be found in their response. Future research could involve longitudinal studies of institutional response, using the principles of resilient pedagogy as a measurement.

Regarding measurement of the principles of resilient pedagogy, there is a need for the development of measurement tools that can be used to gather both quantitative and qualitative data. The researchers in this study used a case study approach and a top-down thematic coding approach based on the definitions of three principles provided by Quintana (2020). Future research could involve further refinement of the principles and the development and validation of a survey instrument.

Finally, we would like to suggest that a fourth principle may need to be added that addresses the social-emotional aspect of resilience in terms of how to build resilience in educators so that they are able to employ the other three principles of resilient pedagogy. Aguilar (2020) describes resilience as “a way of being” that is possible only through the challenging work of building self-awareness. Educators can build resilience by focusing on positive emotions (hope, purpose, curiosity, and empathy) and on elements in their teaching practice that they are able to influence and control (Aguilar, 2020). A traumatic event or crisis affects all spheres of life and educators may feel isolated and overwhelmed by their personal experience of the event, while simultaneously feeling unprepared to meet the needs of their students in an emergency remote learning context. Resilience does not come naturally to all and the capacity for resilience must be built before we experience trauma or crisis. We must equip educators with the habits of mind that lead to a resilient response to any change in the learning environment. Recognizing this, HEIs’ contingency plans must include social-emotional support for faculty and staff. Furthermore, HEIs should include opportunities for building resilience in their continuous professional development plans. This is an important way that HEIs can demonstrate resilient pedagogy at the institutional level. Essentially, the key to resilient teaching is a resilient teacher, and the work of continuously building resilience in all faculty and staff must be a primary goal of HEIs moving forward. It may be that this fourth principle exists on the periphery of the construct, in much the same way that “context” exists on the periphery of other frameworks. Future research could investigate how to incorporate this essential aspect of resilience.

Conclusion

As previously noted, the need for HEIs to be prepared to respond to a crisis is not new; however, the COVID-19 pandemic has had an unprecedented global impact, requiring HEIs worldwide to make rapid shifts to online learning and maintain remote teaching modalities for much longer than anticipated. As institutions and instructors continue to navigate this crisis,

much can be learned from the principles of resilient pedagogy, including examples drawn from HEIs that have demonstrated resilience in the face of a crisis in the past.

Key findings indicate that pre-existing emergency plans for instruction and robust institutional support systems (including academic support staff, tech support, and centers for teaching and learning) will significantly impact institutional and individual capacity to practice resilience. As HEIs continue to navigate the COVID-19 pandemic worldwide they would be wise to focus attention on faculty professional development in resilience pedagogy, technology training and infrastructure, and resource equity for students. Institutional and instructional resilience will not only help HEIs more effectively pivot to online teaching in the face of a crisis in the future but improve the instructional design and delivery of online courses in all circumstances, leading to meaningful and sustainable online teaching in the present.

Declarations

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

The authors assert that approval from the ethics review board (IRB) at Seattle Pacific University, USA was given for this study.

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