Embodying Whole Community Preparedness: A Case Study of Student-Facing Preparedness Initiatives at Institutions of Higher Education in the State of Oregon

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Embodying Whole Community Preparedness: A Case Study of Student-Facing Preparedness Initiatives at Institutions of Higher Education in the State of Oregon

by

Francis Pastorelle

A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Education
in
Educational Leadership: Postsecondary Education

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ABSTRACT

Over the last two decades, there has been a dramatic increase in natural and manmade disasters. While no community is immune to the risks posed by these large-scale emergencies, colleges, and universities, which are home to numerous vulnerable populations, could be counted among those most at risk. In their current state of overall community preparedness, campuses are not equipped to weather impending dangers; consequently, the impact on students could be disastrous. This study examined preparedness practices at Oregon colleges and universities to better understand how institutions of higher education in the state prepare their students for large-scale emergencies, what challenges they face in implementing preparedness interventions, and what best practices have helped them overcome these challenges. Using a qualitative case study research design, an inventory of preparedness interventions was developed through the distribution of a state-wide qualitative survey, document-mining and elite interviews with preparedness managers at seven colleges and universities in Oregon. These interventions, in conjunction with data collected regarding challenges and best practices, were used to inform the development of a tool based on the Extended Parallel Process Model to aid practitioners in developing preparedness education interventions.
DEDICATION

To my sons, Robin Cameron and Arthur Francis.

“I wish it need not have happened in my time,” said Frodo.
“So do I,” said Gandalf, “and so do all who live to see such times. But that is not for them to decide. All we have to decide is what to do with the time that is given us.”

— J.R.R. Tolkien, The Fellowship of the Ring
ACKNOWLEDGMENTS

I owe a tremendous debt to my parents. Veronica: you gave me my passion for education, and never let me settle for anything less than my best work. Barry: You taught me the importance of a strong work ethic and doing things the right way, not the quick way—it’s taken three decades but I think I’ve figured it out. Francis: you showed me how to pursue excellence, overcome obstacles, and never say never. Mercy: you showed me how to allow myself grace and take quiet moments. I hope I can be for my children what you were for me.

A doctoral candidate is only as good as his adviser, and I was fortunate to have the best. Dr. Karen Haley: when I met you, I thought I had all the answers. Because of your (extremely patient) tutelage, I leave this program full of questions. Thank you for teaching me to stay curious, question my assumptions, and get the thing done. I want to also thank my committee members, Heather Kropf, Yves Labissiere, and Michael Walsh, for dedicating your time and insights to the improvement of this work.

I would not have been able to complete this journey without the unwavering support of my wife, Avalon Mason. Avalon: Your own love of learning and appreciation for academic achievement were inspiring to me. I know you’ll say (as you’ve said before) “I didn’t do anything,” but your love, your sacrifice, your cheers at the mile markers, weren’t just “anything.” They were everything. I hope I can be half as strong a champion when it’s your turn—here’s to a “Mason & Pastorelle” byline by 2030.
I’m also grateful to my sons, Robin Cameron and Arthur Francis. When I started my doctoral program, I imagined kids would be a scholastic liability. Nothing could be further from the truth. My sons were my greatest source of motivation, and forced me to be organized in ways I never could have aspired to before becoming a father. As well, parenting under the shadow of COVID-19 was what inspired me to choose disaster preparedness as my topic for research. Boys: despite everything in the pages ahead, you give me hope for the future of our world.

Finally, my gratitude to Linn-Benton transportation services. Two thirty-minute bus commutes five days a week gave me five hours of uninterrupted time to work on my EdD—a luxury for a parent of a toddler. Thanks for helping me graduate (and get to work) on time.
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CHAPTER 1: INTRODUCTION

On October 1, 2016, the unthinkable occurred at a community college in southern Oregon. A student at Umpqua Community College entered his English and writing classroom, fired a warning shot, then gathered his classmates and teacher into the center of the room (Theen, 2016). Overhearing the gunshots, someone placed a call to 911, and within six minutes police were on the scene exchanging fire with the gunman. He was shot in the side, then two minutes later ended his life by suicide. In those few devastating minutes, the gunman killed nine people and injured eight others. At the time, it was the deadliest mass shooting in Oregon’s history (Theen, 2016).

This incident represents one of many risks facing students and institutions of higher education (IHEs). In Oregon and throughout the country, there has been a dramatic increase in threats to health and safety, particularly over the last two decades: natural disasters spurred by climate change, civil unrest and violence, terrorism, and the impacts of current and future pandemics are some of the most significant risks in a long list of existential challenges facing the globe (FEMA, 2022). While no community is immune to these risks, some face greater danger than others. Colleges and universities, which are home to numerous vulnerable populations, could be counted among those most at risk (De Brey et al., 2021). In their current state of overall community preparedness, IHEs are not equipped to weather present and impending dangers; consequently, the impacts on students could be significant.

The types of risks facing students on college campuses should be well-known given the prevalence of disaster-related news in recent years. However, before exploring
the topic of disaster preparedness in depth, it is worth naming explicitly the range and scale of hazards threatening college campuses, as well as the effects of such hazards in terms of their educational and mental health impacts. I will end the chapter with an introduction to the current study, which seeks to understand how IHEs in the state of Oregon are taking steps to improve student preparedness.

**Large-Scale Emergencies**

Disasters and large-scale emergencies have become ubiquitous in the modern age. The Federal Emergency Management Agency’s (FEMA) Threat and Hazard Identification and Risk Assessment (THIRA) for 2021 reports that 95% of participating communities identified themselves as vulnerable to natural hazards (FEMA, 2022). Ninety-two percent reported that natural hazards are increasing in their communities due to climate change, straining community emergency management resources. Manmade threats are also a concern for communities, particularly cyber-attacks, which were included in the top three threats of greatest concern reported by THIRA participants (FEMA, 2022).

**Natural Hazards**

Numerous natural disasters relating to extreme weather were documented in 2021. Flooding was the most common, which is unsurprising given the high percentage of people residing near the coast (approximately 40% of United States residents) (FEMA, 2022). Flooding issues are expected to increase in scope and frequency as sea levels rise up to twelve inches between now and 2050. Fires, particularly on the West Coast, have also been devastating, causing loss of life and hundreds of billions of dollars of damage.
in recent years ($148.5 billion in 2018 in California alone). In addition to homes, infrastructure can be ravaged by fires, as happened in 2021 when Colorado wildfires melted plastic piping, disrupting access to drinking water (FEMA, 2022). At colleges and universities in the Pacific Northwest, in addition to the primary impacts of wildfires (such as evacuations, destruction of homes, etc.), many students have been secondarily affected by air quality issues stemming from fires in the region.

Climate change’s influence on temperatures is not only felt through the increase in frequency and scope of wildfires. The temperatures themselves have become a grave concern. In the United States, 80% of the country experienced heatwaves in 2021 (Kaplan & Muyskens, 2022). The effects of such heat waves have been drastic: in recent years, extreme heat has become more deadly than hurricanes, flooding, or tornadoes (FEMA, 2022). The effects of heat are not felt equitably. According to the National Preparedness Report (2022), “Socially vulnerable populations are disproportionately affected by extreme heat, particularly those who live with disabilities, communities of color, low-income individuals, individuals lacking a high school diploma, and populations 65 or older” (p. 9). Such demographic groups are highly represented on college campuses (De Brey et al., 2021). As temperatures in the United States are expected to rise over the next several decades, these grim statistics are likely to worsen, particularly for those without access to amenities such as air conditioning (FEMA, 2022).

The effects of extreme weather are not limited to those that occur during the weather event itself, nor are these effects isolated. Often, weather disasters can lead to wide-ranging, interconnected impacts. An example of this would be the unprecedented
winter storm that took place in Texas in 2021. The snow and ice not only created
dangerous road conditions for a region ill-prepared for such weather, but they also led to
freezing at regional power plants (whose equipment was not built to operate under icy
conditions) (FEMA, 2022). This impact on Texas’ infrastructure, along with sudden
surges in demand as residents rushed to their thermostats, led to large-scale power
outages throughout the state. These power outages in turn disrupted access to water in
some locations (FEMA, 2022). Given the increasing reliance of students on internet
access and electronic devices used for education, power disruptions like those that
occurred in Texas could have serious educational impacts and potentially create
insurmountable difficulties for fully online students.

The impacts on infrastructure caused by climate disasters, while significant, pale
in comparison to the potential devastation of a major earthquake originating from the
Cascadia Subduction Zone, located off the coast of the Pacific Northwest. Experts believe
that in the next 50 years there is a 37% chance of a 9.7+ earthquake caused by the
collision of the Juan de Fuca Plates (Oregon Department of Emergency Management,
2024). This event would result in tsunami waves as high as 100 feet, the collapse of
bridges and buildings, and between 1250 to 10,000 deaths (Yu, 2013). This would be
followed by approximately a year and a half of disruption to necessary services
(including banking, cellular service, and delivery of fuel and water). Experts believe that
the earthquake would be particularly destructive for the state’s supply of fuel, 90% of
which is stored at the Critical Energy Infrastructure Hub (Wozniacka, 2023). The CEI is
located on the banks of the Willamette River, on ground that is likely subject to liquefaction (ECONorthwest, 2022).

**Manmade Threats**

The 2021 THIRA identified cyber security as a top concern for participating communities, with over 70% of participants indicating they were underprepared for the possible impacts of a cyber-attack (FEMA, 2022). Industries as diverse as oil, gas and hospitals have been subject to hacking and ransomware in the last several years. Universities, with their vast wealth of personal and intellectual information, could be a desirable target for similar attacks (U.S. Department of Education, 2013). However, ransomware attacks are not the only possible threat posed by cyber-security breaches. In 2021, an unidentified person hacked into a Florida water-treatment plant and attempted to cause mass poisoning by increasing the levels of sodium hydroxide in the water (FEMA, 2022). The attack was mitigated before significant damage could be done; however, the incident represents the vulnerability of vital institutions to cyber terrorists. Given the presence of dangerous chemicals and equipment in university labs, it is easy to imagine the possible devastation that could be caused on a college campus were such facilities to fall victim to cyber-attacks. It is also possible that a cyber-attack could come on the heels of a natural disaster, creating a cascade of micro emergencies within the larger disaster and delaying life-saving resources from reaching impacted populations (FEMA, 2022).

Another potential manmade threat (and one named as a top concern for THIRA participants) is active harmers (FEMA, 2022). In decades past, school shootings were a rare and devastating event. However, in more recent years, they have become a
discouragingly regular occurrence. Despite efforts to profile potential shooters and “harden” school security, no high school or college appears immune to the risk of fatal shootings. While recent concerns regarding active harmers have tended to focus on the epidemic of individual shooters acting autonomously, the threat of terrorism remains potent despite the largely incident-free years that have passed since the September 11th terrorist attacks (FEMA, 2022). Such threats are compounded for IHEs, which are considered to be “soft targets” for terrorism (U.S. Department of Education, 2013).

Spanning the gap between natural and manmade disasters are pandemics and other outbreaks of disease (U.S. Department of Homeland Security, 2015). While COVID-19 is the most recent example, it is hardly the first national health disaster. In the same decade, it was preceded by smaller outbreaks of Ebola in 2014 and Swine Flu in 2009. Colleges and universities, with their packed lecture halls and congregate living facilities, are often host to localized surges of infectious disease. These can sometimes turn deadly, as was the case with the 2015 meningitis outbreak at the University of Oregon (LeDuc, 2022).

Disasters such as these can have devastating impacts on students during a disaster and through its lingering effects. These effects primarily relate to student mental health and educational success. The effects of large-scale disasters on college students will be discussed in the following section.

The Effects of Disasters on Students

While disasters adversely impact all those they touch, those living and working on college campuses face particular risks. The Centers for Disease Control provides
governments and tribal communities with a “social vulnerability index” (SVI) that uses census data to identify special needs populations (SNPs) or “socially vulnerable” populations in their area. This tool was created because such populations are disproportionately and adversely impacted in the event of a disaster (Flanagan et al. 2011). Of the 29 identifiers mapped by the SVI, eight account for 80% of social vulnerability in the United States: “wealth, race and social status, age, ethnicity and lack of health insurance, persons with access and functional needs, service sector employment, race, and gender” (FEMA, 2022, p. 38). All of these populations are represented within campus communities; consequently, should disaster strike, many university community members would experience particularly adverse effects (De Brey et al., 2021). Among students, outside of immediate losses (e.g., loss of life or property, impacts to health, etc.), the most profound effects of disasters are their impact on educational outcomes and mental wellness.

**Educational Impacts**

Traumatic experiences, such as those occurring from natural and manmade disasters, can worsen educational outcomes, particularly when disasters cause students to be displaced (Ladd et al., 2007; Pane et al., 2008). However, students do not need to be immediately impacted by disasters for their academics to be negatively affected. A study by Gill & Ladd (2006) at a school in Mississippi (located near the outermost border of Hurricane Katrina’s declared disaster zone) assessed the hurricane’s educational effect on primary survivors (those who had been personally displaced during the storm), secondary survivors (those with close friends or relatives who had been displaced), and tertiary
survivors (those who had experienced the hurricane without direct or indirect experiences of displacement). Of all survivors surveyed, 38% believed their academics had been impacted by the hurricane, regardless of their survivor status, with primary survivors being more likely to report adverse educational effects than tertiary or secondary survivors (63.5%) (Gill & Ladd, 2006). In assessments of these students’ GPAs, self-ratings generally aligned with actual performance for primary and secondary survivors, showing that the less insulated students are from disaster, the worse their educational outcomes could be.

Educational outcomes can be influenced by disasters in many ways. Students, particularly underclassmen (freshmen and sophomores), may be unfamiliar with the area where their campus is located and have fewer supports during a disaster, making evacuation or displacement more traumatic and educational recovery more challenging (Ladd et al., 2007). Following displacement, students may have trouble obtaining vital school records from their closed institutions to enroll at other universities. Some of the most acute educational impacts could be offset by intentional outreach and tailored support from university offices and administrators (Allaire, 2020). However, this would require widespread university preparedness, as offices would have to quickly adapt to servicing the needs of disaster-impacted students.

Impacts on Mental Health and Wellness

Many researchers have studied the impact of disasters on students’ mental health. According to researchers, college students are already among the most vulnerable demographics in terms of susceptibility to mental health issues (Muyor-Rodriguez et al.,
Traumatic experiences such as large-scale disasters can therefore put students at greater risk for developing mental health disorders or exacerbating existing mental health issues. Trauma from a disaster can be incurred during an event (event trauma) or before and after (process trauma) (Shaw, 2000). Such trauma can lead to increased instances of depression and anxiety, post-traumatic stress symptoms or post-traumatic stress disorder (Allaire, 2020; Lee & Lee, 2019).

Post-traumatic stress disorder is one of the most frequently reported mental health disorders experienced by disaster victims (Keya, 2023). Risk factors for PTSD are increased even for those indirectly exposed to a disaster because of the resultant intense media coverage or saturation of social media (Felix et al., 2021; Lee & Lee, 2019). These effects are exacerbated if students themselves are approached by news media (as often happens after an incident of mass violence or other disasters at a university), increasing instances of PTSD symptoms and raising anxiety (Felix et al., 2021). Students who experience disasters express feeling triggered by future weather events and believe that despite the disaster being over, they cannot return to normal. Students’ experience of disaster has also been correlated with disordered eating (Meyer & Stanick, 2018).

The traumatic effects of disaster on students’ mental health are not just short-term. The long-term mental health outcomes of students at Keyano College were studied 18 months after the nearby 2015 Fort McHenry wildfire in Alberta Canada burned over 740,000 acres of land and led to the evacuation of 80,000 people (Ritchie et al., 2020). Instances of major depressive disorder (MDD), generalized anxiety disorder (GAD), and post-traumatic stress disorder (PTSD) all increased from pre-disaster levels by significant
amounts. Most notably, PTSD on campus rose from 0% pre-wildfire to 11%, and MDD rose from 11% to 23%, with higher rates for students under twenty-five. Comparatively, the rate of MDD in the broader population of Alberta is about 10% (Ritchie et al., 2020). The study illustrated the ways students can continue to be impacted long after a disaster has ended.

**COVID-19 and the Effects on Mental Health and Educational Outcomes**

The recent pandemic is a clear example of the mental health and educational effects caused by large-scale disasters. COVID-19 impacted virtually all populations dramatically, but its effect on students was particularly significant. Some surveys have indicated that a large percentage of students felt their IHE weathered COVID effectively. The 2021 NSSE pulse project noted that 70% of survey participants “believed their institution substantially (‘very much’ or ‘quite a bit’) helped keep them safe and healthy” (National Survey of Student Engagement, 2021, p. 2). Despite these favorable impressions, however, the COVID-19 pandemic revealed major gaps in university readiness, and the consequences of the pandemic had a significant impact on students' educational and mental health outcomes.

Insofar as the educational impacts, less than half of students surveyed by the National Survey of Student Engagement (2021) indicated that their coursework following the shift to online modalities “highly challenged them to do their best work” (p. 2). Educational outcomes were also affected by students’ lack of adequate spaces for study, particularly for non-campus residents. More significant were the detrimental effects on mental health (Muyor-Rodríguez et al., 2021, p. 2). These impacts were exacerbated for
those who experienced relocation as a result of the pandemic (Conrad et al., 2021). As with the evacuations related to Hurricane Katrina, sudden evacuations during the spring term of 2020 were deeply traumatic for many students (Conrad et al., 2021). In one study, relocated students reported higher instances of “grief, loneliness, and generalized anxiety symptoms than students who did not relocate” (Conrad et al., 2021, p. 122). Many of the students who relocated had to leave behind items of high value or personal significance (40% of total students who evacuated). These students reported higher levels of grief, loneliness, and anxiety than peers who relocated without leaving items behind. Longer-term, evacuees who leave behind items of significant sentimental value can experience increased rates of PTSD (Conrad et al., 2021). Students who developed mental health conditions during the pandemic, or whose existing mental health conditions were worsened by the pandemic, also had reduced access to important resources and services integral to their wellbeing (Conrad et al., 2021).

Disproportionate Impacts on Minoritized Students

Educational impacts, mental health impacts, and other impacts from disasters are worsened for students across a variety of minoritized populations. A 2017 report by the Substance Abuse and Mental Health Services Administration (SAMHSA) noted that those who are low SES experience adverse effects from disasters due to a number of exacerbating factors (including a higher likelihood of residing in areas vulnerable to natural disasters as well as having fewer resources to evacuate and recover from a disaster). A study by Nepal et al. (2012) notes that international community members, particularly those who are “linguistically isolated” require context-specific preparedness
outreach, which is often lacking in generalized community preparedness. This can lead underprepared international communities to suffer unnecessarily from disproportionate disaster impacts.

COVID-19 can again be seen as an example of these effects. During the COVID-19 pandemic, international students experienced increased anxiety compared with their domestic peers, and non-binary students were more likely to experience depression, anxiety, and PTSD than male and female-identified students (Conrad et al., 2021). Students already experiencing mental health diagnoses before the pandemic developed increased rates of depression, anxiety, and other disorders (Conrad et al., 2021). Even the afore-mentioned survey that reported high satisfaction from students toward their IHE’s COVID-19 performance reported that those who did not share such positive feelings were more likely to be “male, studying mostly online, have a learning disability, mental health disorder, or multiple impairments, be of American Indian or Alaska Native, African American, or Middle Eastern/North African background, and enrolled at a public or minority-serving institution” (National Survey of Student Engagement, 2021, p. 3). As BIPOC students were already dealing with a reduced sense of classroom belonging and engagement before the start of the pandemic, the pandemic exacerbated existing challenges (Stolzenberg et al., 2020). Additionally, the COVID-19 pandemic coincided with highly publicized incidents of institutional violence toward minority groups, including the police killing of George Floyd, during the Summer of 2020 and in the years proceeding (Slovic, 2020).
The long and short-term effects of disasters are extensive and well-documented. With forces like climate change and widespread social unrest contributing to the frequency and scale of disasters, navigating these large-scale emergencies has become a significant responsibility for campus leaders. It is not enough for this responsibility to fall only to preparedness practitioners at IHEs—given the scope of the issue, preparedness must become the obligation of the whole community.

**The Importance of Whole Community Preparedness**

In the face of ever-growing hazards, community preparedness has become a vital necessity. To be truly prepared, a community requires more than the efforts of administrators tasked with preparedness—numerous documents published by FEMA cite the need for “whole community preparedness” (FEMA, 2022; U.S. Department of Education et al., 2013; U.S. Department of Homeland Security, 2015). According to FEMA, engaging the whole community is a key principle of national preparedness, and entails “involving people in the development of national preparedness documents” and “ensuring their roles and responsibilities are reflected in the content of the materials” (FEMA, 2020, para. 11-12).

In the context of institutions of higher education, the whole community includes “students, staff, and visitors, including those with disabilities and others with access and functional needs, those from religiously, racially, and ethnically diverse backgrounds, and people with limited English proficiency” (U.S. Department of Education et al., 2013, p. 5). There are many benefits to engaging the whole community in preparedness, such as helping to fill gaps in community response, identifying strengths and needs of the
emergency operations infrastructure, and building relationships and buy-in within the community.

**Filling Gaps in Emergency Response**

In the event of an emergency, it may take between 72 hours to up to two weeks for emergency services to arrive at an incident and provide life-assisting care (U.S. Department of Homeland Security, 2015). During that critical period, prepared citizens can be the first line of response for other community members. In addition to providing triage support at their institutions and outreaching to affected college community members, staff at IHEs assist with the transition from immediate response to longer-term recovery by communicating and collaborating with fire departments, emergency medical care providers, government entities, and other external stakeholders (U.S. Department of Education, 2013). Particularly during the period immediately following a disaster, such outside entities may not be equipped to provide the support needed by colleges and universities. Barnett (2014) reported that local health departments, often key to community emergency response, have been losing staff at increasingly high rates. Should a large-scale disaster occur, these organizations have limited surge capacity. Faced with the possibility of diminished community resources, communities like IHEs can protect themselves by developing a pool of qualified responders within their ranks to ensure that in the event of a large-scale emergency, people within the community can provide care and response until reinforcements arrive (Khan et al., 2018).

According to the National Preparedness Goal (2015), the preparedness of the whole community can assist beyond the mitigation phase into the longer-term recovery
phase. This boost to recovery can often extend beyond a single university’s campus. Dunn (2018) writes that a well-prepared IHE is not only more equipped to support its own community in a disaster, but other colleges and universities in the area as well. Such was the case in 2015 when the University of Oregon quickly responded to the Umpqua Community College shooting by sending staff to the college to relieve exhausted practitioners (Dunn, 2018). Often this extension of the whole community concept into neighboring campuses is formalized through mutual aid agreements, such as the Disaster Resilient University’s National Incident Mutual Aid Agreement (Dunn, 2018).

**Identifying Strengths and Needs, and Building Relationships**

Whole community preparedness can help university communities identify strengths as well as needs. Prepared community members are more likely to understand their roles in a crisis, helping streamline response and saving valuable time should disaster strike (Khan et al., 2018). Involving community members offers them more experience with disaster decision-making and prepares them to make vital decisions under complicated conditions regarding resource allocation. Beyond individual competency-building, whole community preparedness can lead to needs assessments for specific minoritized populations (U.S. Department of Education, 2013). Engaging socially vulnerable populations in preparedness planning not only reduces the impact of the disaster on these populations but also provides opportunities for marginalized stakeholder groups to contribute vital knowledge and context to planning (Khan et al., 2018). This inclusion reverses the typical deficit view of minoritized groups in terms of
disaster preparedness and response by emphasizing their strength and cultural capital (Khan et al., 2018).

In addition to building better, more complete preparedness plans, stakeholder engagement helps build buy-in within communities (Khan, 2018). Community members who have a hand in creating emergency preparedness plans or who know the leaders involved in the planning are more likely to participate in the execution of those plans. Engaging in this process can also help build individual confidence, which is a protective factor in times of crisis (Ripley, 2008). Collaboration establishes trust between the various jurisdictions and organizations that come together to address large-scale emergencies (Dunn, 2018). Perhaps more importantly, stakeholder engagement can increase trust between the public and institutions. The 2022 Gallup poll measuring confidence in U.S. institutions demonstrates that trust in public institutions has decreased dramatically in the last several decades, with only faith in the military and small businesses polling above 50% (Jones, 2022). Since the conflict and chaos experienced during the COVID-19 pandemic, there is diminished trust in public health officials and organizations. Such distrust can lead community members to doubt or outright reject organized preparedness efforts (Khan et al., 2018). By involving the whole community in preparedness, leaders can help establish trust and provide transparency, leading to increased support and buy-in (Khan et al., 2018).

**Mitigating the Mental-Health Effects of Disasters Through Preparedness**

Whole community preparedness can also ameliorate the mental health effects of large-scale emergencies. Research shows that one’s subjective interpretation of a disaster
has a significant impact on long-term coping and recovery; because of this, there may be ways to mitigate the most acute mental health impacts of disasters through improved preparedness (Lee & Lee, 2019). In particular, preparedness may have a role in helping reduce the effects of long-term mental health disorders such as post-traumatic stress disorder (James et al., 2020).

Post-traumatic stress disorder is a complex mental illness that cannot be easily attributed to a single factor. However, following a disaster, the likelihood of developing post-traumatic symptoms (PTS) or longer-term PTSD can be influenced by “rumination” and negative cognitions (i.e., over-focusing on negative thoughts and interpretations of the event) (Ehlers & Clark, 2000). In particular, viewing a catastrophic event as disruptive to individuals’ long-term goals or evidence of an unjust world may cause them to view their life as outside their control, increasing their risk of developing symptoms of PTSD (Nalipay & Morden, 2018).

These outcomes are not guaranteed, however; psychology researchers have determined that survivors of a disaster can instead engage in “positive meta-cognitions,” in which the survivor identifies negative or ruminative cognitions, interrupts them, and refocuses on positive interpretations of the event, their agency in navigating it, problem-solving, and goal setting (Nalipay & Morden, 2018, p. 383). Developing skills in positive metacognition has been shown to decrease symptoms of PTSD. Even more encouraging, positive metacognitions can lead to “post-traumatic growth,” where survivors can come to terms with the role of the disaster in their life and interpret the
experience as meaningful to their growth, thus enabling them to move forward from the incident in positive way (Tedeschi & Calhoun, 1996).

Post-traumatic growth (PTG) is a term first coined by researchers Tedeschi and Calhoun (1996). The term emerged from their findings that while most studies of traumatic events emphasize the mental and emotional harm done to survivors, many survivors exhibit growth as a result of life-changing incidents like natural disasters (Tedeschi & Calhoun, 1996). This growth can include changes in survivors’ self-perception, improvements to their relationships, and positive changes to their philosophical or spiritual beliefs. Furthermore, PTG can lead a survivor to see novel possibilities emerge as a result of their experience and develop a renewed sense of purpose (Tedeschi & Calhoun, 1996).

Research into PTG has produced variable findings in the decades since Tedeschi and Calhoun introduced the concept. Much remains unknown, including the nature of the relationship between PTS and PTG; some see a positive correlation, others a negative (Fayaz, 2023). Some researchers have even questioned whether PTG is imagined, or if such positive spins on the survivor’s experience are the result of unconscious denial of their trauma (Maercker & Zoellner, 2004).

Despite these uncertainties, there is wide agreement that some survivors are able to recover from trauma more quickly than others and experience the positive life changes Tedeschi & Calhoun (1996) refer to as PTG. Several studies have indicated that in addition to pre-existing levels of mental and emotional resilience, a high sense of self-efficacy and the ways individuals make meaning of their experiences post-disaster can
result in increased likelihood of PTG (Jian et al., 2023). Since engaging in preparedness behaviors can help raise an individual’s sense of self efficacy in navigating disasters and contribute to positive self-narratives after the event (“hero narratives” versus “victim narratives”), engaging in preparedness behaviors can be a protective factor for disaster survivors and perhaps even lead to post-traumatic growth for students (Spialek, et al., 2019, p. 72).

**Purpose of the Study**

It is clear that there are significant benefits to ensuring students are better prepared for disasters, given the positive influence preparedness can have on students’ educational and mental health outcomes. While student safety is a stated goal or value for many colleges and universities in Oregon, specific research into how IHEs in Oregon prepare students for disasters has not been conducted. Such research is needed given Oregon’s high disaster risk. In a recent concept paper from the Oregon Campus Resilience Consortium, the author references meningitis outbreaks at the state’s two largest universities, increasingly frequent and devastating wildfires, and major shutdowns and damage to infrastructure from unprecedented ice and snow events (LeDuc, 2022). As well, Oregon sits with the zone of immediate impact from the predicted Cascadia Subduction Zone earthquake, whose occurrence is an eventuality, not merely a possibility.

This case study examined preparedness interventions at Oregon IHEs to better understand how colleges and universities prepare students for large-scale emergencies in a state where disasters (past, present, and future) are part of the daily context in which
these schools operate. Colleges and universities in Oregon are central to the state’s financial and social health, serving as “hubs of employment, economic productivity, knowledge, and scientific advancement throughout the state;” consequently, the state of their preparedness has a strong bearing on Oregon’s overall resilience (LeDuc, 2022, p. 1). Although the study is limited to Oregon schools, the hope is that the lessons learned could inform practices at institutions nationwide and that similar reviews could be conducted in other states that regularly experience large-scale emergencies. While previous research has explored campus preparedness from a leadership or organizational lens, this case study specifically sought to examine how preparedness initiatives engage students as pivotal members of the “whole community.”

**Research Questions and Research Methodology and Methods**

The overarching research question guiding this study was: how do organizations responsible for campus preparedness at colleges and universities in the state of Oregon prepare their students for natural and manmade disasters? Secondary research questions for this study were:

- What challenges do IHEs face in implementing these preparedness interventions,
- What best practices have they identified to overcome these challenges?

To answer these questions, a qualitative methodology was chosen. While quantitative data is applicable in preparedness research, it would fall short in analyzing the full breadth of work conducted by university preparedness programs.

Within the broader qualitative approach, a case study research method was utilized. According to Yin (2016), case studies are recommended for studies wherein a
“how or why question is being asked about a contemporary set of events over which the researcher has little or no control” (p.12). This methodology was used given the topic’s complexity and the desire to analyze multiple categories of qualitative data, as well as in recognition of the unique differences between the various higher education institutions within the state of Oregon (Yin, 2016). Case study methodology is widely used in related fields such as public health and public policy to evaluate preparedness interventions and shed light on why specific program decisions are undertaken. This reflects that there is ample precedent for the efficacy of case studies for inquiring into community preparedness interventions (Yin, 2016). The use of multiple sources of data within a case study methodology improves research validity through the triangulation of different forms of evidence collected during the study. In the present student, validity was also improved through the decision to study multiple sites within the case study, as it reduced the chance that the experience of a single campus was anomalous within the bounded case (i.e., IHEs in the state of Oregon) (Yin, 2016).

In the first phase of the study, a qualitative survey was distributed to preparedness leaders at all colleges and universities within the state of Oregon with questions regarding their approach to whole community emergency preparedness education and other preparedness initiatives. From this survey, and in consultation with stakeholders within the Institute for Resilient Organizations, Communities, and Environments, seven institutions of higher education were chosen for a multi-site case study. The case study began with a review of documents and artifacts, including public-facing materials, internal documents, websites, and other data. The study also included elite interviews
with preparedness managers at the seven participating schools. The study concluded with a final summative interview with a consulting expert with experience leading preparedness and response interventions nationally and state-wide within Oregon.

**Significance of the Research**

Research indicates students at IHEs are underprepared for disasters (Davis et al., 2019; Lovekamp & Tate, 2008; Seo et al., 2012). Disasters can have negative impacts on students’ physical safety, mental wellness, and educational outcomes. While improved preparedness would not fully insulate students from these impacts, research has demonstrated that better-prepared individuals are less likely to experience the most severe effects of a disaster. Given the risks facing students in Oregon, it is vital to conduct a detailed analysis of current student-facing preparedness interventions. Once it is better understood which interventions are utilized in the state, attention can be devoted to building on, improving, or replacing such programs.

Preparedness interventions require not only an investment of time but also significant financial resources (Dunn, 2018). Throughout the United States and particularly in Oregon, colleges and universities are struggling financially because of widespread divestment from higher education (Barr & McClellan, 2018). States are allocating fewer dollars to large public universities, private institutions are seeing decreases in alumni donations, and with few exceptions colleges and universities are experiencing decreasing enrollment. This decrease could continue, as the “baby busts” that followed the 2008 financial crisis and more recently COVID-19 will have drastic effects on enrollment across the country (Reed, 2022). Forming the backdrop to this
shaky financial picture are the rising dangers from natural and manmade disasters, which will have additional human and fiscal costs. Thus, while the future is uncertain, financial challenges combined with increasing threats seem to be a certainty.

In the context of decreased financial resources and increasing dangers to campus communities, efficient approaches to preparedness and resilience building are pivotal. Schools must do more to prepare students while ensuring that the work they do yields measurable outcomes. Thus, studies such as this can provide a much-needed examination of the overall health of college preparedness programs and illustrate the ways resources are being utilized. In a state like Oregon, where campus professionals continue to advocate for funding and must therefore demonstrate their efficacy, such analyses may mean the difference between the success and failure of their programs.

Additionally, as increasing numbers of IHEs in the United States are subject to greater risks, many institutions need verified best practices to help inform their preparedness work. While federal offices such as FEMA provide broad guidance to colleges and universities, since the impact of disasters is felt uniquely on the local level, IHEs are best served by having examples from similar institutions (insofar as size, demographics, etc.). Consequently, case studies can be a welcome source of guidance to preparedness managers not only in Oregon, but also in states that experience similar kinds of natural and manmade disasters, including schools in Washington, California, Colorado, and other locations prone to wildfire, weather events, and seismic activity.

Finally, it is a stated priority of colleges and universities not only in Oregon but throughout the United States to involve students more actively in university preparedness
(DRU Network, 2018). This priority aligns with the National Preparedness Goal of incorporating the “whole community” into preparedness work. To determine how interventions could be added or adapted to be more inclusive of students, it is necessary to undertake research into the preparedness interventions being utilized at IHEs in Oregon.

**Conclusion**

The problem of preparedness is national, but it is particularly salient for Oregon colleges and universities given the risks posed to students residing in that state. The effects of disasters can be mitigated by preparedness; conversely, without adequate preparedness, these effects can be greatly amplified. This study identified what steps IHEs have already taken to better prepare their students, as well as what additional measures could be utilized to improve preparedness and disaster outcomes in the future.

The review of literature for this study is presented in Chapter 2. In Chapter 3, I describe the study’s methodology. The analysis of the data collected during the study is presented in two chapters. Chapter 4 presents data pertaining to preparedness definitions, program influences, and specific preparedness interventions employed by preparedness managers at IHEs in Oregon. Chapter 5 discusses the study’s findings related to the challenges experienced by preparedness managers in implementing these interventions, as well as best practices as described by participants, and how they have found success in building student preparedness on their campus. I conclude with Chapter 6, which outlines recommendations for practice, including a tool practitioners can utilize to guide the development of preparedness interventions at their institutions.
CHAPTER 2: LITERATURE REVIEW

As described in the preceding chapter, the world is under increasing threats from large-scale disasters, and these disasters can have significant, negative effects on college students. These effects can be mediated by improving student preparedness; however, as the following chapter will indicate, students are underprepared for disasters. The reasons for student underpreparedness vary, and include difficulties defining and measuring preparedness, inconsistent approaches to community preparedness nationally, and socio-cultural phenomena that make preparedness hard to prioritize for most individuals, particularly college students. Understanding these challenges is a vital precursor to understanding the need for the current study, which examines the ways colleges and universities in Oregon have chosen to address the topic of student preparedness for large-scale disasters.

In the following literature review, I will first outline the theoretical framework for the study. I will next describe how preparedness has been defined across numerous industries and contexts, and how these myriad definitions can create challenges in attempting to measure preparedness within a community like a college or university. The research presented will offer ways preparedness has been measured effectively despite these challenges, and will show that by all measurements, students at IHEs are underprepared for disasters. The potential reasons for community underpreparedness will be presented, first through an overview of the history of disaster preparedness in the United States following 9/11, a period that dramatically reshaped federal approaches to community preparedness. I will conclude by outlining the various socio-cultural factors
that continue to influence community underpreparedness, using Oregon’s experience with the 2016 Umpqua Community College shooting as an example of these influences at work.

**Theoretical Framework for the Study**

In the context of this study, understanding disaster preparedness and the actions IHEs can take to increase community preparedness requires one to understand how individuals perceive threats from large-scale disasters, and what actions individuals might take in response (i.e., preparedness actions). The work of Paul Slovic, a behavioral scientist who has spent over six decades studying how people conduct risk assessment and decision-making, provides a possible answer to the question of how students perceive disaster threats. In addition, the Extended Parallel Process Model, a model used in public health to explain how “fear appeals” result in behavioral changes, answers the question of how the perception of threats can result in preparedness actions (Witte, 1992).

**Perception of Risk**

Paul Slovic’s work as a behavioral scientist spans several decades, and across that period he has generated numerous theories relating to risk perception and decision-making. While several of these concepts will be discussed in more depth elsewhere in this chapter (psychic numbing, the affect heuristic, and value prominence), this section will explain the foundations of risk perception, the fundamental elements of which comprise the more complex and specific theories used throughout this chapter.

At its most basic level, Slovic’s work proposes that the ways that the average person makes decisions differ from the more data-driven, complex risk analyses
conducted by experts (Slovic, 2020). While experts make decisions based on technical, quantifiable metrics like estimated fiscal or human costs, an average person’s risk perceptions are driven more by their “gut,” and may be influenced by less tangible factors (such as uncontrollability, unfamiliarity, or imagined “catastrophic potential”) (Slovic, 1987, p. 283). Slovic calls this less-analytical form of thinking “fast thinking” (contrasted with more data-driven “slow thinking” conducted by risk assessment experts) (Slovic, 2020, p. 2234). This form of thinking and decision-making is generally beneficial for an individual as they work through thousands of minor decisions made over a single day. It offers a heuristic for making moment-to-moment judgments rather than wasting significant amounts of time poring over each decision. (Slovic, 1987).

However, this form of risk analysis has many limitations, as fast thinking is heavily influenced by bias, cultural values, and dread (Slovic, 1987). Consequently, an average person’s risk perceptions may over-focus on some threats while underestimating other threats that present a higher degree of risk. The resultant imbalance can lead to conflicts between how individuals perceive threats from disasters and the messaging put forth by public health officials and other experts tasked with improving community preparedness (Slovic, 2020). Risk perception can be improved by ensuring everyone is adequately educated on disaster threats. By providing community members with more information with which to inform “slow thinking” risk analysis, individuals can make more informed risk analyses that could lead to increased preparedness behaviors.
The Extended Parallel Process Model

Understanding how risk is perceived is only part of the broader picture of preparedness. Understanding how individuals respond to threats once they are perceived is equally important. One model for understanding how risk perception translates into preparedness action is the Extended Parallel Process Model (EPPM). The EPPM can be seen in Figure 1.

Figure 1

The Extended Parallel Process Model

SOURCE: Witte, 1992

The EPPM was developed from research into the efficacy of “fear appeals,” a widely used form of public health messaging that exploits a person’s fear to prompt a behavior change (Witte, 1992). Such messaging is typically accompanied by a
recommended action for the person receiving the message to reduce the risk of the feared outcome. An example would be a commercial portraying a car accident that concludes with a survivor saying they were saved by wearing their seatbelt. There are three general outcomes from fear appeals: “message acceptance,” defined as attitude, intention or behavior change; “defense avoidance,” a motivated resistance to the message, such as denial or minimization of the threat;” and “reactance” (Witte, 1992, p. 332). Reactance occurs when individuals reject a fear appeal because they feel their rights are being impugned or their personal liberty is being assailed. Both defense avoidance and reactance can be informed by identity, as studies have shown risk perception can be a form of “identity threat” based on a person’s culture or demographics (Kahan et al., 2007). The identity of the messenger can also influence the fear appeal outcome, as some message recipients are more inclined to trust sources of information they identify with culturally than messengers from outside their cultural groups (Kahan et al., 2007).

Public health professionals and other preparedness managers are most interested in the “message acceptance” outcome, in which a fear appeal succeeds in convincing an individual that they are under threat. “Perceived severity” and “perceived susceptibility” determine whether a person perceives something as a threat; severity and susceptibility are in turn influenced by “stake,” or how a person perceives they may lose or gain from a particular event or issue (Miller et al., 2012; Witte, 1992, p. 332). This overarching threat evaluation comprises the first branch of the Extended Parallel Process Model: a person receives the fear appeal and either determines that the threat is legitimate, or they reject the threat (Witte, 1992). As an example, during COVID-19, public health officials
advised individuals to wear KN95 and other high-quality masks to reduce the spread of coronavirus. Only those who viewed COVID-19 as a threat would proceed toward the action phase of the EPPM. As was observed during the pandemic, some people rejected the threat of COVID-19 for individual reasons, such as minimizing the health risk posed by COVID or comparing it to less-serious respiratory illnesses.

If a person evaluates a threat and determines the threat to be legitimate, they enter a second phase of analysis, in which they evaluate whether the mitigation actions suggested would be effective (Witte, 1992). Once again, the result of this evaluation would result in either message acceptance or defense avoidance. To use the same COVID-19 example: during the pandemic, many believed the threat posed by COVID-19 was legitimate but did not believe that masking was an effective intervention. Consequently, those individuals chose not to mask despite the initial efficacy of the fear appeal messaging.

The final phase of the EPPM occurs when the individual, having evaluated the efficacy of the intervention, next evaluates their self-efficacy, or their “belief in their ability to perform the recommended response” (Witte, 1992, p. 332). This third and final phase is vital to message acceptance. Even if an individual believes a threat is legitimate and believes that there are effective ways to mitigate the threat, if they do not believe that they can perform the action required of them, the individual will reject the message. Without self-efficacy, an individual will initiate a “fear control” response (denial, dismissal, putting it out of mind, or some other form of minimizing their fear that the threat is beyond their control) rather than a desired “danger control” response.
(preparedness actions that would reduce the threat posed to the individual) (Witte, 1992, p. 338). Returning to the example of masking, while some individuals may have believed that high-quality KN95 and N95 masks were effective protectants from the health risks posed by COVID-19, there were periods during the pandemic when such masks were inaccessible to the general public. If an individual was unable to obtain a high-quality mask, they may have dispensed with masking altogether or submitted to a sense of fatalism about contracting COVID.

**Summary**

Taken together, Slovic’s theories about risk perception and Witte’s Extended Parallel Process Model outline a potential blueprint for whole community preparedness interventions. These theories indicate that preparedness education is vital, given the myriad influences that determine whether and how an individual perceives risk. In the absence of such education, individuals are likely to act using “fast thinking” risk analysis, which may leave them exposed to threats from natural disasters. However, simply raising awareness of the threats from natural disasters will not insulate students from risk: preparedness interventions must also build self-efficacy, without which students would be disinclined to take preparedness actions.

**Defining Preparedness and Resilience**

Despite the clear threats posed by large-scale disasters and the life-saving potential of disaster preparedness, preparedness for disasters is generally under-discussed, particularly with college students. This may have to do with the difficulties in defining and articulating the concept of preparedness and the related topic, resilience. The
following section will set forth definitions for preparedness and resilience as they relate
to the research topic and explain how the absence of shared definitions of these concepts
may contribute to community underpreparedness.

Definitions of Preparedness

There is no conventionally agreed-upon name for the field of preparedness work
(Staupe-Delgado & Kruke, 2018). Such work exists in numerous industries, and is
interchangeably referred to as “disaster studies, emergency management, crisis
management, societal safety, societal security, societal resilience, hazard research, civil
protection, and civil defense, disaster risk science, disaster risk management, and
sustainable hazards mitigation” (Staupe-Delgado & Kruke, 2018, p. 213). Even the word
itself, preparedness, suffers from a surplus of synonyms: “readiness, contingency
planning, emergency planning, disaster capacity building, resilience building, resilience
planning, and business continuity planning” have all been used to describe preparedness
(Staupe-Delgado & Kruke, 2018, p. 214). The multiplicity of definitions, descriptive
phrases, and understandings of preparedness across fields as diverse as engineering,
education, and the military makes it difficult to come to a shared understanding of the
work. Further, despite the high prevalence of preparedness research, its ambiguity
prevents it from being generalized from industry to industry. Thus, Staupe-Delgado and
Kruke (2018) describe preparedness as “empirically rich but theoretically poor at the
macro level” (p. 212).

It can even be difficult to state definitively whether preparedness is a “quality or
a process” (Staupe-Delgado & Kruke, p. 214)—a state for a person or organization to
aspire to or the process of aspiring itself. This can result in dangerous misunderstandings. Most theories of preparedness approach the concept relative to its place within the four-part comprehensive emergency management model, where it proceeds mitigation and precedes response and recovery. To define preparedness as a quality, therefore, is to miss one of its most important facets: that it is ongoing and inextricable from its place in the disaster cycle (Cavanaugh, 2006). Those who determine that they have “prepared enough” are in danger of failing to evolve with the ever-changing risk landscape. As Staupe-Delgado and Kruke (2018) write, “In absence of an active dimension of preparedness, plans become obsolete” (p. 216). FEMA’s “Guide for Developing High-Quality Emergency Operations Plans for Institutions of Higher Education” underscores the need for preparedness to be continual in the context of higher education, given the ever-changing nature of their campus populations, leadership, and even physical structures (U.S. Department of Education, 2013).

Drawing on multiple definitions of preparedness across a range of literature, Staupe-Delgado and Kruke (2018) define preparedness as actions that are “active, continuous, and anticipatory in nature” (p. 212). In the context of this dissertation, this would refer to any university efforts to educate, protect, and make their community ready before a disaster occurs.

**Definitions of Resilience**

Resilience, like preparedness, has definitions that change based on context and field (Cutter, 2016). In engineering, resilience is defined as “the ability to avoid structural failure” (Langeland et al., 2016, p. 5). In psychology, it is considered the ability or
quality to grow back stronger after trauma. In ecology and sociology resilience is defined as the capacity to maintain continuity and adapt to changing conditions. From these similar yet disparate concepts, Langeland et al. (2016) present a unified definition of resilience: “The ability to maintain a critical level of operational capability despite disruptive events and regardless of the impact on individual systems and components” (p.6).

Cutter (2016), who writes about resilience through a social justice lens, adds that definitions of resilience should include the mandate to improve systems to be safer and more stable following a disaster or crisis event, in such a way that does not “privilege one group, sector or institution over another” (p. 112). Drawing from both definitions, resilience is used to describe the skills, knowledge, and resources of a university community or individual to adapt to and recover from an emergency. Resilience-building initiatives, therefore, are those that focus on educating and assisting university community members during and immediately following a disaster, with an explicit focus on ensuring the well-being and inclusion of vulnerable groups.

Despite the frequent confusion of the terms preparedness and resilience, preparedness can be clearly distinguished from resilience in that preparedness efforts are intended to prevent or minimize the ill effects of a disaster, whereas resilience efforts help a population withstand and recover from a disaster. Both terms will be used throughout this dissertation. There are two primary reasons why both concepts are discussed. One reason is that most emergency preparedness offices on campus are tasked with both preparedness education and developing campus resilience. Additionally,
because not all disasters can be predicted and prepared for, colleges and universities must help their students prepare for the unpreparable; that is, help them to develop high resilience and adaptability so that they can navigate the unexpected.

**Measuring Preparedness and Resilience**

In September 2015, FEMA published its second edition of the National Preparedness Goal (NPG): “A secure and resilient Nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk” (U.S. Department of Homeland Security, 2015, p. 1). While the NPG presents a clear mandate for whole community preparedness, it lacks clear criteria for defining how this goal can be met. To improve preparedness outcomes for students, it is vital not only to define preparedness but also to describe how it is measured. In the absence of a research-based metric, institutions and individuals responsible for preparedness have no way of knowing whether their community preparedness outcomes are being met, or by how much (Stoto, 2013).

**Measuring Community Preparedness**

Measuring community preparedness has inherent challenges. For one thing, large-scale disasters happen seldom enough that communities cannot assess their preparedness outcomes quantitatively (Stoto, 2013; Khan et al., 2018). Even when a community can articulate what went well or poorly in the event of an emergency, it’s impossible to assess the “counterfactual” (i.e., what would have occurred had those responsible for emergency preparedness acted differently). Despite these challenges, emergency preparedness
experts have identified ways of measuring both community-wide preparedness, as well as preparedness on an individual level.

**Measuring Community Preparedness by Capacities**

Community preparedness can be measured by preparedness capacities, or what “resources, infrastructure, response mechanisms, and knowledgeable and trained personnel” are available to respond in the event of an emergency (Stoto, 2013, p. 17). The benefit of measuring preparedness based on capacities is that it provides a clear-cut, quantifiable metric for community preparedness managers (Jackson, 2008). Either a resource exists, or it doesn’t. If it exists, then the community is prepared in that regard; if it doesn’t, then it is clear what the community needs to do to become prepared. Capacities do not necessarily have to be tangible resources. They can include the presence of plans or the existence of trainings for community members and stakeholders.

A limitation of measuring by capacities is that communities may overestimate their preparedness based on the completion of “checklists” (Jackson, 2008, p. 8). The mere presence of something doesn’t indicate its quality, or its ability to function as predicted in the event of an emergency. For this reason, many researchers instead suggest measuring preparedness based on “capability” (Jackson, 2008; Stoto, 2013).

**Measuring Community Preparedness by Capabilities**

Measuring preparedness by capabilities moves beyond identifying what resources exist within a community into how readily and expertly the community can activate its resources in the event of a crisis, and how predictably and effectively those resources will function (Stoto, 2013). Capability, also referred to as reliability, requires community
emergency managers to seriously consider and evaluate their preparedness plans: Where are the vulnerabilities, how will the plan necessarily adapt in the event of an unforeseen complication, and how likely are breakdowns to occur (Jackson, 2008)? Assessing capabilities can also help community preparedness managers prioritize funding and resources to address the aspects of their preparedness infrastructure most at risk for failure in an emergency before the emergency occurs (Jackson, 2008).

While measuring by capabilities provides a richer form of data than measuring strictly by capacity, there are challenges in implementation. Given the infrequency of large-scale emergencies, training and exercises are the only practical way to measure preparedness capability (Jackson, 2008). However, creating realistic simulations for community preparedness stakeholders is time-consuming and costly, while facilitating low-cost alternatives like tabletop simulations may be too far removed from the conditions of an actual disaster to effectively measure capabilities. Additionally, training must occur regularly to ensure knowledge is retained and organizations continue to work collaboratively despite staffing changes. Altogether, this makes measuring preparedness by capabilities more costly and time-consuming, which could explain why so many organizations instead choose to measure strictly by capacities (Jackson 2008).

**Measuring Community Preparedness Through Standards and Competencies**

While there is no single set of agreed-upon standards by which to measure preparedness, numerous entities and agencies have identified competencies and standards that can be used for this purpose. On the federal level, in addition to standards suggested by FEMA, the CDC provides the Public Health Preparedness Capabilities, an inventory
of fifteen capabilities to guide health departments in preparedness planning (CDC, 2018). Many states also have their own prescribed preparedness curriculums or accreditation programs to build preparedness within local communities. One such program in North Carolina was shown to improve preparedness capacity across six of eight metrics. Even those programs that did not fully complete the accreditation were shown to perform better than programs that did not participate at all (Davis et al., 2014).

Some researchers have suggested preparedness frameworks based on their studies. Research conducted by Khan et al. (2018) led to the development of a public health framework based on eleven overarching themes through which local governments and organizations could measure preparedness: “governance and leadership, planning process, collaborative networks, community engagement, risk analysis, surveillance and monitoring, practice and experience, resources, workforce capacity, communication, and learning and evaluation” (p. 11). Other authors suggest preparedness standards and competencies based on personal experience in the field. Cavanaugh (2006), who served as president of the University of West Florida through numerous hurricanes and other large-scale emergencies, stated that a university’s level of preparedness can be measured by attaining the following competencies:

- Planning that is comprehensive and fully integrated.
- Decisiveness through a willingness to make tough choices.
- Execution based on extensive knowledge of the plan.
- Personal touch in remembering that people and their safety are primary.

(p. 4)
Measuring Community Preparedness by Relationships

Falling somewhere between capacities and capabilities, researchers also recommend measuring preparedness by the relationships that exist between community stakeholders (Jackson, 2008; FEMA, 2022; U.S. Department of Homeland Security, 2015; Stoto, 2013). Lochner et al. (1999) refer to these relationships as “social capital.” Stoto (2013) suggests that such relationships are integral to effective preparedness given the need for diverse stakeholders to work collaboratively in the event of a large-scale emergency. FEMA also affirms the necessity of relationship development between public and private stakeholders (U.S. Department of Education, 2013). They recommend that stakeholders work to create memorandums of understanding before emergencies to ensure community stakeholders know their roles and their resources so that these resources can be activated quickly in an emergency (FEMA, 2022). Preparedness, then, can be measured at least in part by the existence of such memorandums of understanding (MOUs) and the overall health of relationships between various community stakeholders.

Measuring Community Preparedness Retrospectively

Often, preparedness is measured retrospectively, with policymakers and community leaders determining how preparedness should be addressed in the future based on the consequences of large-scale disasters in the past. These discussions can sometimes become overly politicized, with stakeholders pointing fingers at who could have done more to mitigate the consequences of an unforeseen emergency. Jackson (2008) suggests a more productive framing of this discussion: “The right question is not ‘could more have been done?’ but ‘how well did the system perform given what was
expected from it and the investments that were made based on those expectations” (p. 2)? Also, retrospective preparedness measurement can occur outside a large-scale emergency by daily observations of the composite pieces of the overall preparedness infrastructure. As an example, if over the course of a given month, $x$ number of emergency vehicles fail to arrive at a patient’s location in a timely fashion, and knowing that such vehicles would be dispatched in large numbers during a disaster, a community could take steps to improve response time (Jackson, 2008).

**Measuring Individual Preparedness**

In many ways, measuring individual preparedness is like measuring community preparedness, only on a micro-scale. The emphasis tends to be on individuals’ ability to respond to the immediate impacts of a disaster during the period in which community resources may be unavailable to them—estimated to be between 72 hours to fourteen days. Measures of individual preparedness typically refer to the development of disaster knowledge and skills (capabilities), and the presence of preparedness plans (capacities).

**Measuring Individual Preparedness by Disaster Knowledge and Skills**

One of the first preparedness measures FEMA recommends individuals take is learning about the unique risks in their community or region (FEMA, 2020; U.S. Department of Homeland Security, 2015). Such information can be found on federal or state websites, which also provide instructions for how to prepare for individual threats. FEMA recommends that community members become sufficiently well-versed in disaster literacy related to their region to be able to act before they are instructed to do so based on early alerts. An individual’s preparedness is also measured by the development
of skills that can be activated in a disaster, such as CPR and first aid training (FEMA, 2020).

**Measuring Individual Preparedness by the Presence of Equipment and Preparedness Plans**

Individual preparedness is also measured by the presence of physical markers of preparedness. The Alabama Department of Public Health, for example, conducted a study into the effectiveness of their “Get10” campaign, measuring overall community preparedness based on how many surveyed residents had at least nine of the ten items recommended for a complete “go-bag” or emergency supply kit (McCormick et al., 2013). Similar campaigns have been facilitated by FEMA, the CDC, and the Red Cross. Such inventories typically include a supply of water, nonperishable food, extra medication, toiletries, a battery-powered radio, a flashlight, important documents, and a supply of cash on hand (FEMA, 2020). Of these, food, water, a radio, and a flashlight are considered among the most vital for an individual’s survival (McCormick et al., 2013).

Apart from possessing certain emergency materials, individual preparedness is also measured by the creation of preparedness plans. This can include an individual or family’s evacuation plans, designating an emergency out-of-state contact, and compiling a list of emergency numbers (FEMA, 2020). Such plans are recommended not only for one’s home but for places one goes to regularly, like school or work. Preparedness can also be measured by the frequency with which individuals practice these plans, as well as their involvement with community organizations related to disaster preparedness and response (e.g., CERT, Red Cross, neighborhood associations, and others) (FEMA, 2020).
Underpreparedness of Staff and Students

While these various metrics have been used to measure the overall underpreparedness of US citizens (about 49% of people surveyed indicated they are underprepared), there is a particular problem of preparedness on college campuses (FEMA, 2023). Research has demonstrated that students, as well as the staff and faculty they turn to in times of crisis, are not versed in emergency protocols at their university or equipped with the individual skills and knowledge that might help them navigate a disaster (DRU Network, 2018). The following section describes the current state of underpreparedness at colleges and universities, as well as research explaining the possible reasons for this underpreparedness.

Underpreparedness of Universities

Institutions of higher education can be particularly vulnerable to threats, even relative to other communities. They are home to research laboratories and scientific collaborations with the Department of Defense, the NSA, and other government entities, making them targets for cyber-threats and other criminal activity (U.S. Department of Education, 2013). They often host large events or political visits, which could attract mass violence or terrorism. Even outside of large events, populations on college campuses ebb and flow with more regularity than other organizations and entities, making it difficult to track how many people might be affected if a disaster were to strike on a given day. Also, the US Department of Education (2013) cited international students and guests as a source of vulnerability.
By some measurements, IHEs are better prepared than many other kinds of large institutions. A 2016 emergency management national needs assessment indicated that 83% of campuses have an emergency operations/response plan (Bartlett et al., 2016). However, merely having a plan does not mean that that plan can be effectively enacted. Campus emergency operations plans (EOPs) may be missing critical components, as determined in the 2016 and 2022 Disaster Resistant Universities (DRU) Network Needs Assessments; or, EOPs may over-focus on the most common types of emergencies and under-prepare for low-frequency, high-cost disasters. University underpreparedness is not consistent across university types; for example, the 2016 DRU Network Needs Assessment indicated that two-year community colleges are less likely to have dedicated emergency management staff than four-year colleges (Bartlett et al., 2016).

Dunn (2018) summarized three main ways in which IHEs are underprepared: lack of resources, incomplete plans, and engagement at all levels of the institution, particularly from leadership. This last category regarding buy-in from leadership is repeated across a number of other studies, with several authors noting the challenges preparedness officials face working with institutional leadership across a variety of industries (Bartlett, 2018; Cavanaugh, 2006; Khan et al., 2018). This shortcoming is particularly unfortunate given the key role leaders can play when they are involved in campus preparedness, especially given their influence over campus and community partners, and their ability to assess the skills and gaps of university personnel to determine strategic actions (Kahn et al. 2018). The role of leadership in the preparedness process is so vital that the public health framework proposed by Khan et al. (2018) visualizes it as a circle encasing the other ten
core preparedness competencies. FEMA too emphasizes the role of IHE leadership in preparedness, stating “Planning must be supported by IHE senior leadership” (U.S. Department of Education, 2013, p. 5). Despite the utility of their engagement, leadership at IHEs tends to delegate preparedness work to other campus community members before withdrawing from the process (Cavanaugh, 2006).

**Underpreparedness of Students**

Within the broader campus community, students are underprepared for emergencies in many ways. They often underestimate threats and lack access to necessary emergency resources and materials (Lovekamp & Tate, 2008; Slovic, 2020). Edwards and Goodrich write, “Most members of the campus community are young, often away from home for the first time, with low personal incomes and little financial reserves, and are unused to being self-sufficient” (2009, p. 3). Additionally, students’ willingness to register for campus emergency alerts is variable, and they may not always respond to the safety information as directed (McGee & Gow, 2012). The apparent disengagement of students has led many university administrators to assume the worst of their student populations regarding preparedness, with only a quarter of higher education leaders indicating that they believe students have an adequate understanding of campus emergency protocols (Seo et al., 2012). Some students have acknowledged this culture of nonchalance, with some going as far as to say that they perceive peers who do engage in preparedness activities as being overly worried or even paranoid (Davis et al., 2019).

Suggested reasons for why students are underprepared vary. Part of this issue may be how preparedness information is disseminated. Davis et al. (2019) point to a tendency
of universities to communicate emergency information to students through methods like
emails and flyers, when texts are often students’ preferred communication medium. This
may lead to information being lost in the sea of marketing surrounding students as they
navigate campus, including vital preparedness information. This is particularly true for
the increasing numbers of international students on college campuses, who may already
face language difficulties and other challenges of adapting to campus life in an unfamiliar

Another possible reason for student underpreparedness is cost, both insofar as
finances and time. FEMA’s 2023 National Household Survey indicated that those who
were socioeconomically disadvantaged were less likely to take important preparedness
steps, especially ones with higher costs (p.17). Students, who are already navigating
historically high tuition and student loan debt, are ill-suited to engage in preparedness
behaviors that require purchasing emergency equipment. With record-high food
insecurity among students, it is also unlikely that most students could put aside the
FEMA-recommended 14 days' worth of non-perishable food and water (FEMA, 2020).
Students may also be too busy, as increasing numbers enroll in high-credit course loads
and return to extra-curricular activities following the COVID-19 pandemic (Lee-Whiting
& Bergeron, 2022).

Researchers also point to a widely held attitude among students that emergency
response and preparedness are the responsibility of university administrators, and that
should disaster strike, the university would implement measures to insulate students from
harm (Davis et al., 2019; Lovekamp & Tate, 2008). This prevailing belief that
preparedness is “someone else’s job” can lead to a kind of “fatalism” as described by Aksa et al. (2020), in which people see significant events as outside of their control. Such fatalistic attitudes, which can be informed by media, religious beliefs, or in this case the prevailing belief in the security of one’s university environment, are proven to reduce preparedness behaviors, leaving students at risk in the event of a crisis.

**Underpreparedness of Professional Staff**

Since students look to staff, faculty, and administrators for guidance and protection in the event of an emergency, it is important to determine how prepared such practitioners are to cope with disasters. While research on the specific preparedness behaviors and resilience levels of university staff is limited, what is known paints a discouraging picture. In a survey of campus heads of safety, only 30% indicated that they felt campus employees understood the campus’ emergency procedures (Seo et al., 2012). This could be due to a lack of training, as only 44% of participants indicated their employees were trained to deal with campus emergencies (Seo et al., 2012).

The reasons for staff underpreparedness are varied. In recent years, there has been significant staff turnover within institutions of higher education (DRU, 2018). This turnover not only forces universities to retrain new staff members regularly as old staff members transition out but also leads to the loss of champions for preparedness work within various units of the IHE. Underpreparedness may also be the result of less-effective or lower-quality training programs. Since effective preparedness training requires an investment of both time and resources, staff training may instead be more surface level (Jackson, 2008). This may lead some to conclude they are more prepared
than they are, given that they have been trained (capacity) though not on the level
required to prepare them for action (capability). Ripley (2008) refers to this as the “Lake
Wobegon Effect,” or a person’s belief that they would perform better in an emergency
than they actually would.

Lack of time may also contribute to staff underpreparedness. Given the multiple
assigned duties IHE staff are asked to perform, the additional task of undergoing potential
hours of training to learn the basics of emergency response may not be feasible (Dunn,
2018). This has led staff to disengage from the topic of emergency management within
IHEs according to the DRU Network (2018) Needs Assessment. Changing this culture
and freeing staff capacity to become more engaged in preparedness work on campuses
would require significant financial investment and dedication from campus leadership,
who are frequently disengaged from preparedness work (Khan, 2018).

**Shifting Approaches to Preparedness on the Federal Level**

In identifying reasons for the state of underpreparedness on college campuses, the
unique history of disaster preparedness in the United States may also bear responsibility.
Particularly following the terrorist attacks on 9/11, there were decades of legislation that
influenced the national approach to disaster preparedness. While in recent years efforts
have turned towards whole community preparedness, the prior decades saw increasing
centralizing and bureaucratizing of preparedness work on a federal level, which in turn
heavily influenced the work at a local level, including within IHEs. Some researchers
maintain that this back and forth has made shifting culturally to a whole community
preparedness approach more challenging for preparedness managers.
9/11 and the Federalization of Preparedness

Prior to the 1950s, the United States’ approach to disaster response at the federal level was primarily ad hoc, with aid for disaster-impacted communities being determined by individual acts of Congress implemented at the local level (Brattberg 2012). However, series of major natural disasters from the 50s into the 1970s led to a call for the Federal Government to play a more active role in disaster response and preparedness (Haddow et al., 2021). FEMA began with a shaky start, but by the 1990s under the leadership of James Witt, the organization was an international exemplar for disaster response and preparedness. Because of the reforms enacted by Witt and the organization’s improved efficacy and efficiency, the United States successfully weathered multiple major national and manmade disasters (such as the Oklahoma City bombing in 1995), and enjoyed widespread popularity (Haddow et al., 2021). Towards the end of the millennium, FEMA under James Witte was beginning to explore a version of the whole community preparedness concept, “Project Impact: Building Disaster-Resistant Communities.” However, everything changed as a result of the September 11th terrorist attacks.

In the immediate aftermath of 9/11, quick response at the local, state, and federal levels, combined with a sudden swell of patriotism and national unity led few to criticize the government’s response to the crisis (Brattberg, 2012). However, for those responsible for emergency management, the event revealed challenges internally. September 11th highlighted the disconnect between various agencies and organizations within the federal government tasked with preparing for and responding to large-scale emergencies, particularly between the military and civilian sectors (Derthick, 2009). In particular, these
groups lacked a shared language and protocol for addressing emergency incidents (Brattberg, 2012). And so, shortly after 9/11, the Bush administration set to work on initiatives to coordinate and centralize emergency response in the United States.

One of the first pieces of legislation related to emergency management following September 11th was the Homeland Security Act of 2002 (Derthick, 2009). The HSA founded the Department of Homeland Security, which quickly enveloped numerous other agencies previously responsible for emergency preparedness, border security, infrastructure, and other issues related to safety and security (Derthick, 2009). It was a significant reorganization, and the absorption of so many organizations under one massive department naturally led to a dilution of the individual agencies’ missions (Brattberg, 2012). FEMA in particular was impacted: under DHS, it lost its status as an independent agency, and its mission was quickly diverted from natural disaster preparedness and response to the prevention of domestic terrorism (Sievers, 2015).

One of the first tasks assigned to the newly founded DHS was the creation of a National Response Plan (NRP) under Homeland Security Presidential Directive-5 (Brattberg, 2012). Learning from the communication chaos of September 11th, this plan included shared language and protocol through which government and non-government entities could collaborate to prepare for and respond to large-scale emergencies, as well as major planned events (FEMA, 2022). This coordinated approach to emergency management was known as NIMS, or the National Incident Management System (Institute of Medicine, 2015). While NIMS had existed before HSPD-5, the presidential directive mandated that any entity receiving federal funding for preparedness and
mitigation, including institutions of higher education, adhere to its structure and requirements (Department of Homeland Security, 2003).

Ultimately, the NRP intended to “integrate Federal Government domestic prevention, preparedness, response, and recovery plans into one all-discipline, all-hazards plan” (Department of Homeland Security, 2003, p.4). Once completed, the NRP “consisted of a base plan of 62 pages and six appendices, fifteen emergency support function annexes, nine support annexes, and seven incident annexes” (Derthick, 2009, p.8). While the NRP demonstrated commitment on the part of the federal government to prioritize disaster preparedness and response, by creating centralized plans and stringent requirements for state and local partners it undermined some of Witt’s efforts of the 1990s to involve the whole community in preparedness and empower local stakeholders (Knauer, 2022). The NRP was implemented in April 2005. Before the year was out, it would be tested and found wanting by one of the most notorious hurricanes in American history (Derthick, 2009).

**Hurricane Katrina**

In August 2005, Hurricane Katrina swept through the Gulf states, flooding New Orleans and shattering the lives of millions of citizens of Louisiana, Mississippi, and other neighboring states (Brattberg 2012). In contrast to 9/11, following the hurricane and its aftermath, criticism of the federal government was sharp and nearly instantaneous (Brattberg 2012). With so much effort poured into improving homeland security in the preceding four years, what led to this catastrophic failing?

A commonly accepted explanation is that by diverting resources and attention
almost entirely to counterterrorism, the Department of Homeland Security and the agencies it absorbed neglected preparedness for other large-scale emergencies like natural disasters (Brattberg, 2012). The same year Hurricane Katrina struck the Gulf states, the newly formed DHS had reorganized once more, diminishing FEMA’s role further, particularly regarding emergency preparedness. As a result of four years of hyper-focus on threats from terrorism, response and preparedness for natural disasters became fragmented, “scattered within the fledgling Department of Homeland Security,” leaving them ill-equipped to address the destructive force of Hurricane Katrina (Haddow et al., 2014, p. 21).

Additionally, while the consolidation of these entities was intended to streamline communication and collaboration, it instead resulted in confusion, competition for resources, and a lack of clarity of mission (Derthick, 2009). The NRP failed in implementation, as it had not yet been widely adopted by local and state entities (Brattberg, 2012). In all, the mobilization of resources to counteract terrorism after September 11th laid the foundations for a federal preparedness and response failure when Hurricane Katrina came. This event led to years of soul-searching and consequential policy changes on the part of the United States government (Knauer, 2022).

2005-2020: Reform and a Return to Whole Community Preparedness

Following intensive congressional investigations and reports on the missteps leading to the disastrous Hurricane Katrina response, Congress passed the Post-Katrina Emergency Management Reform Act in 2006 (Institute of Medicine, 2015). This act restored power and autonomy to FEMA and established regional FEMA offices. It also
replaced the national response plan with the National Response Framework. The NRF differed from the NRP in its emphasis on “greater coordination between federal and other governmental and non-governmental actors” (Knauer, 2022, p. 35). These actions laid the foundations for how preparedness and response would look over the next decade: a shift from centralized, federal oversight of disaster preparedness to a “whole community approach” (Sievers, 2015, p. 57).

While the spirit of whole community preparedness and response was evident in the Post-Katrina Emergency Management Reform Act, it was reemphasized in President Obama’s Presidential Policy Directive 8, which set the National Preparedness Goal and required state and local governments to engage the whole community in preparedness (Institute of Medicine, 2015). Whole community preparedness calls for collaboration between “individuals and communities, the private and nonprofit sectors, faith-based organizations, and all governments (local, regional/metropolitan, state, tribal, territorial, insular area, and Federal)” (FEMA, 2020). Contrasted with the centralized national emergency operations plans that arose from DHS after 9/11, PPD 8 and subsequent documents called on communities to assess the preparedness needs of their communities and create plans to meet those needs, involve and empower community members to engage in preparedness work and draw from the existing strengths of the community to improve preparedness and resilience (Sievers, 2015). These changes were further solidified in 2012 under the Sandy Recovery Improvement Act of 2013, following the superstorm that devastated Long Island, New Jersey, and other coastal areas (Institute of Medicine, 2015).
Socio-Cultural Influences on Underpreparedness

By better understanding the history of disasters and preparedness nationally, patterns begin to emerge that relate to preparedness trends on college campuses, including the heavy use of NIMS and the lack of inclusion of the whole community. Beginning after Hurricane Katrina, while standardization and centralization continued with the use of ICS and other aspects of NIMS, there was an explicit federal re-emphasis on whole community preparedness. What factors, then, present possible barriers to Oregon schools from enacting widespread, whole community preparedness to engage students within their institutions? Outside of historical events, various present-day socio-cultural influences can impede whole community preparedness on college campuses. In Oregon’s case, these socio-cultural influences are exemplified by the immediate and long-term response following the Umpqua Community College shooting.

Umpqua Community College Shooting and Its Aftermath

Following the events at Umpqua Community College (discussed in Chapter 1), University of Oregon’s Chief Resilience Officer Andre LeDuc and other colleagues from the Office of Safety and Risk Services at the University of Oregon arrived in Roseburg to provide ground support and relieve the overburdened UCC staff (Dunn, 2018). LeDuc was later appointed by Governor Kate Brown to chair the Oregon Campus Safety Work Group, which Brown convened in response to the shooting. The goal of the group was to create recommendations for campus safety improvements for colleges and universities in Oregon. Among the workgroup’s recommendations was a request to transition the work from a temporary task force to an ongoing, permanent committee. When the Campus
Safety Work Group gave this recommendation to Brown, she agreed that something more long-term was needed. "Task forces, though they’re great, a lot of times they end up on the shelf," Brown shared in 2016. "What we don’t want to do is to end up leaving this on the shelf so I think the suggestion about a council for accountability makes a lot of sense" (Achen, 2016, para. 12).

LeDuc believed that to be sustainable, initiatives must be well-funded and institutionalized (A. LeDuc, personal communication, May 2, 2022). Thus, in 2016, having provided the recommendations of the Campus Safety Work Group to Governor Brown, LeDuc and other members of the workgroup began efforts to obtain funding for the Oregon Campus Resilience Consortium through the state legislature (Dunn, 2018). The purpose of the group would be to mitigate the limited financial and human resources available for preparedness and resilience-building on college campuses by linking preparedness offices at colleges and universities across the state, improving partnerships between academic institutions and government/community partners, creating a mutual-aid network between IHEs in Oregon, and developing shared training resources (LeDuc, 2022).

The proposal that eventually became Oregon HB 2207 called for a sum of 1.5 million dollars to fund the consortium for the first year. LeDuc referred to this as a “cash infusion,” primarily to get the group started (A. LeDuc, personal communication, May 2, 2022). Ultimately, after the first two-to-three years, LeDuc believed the group could be fully sustained by institutional membership dues, corporate partnerships, and grants. Writing grants takes significant time and personnel resources, so the initial seed funding
provided by the bill would create the bridge between initiation and sustainability for the Consortium.

HB 2207 died in the House Ways and Means Committee. The difficulties facing the bill’s passage were numerous and varied, and it would be difficult for one to state with certainty why the bill failed. However, perhaps the socio-cultural, economic, and political environments on both the state and national levels are not conducive to whole community preparedness and mitigation work. Additionally, certain sociological phenomena such as value prominence could explain why preparedness initiatives fail to gain traction even though it is widely accepted that preparedness is vital for protecting lives and resources,

**Socio-Cultural Effects on Community Preparedness**

In the following section, I will outline how certain socio-cultural phenomena can result in the deprioritization of preparedness at the individual and community level. While these concepts are discussed in the context of Oregon’s challenges in building buy-in around preparedness initiatives at colleges and universities, it should be noted that such concepts can be applied more broadly in trying to discern why people in the United States do not typically engage with or invest in preparedness.

**Economics**

It is well known that across the country, states have increasingly divested from funding public universities and colleges (St. John et al., 2018). State contributions have overall decreased in Oregon, although in 2017 Oregon legislators allocated an additional 70 million in funding to institutions of higher education in response to threats of high
tuition hikes across the state (Theen, 2017). Even increased tuition would be unlikely to cover funding gaps, since enrollment fell during the COVID-19 pandemic, particularly at community colleges (Nelson, 2021). With funding challenges so dire, it is not surprising that universities would be hesitant to allocate funds to initiatives they view as discretionary, which could include preparedness work relating to low-frequency, high-impact disasters.

**Sociological Phenomenon Influencing Risk Perception**

The average person’s day-to-day risk assessment process is not careful or methodical; rather, it is quick, decisive, and informed by subjective factors such as “uncertainty, dread, catastrophic potential, controllability, equity, risk to future generations, and so forth, into the risk equation” (Slovic, 2016, p.25). This subjectivity can make it difficult to convince individuals or institutions of the importance of preparedness if in their estimation the risks do not warrant the investment of time and resources.

Another challenge for building buy-in for preparedness is what Slovic (2016; 2020) refers to as the “Social Amplification of Risk.” Social Amplification of Risk suggests that certain incidents and disasters draw more media attention and stir public anxiety because of the aforementioned qualities, particularly dread. Ripley (2009) defines dread as an equation: “dread= uncontrollability + unfamiliarity + imaginability + suffering + scale of destruction + unfairness” (p. 33). An example of this phenomenon would be a person who fears plane travel while willingly traveling by car, despite automobile accidents being exponentially more frequent than plane crashes.
A related concept, “signal value,” is the measure of how likely a person feels a particular catastrophe will repeat itself. Again, this assessment is not based on rigid risk calculations, but rather on gut feelings informed by dread and perhaps exacerbated by news media (Slovic, 2016). Slovic et al. (2007) refer to the tendency to make risk assessments based largely on subjective feelings as “the affect heuristic.”

The affect heuristic is not in and of itself problematic. It has deep roots in our evolutionary heritage as a survival mechanism; in its absence, humans would have to assess every possible risk as a novel problem to solve through critical thinking (Slovic et al., 2007). However, the danger in policy driven by the affect heuristic is that unnecessary resources may be channeled into addressing a less immediate though more sensationalized problem while neglecting more pressing risks. An example of this phenomenon would be the Tylenol Crisis of 1982, in which a few incidents of medicine tampering led to a complete industry shift in how medicine is packaged and distributed (Slovic, 2016). The affect heuristic may help explain the Oregon legislature’s unwillingness to pass HB 2207 given the numerous competing interests facing Oregon’s citizens.

**Political Influences**

The current political environment in the United States on both the state and federal levels has also complicated the preparedness landscape in higher education, particularly in Oregon. Often, bills related to preparedness measures are rejected because of their perceived cost. Some politicians and decision-makers consider preparedness and mitigation to be impractically expensive, given the low-frequency of high-impact events
(relative to more frequent day-to-day emergencies) (Jongejan et al., 2011). Additionally, it can be hard to show off the results of preparedness efforts to constituents, as successful preparedness measures ideally result in an event not happening.

This has led to an overarching culture of reactivity versus proactivity when it comes to emergency management legislation (Bartlett et al., 2016). When preparedness is addressed in the political sphere, it can become “projectized;” in other words, it is reduced to a set of specific activities, initiatives, and “checkboxes” (Staupe-Delgado & Kruke, 2018, p. 217). Such initiatives are generally finite, reflecting preparedness as a quality rather than a process, and implemented without the input of preparedness experts. As well, researchers argue that resilience policies fail to address the underlying social, economic, and environmental issues that compound the impacts of large-scale emergencies, particularly for minoritized community members (Fu, 2016). This leaves under-resourced individuals and communities more susceptible to future disasters over the long term, even if these resilience efforts soften the impact in the short term (Fu, 2016).

Additionally, topics related to preparedness are increasingly politicized. This is true of preparedness related to both climate change-related weather events and gun violence. Since prevention and preparedness through political action require passing legislation that staves off the most acute effects of climate change and limits access to deadly firearms, voting for such legislation would require politicians to take a stance that could be unpopular with constituents. For this reason, there has not been a political appetite for passing controversial legislation in recent decades (Mostafavi et al. 2021).
Given the challenges of pursuing preparedness initiatives without addressing the root causes of gun and environmental disasters, some politicians have begun to eschew preparedness work in favor of resilience-building. In the case of gun violence, this has taken the form of school “hardening”: increasing the presence of metal detectors, decreasing the number of entries and exits, and calls to arm teachers (Deflem 2018). In the case of environmental issues, this trend has been exemplified by some coastal states investing in seawalls and higher roads rather than cutting emissions (Harris, 2022).

Resilience legislation has the dual benefit of skirting controversy while also providing tangible deliverables to constituents. The trend of prioritizing resilience and response over preparedness and mitigation extends from government into the realm of higher education; the 2016 DRU Network Needs Assessment revealed that while 83% of participants had emergency operations or response plans, only 36% had business continuity plans (DRU Network, 2018).

In addition to resilience initiatives often being more politically expedient in contrast with preparedness initiatives, they can also be more lucrative. Researchers such as Fu (2016) suggest that disaster response has come under the influence of private actors and industries seeking to profit from the destruction wrought by large-scale disasters. This exploitation can be accomplished through the development and sale of resilience innovations such as disaster-resistant infrastructure and “coastal armoring,” as well as profiteering from new real estate built over urban areas destroyed by natural disasters (Fu, 2016, p. 10). Such rebuilding seldom caters to low-income residents of an affected city; instead, real estate developers use disasters as an opportunity to gentrify crisis-
rocked neighborhoods or to expand into areas of the city that had previously been inaccessible due to existing parks, structures, or other barriers suddenly removed by an earthquake, hurricane, or wildfire. New Orleans is one such example of this “crisis-driven urbanization;” Fu (2016) quotes a Louisianan congressman who in the wake of Hurricane Katrina confided to lobbyists: "We finally cleaned up public housing in New Orleans. We couldn't do it, but God did” (p.15).

In addition to capitalizing on present disasters at the expense of the most vulnerable community members, politicians and private industries can knowingly or unwittingly come together to heighten the risk of future disasters. While civilizations have long founded communities in areas prone to disaster (along stormy coastlines or in the fertile regions surrounding volcanic mountains), diminishing resources have driven developers to build in higher risk-prone areas to capitalize on resources that remain (Fu, 2016). This has generated new community risks, leading political leaders to focus their efforts on resilience measures (Fu, 2016).

**Value Prominence**

Value prominence, or the “prominence effect” is a concept proposed by Paul Slovic to explain the refusal of developed nations to act meaningfully during the genocides in Rwanda, then years later in Darfur, despite universal assertions following the Holocaust that genocide would never be permitted to happen again (Slovic, 2007). The prominence effect poses that governments, organizations, and individuals hold multiple values. These values are easy to express and multiple kinds of values can be held simultaneously without contradicting one another. In the context of decision-making,
however, certain values inevitably override others. For governments, which are beholden to the safety of their citizenry, national security often takes precedence even at the expense of other stated values (such as freedom, democracy, and the protection of the vulnerable). Hence, while the latter values should have compelled the US to action during the Rwandan genocide, the former led them and other UN nations to refrain from acting (Slovic, 2007).

While intervention in the case of genocide is an extreme example of the prominence effect at work, there are smaller, daily ways in which the prominence effect can be observed within federal and state governments. In the case of House Bill 2207, the Oregon Campus Resilience Consortium had the support of no less than the state’s governor immediately following the Umpqua shooting, while the tragedy was fresh in the hearts and minds of Oregonians (DRU Network, 2018). Speaking directly with the Campus Safety Work Group after they presented their recommendations in 2016, Brown stated, “I am committed, regardless of our financial situation, to fight for the resources that you all need to make sure we have the tools on campus to ensure safety for our students at every single college around the state” (Achen, 2016, para. 4). So soon after the Umpqua shooting, the prominence effect was acting as an “attentional spotlight” (Slovic, 2020, p. 2235). Only three years later, however, the “financial situation” may have been what doomed HB 2207, due to the state’s competing fiscal priorities.

Increasingly, Oregon is cutting important social programs and college budgets, demonstrating which values are most prominent. Thus, following a mass-violence tragedy, instead of providing funding or meaningful legislation, LeDuc says politicians
form “blue ribbon committees” and “send thoughts and prayers” (A. LeDuc, personal communication, May 2, 2022). What is more foreboding, LeDuc suggests, is that people are becoming increasingly desensitized to shootings and natural disasters, making it even less likely that values of preparedness and resilience will win out over budgetary considerations. This phenomenon, known as “psychic numbing,” is backed by Slovic’s research (2007).

**Conclusion**

Underpreparedness for large-scale emergencies is a major concern given the prevalence of major disasters and the potential for escalating disaster incidents in the coming years. The reasons for underpreparedness vary. For one, preparedness as a concept remains difficult to define given it’s usage across numerous industries and contexts. For another, once defined, preparedness is difficult to measure, leading to a dearth of reliable benchmarks to determine whether preparedness goals are being met. The inconsistent approaches to disaster on a national level is also to blame. Given that disaster preparedness and response have shifted back and forth from a local and individual responsibility to a centralized approach numerous times throughout history, it is unsurprising that whole community preparedness has not gained a firmer foothold in our national culture. While more recent federal efforts have emphasized whole-community preparedness, it will take time for this concept to gain traction given the approaches that proceeded it. Finally, certain sociological phenomenon can lead individuals to discount risk and under-prioritize preparedness regardless of the legislative and policy climate.
Given the underpreparedness of college students, and the fact that community members rarely view preparedness as a priority, students at IHEs are at increased risk of the negative educational and mental health effects described in Chapter 1. In the face of these obstacles to building community-wide preparedness, preparedness managers must be intentional in creating preparedness interventions to help increase student engagement in preparedness behaviors. In the following chapter, I will describe the current study, which sought to answer the question: how do organizations responsible for campus preparedness at colleges and universities in the state of Oregon prepare their students for natural and manmade disasters?
CHAPTER 3: METHODOLOGY

This study examined preparedness interventions at Oregon colleges and universities to understand how institutions of higher education in the state prepare their students for large-scale emergencies. Understanding how colleges and universities in Oregon approach student preparedness on their campuses is vital given the specific threats Oregon has faced and will face in the future. Specifically, Oregon is a state subject to natural disasters like wildfires, hazardous weather events, and possible seismic events. Additionally, like others around the county, the state is subject to increased risk of mass violence. For these reasons, Oregon college students must be adequately prepared for all types of disasters.

Research Perspective

Qualitative inquiry has a long and well-established history of providing researchers with detailed, expansive data regarding complex research topics (Alsaawi, 2014; Alshenqeeti, 2014; Fontana and Frey, 2005; Margarita & Steven, 2015). It has great utility when studying nuanced social issues that require dynamic interaction between the researcher and research subjects, and allows opportunities for clarification and elaboration (Alshenqeeti, 2014; Margarita & Steven, 2015). A qualitative approach was therefore chosen for this study given the complexity and diversity of campus preparedness work (Creswell & Poth, 2018). Preparedness work is conducted by myriad higher education administrators at different levels of university hierarchy working in various departments. Within these departments, the work itself can take many forms and goes by different names. While the work is all thematically connected and can be analyzed across programs
with qualitative means, quantitative methods cannot capture the nuanced connections between these programs.

In addition, the study sought to move beyond the development of a statewide inventory of preparedness interventions by examining why such interventions have been undertaken given the specific risks faced by students in Oregon, as well as how these interventions have succeeded or failed in various contexts. This necessitated the use of interviews, follow-up questions, and other forms of “rich, thick” data outside the scope of quantitative inquiry (Creswell & Poth, 2018 p. 263; Majid et al., 2017). Finally, as little is known about specific preparedness practices at Oregon colleges and universities, an inductive approach to this research was appropriate to identify themes and develop hypotheses for how student preparedness can be improved on college campuses (Merriam & Tisdell, 2016). This resulted in an emergent design, with analyses at each phase of the study influencing the direction of the remaining phases as well as the overall analysis (Creswell & Poth, 2018).

A case study methodology was chosen to deeply analyze a wide breadth of diverse data sources within a bounded setting—in this case, the state of Oregon (Merriam & Tisdell, 2016). Additionally, given the differences between colleges and universities in Oregon and how they approach preparedness work, a case study methodology allowed for the research to be “emergent and flexible” and include multiple institution types in the final analysis (Merriam & Tisdell, 2016, p. 18). Within a case study methodology, the decision to utilize interviewing (structured and semi-structured) as the primary data-collection method enabled the researcher and the study participants to address the
research questions thoroughly and from multiple angles, while allowing opportunities to seek clarification on respondent answers (Fontana & Frey, 2005; Margarita & Steven, 2015).

The study’s primary research question was: how do organizations responsible for campus preparedness at colleges and universities in the state of Oregon prepare their students for natural and manmade disasters? Secondary research questions for this study were: What challenges do IHEs face in implementing preparedness interventions, and what best practices have they identified to overcome these challenges?

**Role of the Researcher**

An integral form of ensuring internal validity within a qualitative study is reflecting on one’s paradigms, identities, and biases and how these may influence research design and analysis (Creswell & Poth, 2018; Merriam & Tisdell, 2016). As a pragmatist, I approach research from the stance that research questions and applications for practice should determine methodology (Creswell & Poth, 2018). Through this lens, I see a need for both quantitative and qualitative research to inform emergency preparedness work. Prior research indicates that particularly in times of crisis, human beings act in measurable, predictable ways (Delprato and Midgley, 1992). Often such automated behaviors are rooted in survival instincts, such as milling and gathering behaviors (Ripley, 2008). For this reason, a great deal of research on emergency preparedness tends to be quantitative, with the overall goal of creating easily replicable, generalizable interventions that can mitigate the most probable outcomes in a large-scale emergency.
However, research also shows that individual meaning-making can have as strong an influence on how a person navigates and recovers from an emergency as innate, instinctual behaviors. For example, studies indicate that a person’s chances of survival in an emergency depend not only on their preparedness knowledge but also on their belief as to whether they can influence their outcomes through their actions (Aksa et al., 2020). Furthermore, the meaning individuals assign to their crisis experience can have a drastic impact on their ability to heal and recover mentally and emotionally (Nalipay & Morden, 2018, Tedeschi & Calhoun, 1996). For these reasons, constructed reality can be as important as post-positivist interpretations of reality when it comes to the topic of emergency preparedness.

In addition to these paradigms, I bring to the work certain identities that could influence or even bias my approach to this study. While I am committed to bringing a critical lens to emergency preparedness research, I am myself a cishet white male. Thus, my perspective and worldview are likely similar to the perspectives and worldviews that have informed much of the existing research into disaster preparedness. Consequently, I may “see myself” as a researcher in existing predominant theoretical frameworks at the cost of seeking out and understanding emerging theoretical frameworks. I have attempted to balance this possible risk through continual self-reflection, engagement with work by marginalized authors, and checking my work with trusted, willing peers.

**Population and Participant Selection**

Employing “two-tiered” sampling, I first established the boundaries of the case, limiting the study to all colleges and universities in the state of Oregon (Merriam &
Tisdell, 2016). Oregon was selected for the case given its unique risk profile, being subject to a wide array of both natural and manmade disaster threats (LeDuc, 2022). Its development of mutual aid networks such as the Oregon Campus Resilience Consortium and its colleges and universities’ leadership in national organizations such as the Disaster Resilient Universities Network made it a prime subject for studying student preparedness interventions, given that many of its IHEs are already engaged in campus preparedness work.

In the first phase of the case study, a qualitative survey was issued to forty-six institutions of higher education in Oregon with questions regarding their student preparedness interventions and broader emergency preparedness program. In consultation with the Institute for Resilient Organizations, Communities and Environments, I was unable to obtain a pre-populated distribution list of preparedness managers within the state. To generate a distribution list, I began by compiling a list of IHEs through comparison of online registries of universities and colleges in Oregon. To identify an appropriate point of contact within these institutions, I used multiple methods. Some schools had readily identifiable points of contact. In those cases, keyword searches for “[Institution]+emergency preparedness” yielded a comprehensive emergency management webpage which named directors and coordinators. Other schools without robust web resources dedicated to emergency management required more extensive searches, using keywords like “[Institution]+emergency management” or “[Institution]+public safety.” Ultimately, I was able to populate 33 of the 46 schools in my distribution list through these methods. For the remaining thirteen schools, I placed
calls to the institutions’ central directory numbers, provided an overview of the study and requested a point of contact to whom I could send the survey.

Ultimately there remained five schools whose points of contact could not be identified. For these remaining schools, I sought guidance from leadership within the Oregon Alliance of Independent Colleges & Universities and the Oregon Community College Association. They recommended that for these remaining schools I use the institutions’ chief financial officers as points of contact. Adding these recommended points of contact completed my distribution list.

In generating my distribution list, I also noted 15 self-identified Oregon institutions of higher education that were not community colleges, nor did they appear on most formal registries of Oregon private IHEs. In consultation with Oregon Alliance of Independent Colleges & Universities, I determined that these 15 institutions could be excluded from the study, as they might be located outside Oregon or lack accreditation. The final distribution list was vetted in consultation with gatekeeper stakeholders within the Institute for Resilient Organizations, Communities and Environments.

Seven institutions responded to the survey. While the initial research design called for an interview sample to be drawn from a broader pool of survey respondents, the study proceeded with all survey participants for several reasons. One, all seven schools presented robust survey responses and were “information-rich” cases, with existing student preparedness practices to study (Merriam & Tisdell, 2016 p. 97). Two, the seven schools represented the three major institution types at approximately the amounts planned during the study’s design (three public universities, two community colleges, and
two private universities). Three, the study’s proposal planned for a final sample of five to seven institutions, so proceeding with seven participants did not deviate from the original design. Finally, multiple efforts were made to increase participation in the survey, through follow-up telephone calls, emails, and messages sent through Oregon Alliance of Independent Colleges & Universities and the Oregon Community College Association listservs.

Having chosen to move forward with the seven survey participants, I contacted these respondents and confirmed their willingness to participate in document mining and elite interviews. This formally established the sample’s second “tier” (Alsaawi, 2014; Creswell & Poth, 2018). After the seven primary interviews had concluded, a final, summative interview was conducted with an expert consultant with leadership roles pertaining to emergency management both at his university and within state and national organizations. This eighth interviewee was selected for his knowledge of emergency preparedness efforts throughout the state and his expertise on the intersection of large-scale disasters and public policy.

**Participant Profiles**

In qualitative research, an elite is "an individual who holds or has held some powerful position that has afforded the individual unique knowledge or information from a privileged perspective” (Natow, 2020, p. 160). These can include organizational leaders, politicians, and content-area experts. Because of their positional authority and organizational oversight, such interviewees can provide high-level insight and information that would be unattainable from other members of an organization (Natow,
2020). In the context of conducting elite interviews, document review takes on additional importance not only as a means of triangulation but as a form of pre-work before the interview to ensure the questions asked are not overly simplistic or readily answerable outside an interview with the elite subject (Natow, 2020). In the context of this study, elite interview subjects included directors of risk management, public safety directors, emergency preparedness coordinators, and other high-level managers tasked with leading emergency preparedness efforts at their IHE (“preparedness managers”). The interview subjects were chosen given their extensive field experience, understanding of institutional practices, and their role in executing mission and vision related to emergency preparedness.

Seven participants were interviewed for this study. All held roles that intersected with emergency response and preparedness on their campus. Four of these individuals had specific titles pertaining to Emergency Management: Jessica, Diana, Megan and Ryan. Two of them, Kevin and Steven, were directors of campus police or campus public safety, and had oversight of emergency operations through those roles. The seventh interviewee, Dennis, was Chief Operating Officer at a small community college with no campus public safety department. Emergency operations fell under his portfolio, as did finance, IT, facilities, food service, and the campus bookstore. Jessica, Megan and Ryan all worked at state public universities. Kevin and Dennis worked at community colleges. Diana and Steven worked for private colleges.

Megan and Ryan had been in their role for over a decade. Kevin had held his role for three years, as had Diana. Dennis had been hired within the last two years, and both
Jessica and Steven had started in fall of 2023. Before starting their jobs at their institutions, Kevin and Steven worked in law enforcement, Jessica, Ryan, and Diana for county or national government, and Dennis worked in a similar role at another community college. Megan had entered emergency management in higher education directly from her graduate program.

The eighth interviewee, Chris, was a researcher and the chief resilience officer for a large public university. Chris was solicited for an expert interview given his research background and his leadership role in several state and national organizations pertaining to emergency preparedness in higher education. Chris has also led policy efforts to increase funding and resources for emergency management programs in the state of Oregon, as well as on the federal level.

It should be noted that to describe in broad terms the professional staff tasked with improving student preparedness on their campuses, I have chosen the term “preparedness managers.” None of the study’s participants hold “Preparedness Manager” as a formal title. Professional staff whose portfolios include campus emergency preparedness have titles as diverse as Chief of Police and Chief Operating Officer. Preparedness manager is therefore used to refer to any administrator responsible for disaster preparedness on their campus.

**Procedures**

Procedures for each stage of the case study are organized according to the three main features of the case study: surveying (structured interviews), document mining, and elite interviews. In the first phase of the study, I disseminated a statewide qualitative
survey inquiring into the kinds of student emergency preparedness interventions being implemented at colleges and universities in Oregon. A copy of this survey can be found in Appendix A. In the second and third phases of the study, seven participating schools underwent further analysis. Data in these phases was collected through document mining and elite interviews with preparedness managers on these campuses.

**Qualitative Survey**

Qualitative survey instruments are a relatively uncommon qualitative research method (Braun et al., 2021). Such surveys “consist of a series of open-ended questions, crafted by a researcher and centered on a particular topic (Braun et al., 2021, p. 641). In this sense, they fit within a case study methodology by serving as a form of highly structured interview, or a “survey interview” that can be distributed more widely to a greater number of participants than a typical interview (Yin, 2016, p. 120).

Braun et al. (2021) proposed a range of advantages to utilizing qualitative surveys either as a method within an existing methodology (such as case studies) or as a standalone methodology for qualitative researchers. Because of their ability to be more widely distributed than other qualitative methods, qualitative surveys offer a “wide-angle lens” through which to examine a topic, allowing greater numbers and more diverse perspectives to be captured within a study. This is particularly valuable when studying a topic that is under-researched or when the study’s population is diverse (Braun et al., 2021). Such was the case for the current study, as significant diversity existed within the case’s boundaries (insofar as institution types within Oregon IHEs) and the topic of preparedness at IHEs is under-studied relative to other preparedness contexts. By
involving more participants using a qualitative survey, case study researchers also reduce the risk of bias entering the study through a single participant representing an entire demographic within the population (such as institution type) (Braun et al., 2021).

In addition to the rich source of data they provide and the ability to be more inclusive in the study’s design, qualitative surveys carry logistical benefits as well. Braun et al. (2021) described them as ideal for dissertation researchers, who are often limited by financial and time constraints. They also benefit participants, since qualitative surveys remove the requirement for respondents to answer questions in a given time period or setting. Surveys can be stopped and started at the participant's convenience and completed over several sittings (Braun et al., 2021). Given that the subjects of this study served in high-level university positions with limited discretionary time, a qualitative survey method may have yielded more fruitful and rich data given the limited time cost to participants.

Besides the above general benefits, a survey instrument was chosen to initiate this study for several case-specific reasons. One reason is that there is limited data on whether and how preparedness is being taught to students at IHEs in the state of Oregon. Establishing an inventory of the kinds of preparedness interventions taking place in the state and how they are being implemented was therefore useful for identifying best practices for further research within the case study as well as making recommendations for improvement in the final analysis. Additionally, as noted in Chapter 1, the terms “preparedness” and “resilience” have multiple meanings in a wide number of contexts. By first establishing unifying themes and definitions across a spectrum of preparedness and
resilience-building activities, I was better able to clarify my research direction during
document-mining and interviews. Thirdly, survey results were used as a source of
triangulated data to improve the validity of the findings reached in the case study. Some
limitations to a qualitative survey method exist, primarily that the researcher sacrifices the
ability to follow up about specific responses to questions as they would be able to do in a
traditional interview. I addressed this limitation by including elite interviews as part of the
study’s design.

The design of qualitative surveys in many ways follows the principles that guide
the design of interview protocols (Braun et al., 2021). Structurally, they use open-ended
questions and are as short as possible while still collecting information pertinent to the
study. As with quantitative surveys, the questions move from simple to complex (Henning
& Roberts, 2016). Since qualitative surveys preclude the ability to clarify questions or ask
follow-up questions, attention must be paid to the wording of each question to make sure
that it is clear and concrete (Braun et al., 2021). Braun et al. (2021) also warn against
assuming that concepts and terminology will be understood by the participants in the
ways that they are defined by the researcher. Given the complexities of the topic of
preparedness and the myriad ways in which it is defined, important concepts were
clarified within the survey’s design.

To close the survey, I included an option for participants to share any additional
information, as well as the opportunity to opt into follow-up after the survey was
submitted (Braun et al., 2021). The survey was promoted in collaboration with leadership
from the Institute for Resilient Organizations, Communities, and Environments, the
Oregon Alliance of Independent Colleges & Universities, and the Oregon Community College Association, with emphasis placed on the shared benefit of the survey and the proceeding case study towards the improvement of preparedness practices across Oregon schools (utilizing “social exchange theory”) (Henning & Roberts, 2016).

**Document Mining**

In the study's second phase, seven institutions representing public, private, and community colleges in Oregon were selected for deeper analysis of their preparedness programs. This analysis included a review of public documents, such as website material, emergency plans, hazard annexes, emergency procedures posters, campus and local news, and educational materials disseminated to the college or university community. These documents were collected and coded for themes, with particular attention paid to process, audience, and context for any preparedness interventions described (Saldaña & Omasta, 2018). While the study's focus was student preparedness, I also studied how such interventions were situated within the wider preparedness initiatives of the college or university. Given the broadness of the topic (emergency preparedness) and the potential for being overwhelmed by the amount of information available, data from the initial qualitative survey was used as a guide to determine which documents to mine.

While the specific process for document mining varied from institution to institution, a general approach was as follows. I would begin with a clean copy of the base interview protocol, void of any interview-specific alterations. I would update this interview protocol with any questions that arose during the review of the interviewee’s survey responses. Next, I would conduct a web search for references to the interviewee.
Often this yielded results like their public resume, interviews they had participated in, and other documents that gave me a sense of their experience and how that experience might inform their lens related to student preparedness. From there, I would review local and campus news media for keywords including, “[Institution]+preparedness,” “[Institution]+emergency preparedness,” and “[Institution]+emergency response.” When available, emergency operations plans and natural hazards mitigation plans were reviewed for references to “students,” “preparedness,” “earthquakes,” “disaster,” “emergency,” and other relevant terms. Finally, I would review the institution's website for references to emergency preparedness. If the institution had a dedicated page for emergency management, that page was reviewed separately and more thoroughly. Document mining frequently led to the creation of several interviewee-specific questions in addition to the general questions created for the core interview protocol.

**Elite Interviews**

In the third phase of the study, I interviewed administrators responsible for preparedness work on their respective campuses. The format of these interviews was semi-structured, utilizing a list of core questions that guided the interviews, while remaining somewhat flexible to allow interviewee responses to prompt additional questions and clarifications (Alsaawi, 2014; Merriam & Tisdell, 2016; Saldaña & Omasta, 2018). This format also allowed for changes to be made to the questions over the course of the study based on document mining, participant feedback and observations during the interviews. A copy of the interview protocol can be found in Appendix B.
A semi-structured interview format, one of the most widely used formats in qualitative interviewing, was selected given its capacity to answer specific questions about a given research topic while allowing flexibility for the interview to follow unplanned conversational threads prompted by the interviewee (Kallio et al., 2016). I utilized Kallio et al.’s (2016) five-stage process for semi-structured interviewing to guide my process:

- Identifying the prerequisites for using semi-structured interviews;
- Retrieving and using previous knowledge;
- Formulating the preliminary semi-structured interview guide;
- Pilot testing the interview guide; and
- Presenting the complete semi-structured interview guide (Kallio et al., 2016, p. 2959)

While Zoom is a valuable tool for interviewing, and several studies have pointed to it being as effective as in-person interviews for collecting rich data, as a platform, it carries some disadvantages to researchers (Gray et al., 2020; Lobe et al. 2022; Oliffe et al., 2021). Specifically, meta-studies have indicated that video interviews can lead to more frequent interruptions, and make it harder to read facial cues, body language, and other non-verbal behaviors (Oliffe et al., 2021). Other studies have noted that video interviews can result in less “depth and detail” in the final transcripts, frequently lasting shorter than in-person interviews (Lobe et al., 2022). In-person interviews are also believed to assist with rapport building, a vital part of any qualitative interview (Irvine et al., 2013). For these reasons, interviews were held in person whenever possible. Only one
interviewee participated virtually, as their campus was inaccessible due to logistical reasons. During interviews, I endeavored to minimize interruptions and ensure maximal interaction from the interviewee. (Alsaawi, 2014; Alshenqeeti, 2014)

In designing the interview guide for semi-structured elite interviews, I strove to incorporate the qualities recommended across a range of literature relating to qualitative research (Alsaawi, 2014; Alshenqeeti, 2014; Creswell & Poth, 2018; Fontana & Frey, 2005; Irvine et al., 2013; Kallio et al. 2016; Majid et al., 2017; Merriam & Tisdell, 2016). Questions were written to collect rich and detailed data from the interviewee while providing opportunities for follow-up from the interviewer. Clear, straightforward language with minimal jargon was utilized to ensure clarity and minimize confusion on the part of the interviewee. Questions were designed to prompt reflection without leading the interviewee or cueing specific responses (Kallio et al., 2016). In the interest of both ethics and minimizing wasted time in the interviews, no questions were asked that did not have bearing on the immediate study (i.e., questions relating to demographics).

The overarching structure of the interview itself incorporated Alsaawi’s (2014) five interview phases: the “introduction” (which described the study and the interview’s purpose), a “warm-up” phase (consisting of “lower-stakes” introductory questions), the “main body” (which included detailed, complex questions relating to the main research questions), a “cool off” (consisting of simpler exit questions), and “closure” (expressing gratitude to the interviewee and providing clarification about the study’s next steps) (p. 153). I also incorporated guidance offered by Fontana & Frey (2005), who suggest that the interviewer “access the setting” (through my existing relationship with the Institute for
Resilient Organizations, Communities, and Environments), “establish rapport,” “collect empirical material” (during the document mining phase), “take notes regularly and promptly,” “write down everything no matter how unimportant it might seem at the time,” “try to be as inconspicuous as possible in note-taking,” and “analyze notes frequently” (p. 707-708).

Questions within the interview guide prompted subjects to clarify responses from the survey, explore findings from the review of documents, and discuss in-depth the preparedness interventions occurring on their campuses, as well as why these interventions were chosen and how they have been received by the university community. Questions were also posed as to how the interventions were assessed and evaluated to determine their efficacy. As well, the interviews addressed which threats were viewed as most pressing by those responsible for campus preparedness and how this informed their campus preparedness interventions. While the core interview guide was similar to the guide developed for the study’s proposal, four questions were added in advance of the first interview based on findings from document mining, review of the survey results, and reflection prior to the first interview:

- This study involves document mining as a source of data. Are there any relevant documents you think would be worth reviewing, apart from those publicly available at [your institution]’s website?
- What would you define as some of the core goals of your unit, or your personal goals as the [participant’s title]?
• How do you define preparedness? When it comes to large-scale emergencies and natural disasters, what does a prepared student look like?

• In your survey, you responded that theories and frameworks do not inform your program development. Can you tell me what does inform your program development? Federal policy, mission goals or learning outcomes for your division, peer institution examples, etc.?

The summative interview with the consultant expert was designed using these same guidelines and theoretical grounding. Questions in the expert interview mainly related to the study's findings and emerging themes from the initial analysis. As well, several questions from the original interview guide were included in the expert interview, as were questions related to policy efforts in the state pertaining to disaster preparedness and response at higher education institutions in Oregon. The expert interview was held about one month after the final participant interview, after first-round coding and analysis concluded for the seven initial transcripts.

Data Organization and Preparation for Analysis

Utilizing the constant comparative method first developed by Glaser and Strauss (1967), with additional guidance from Creswell (2018) and Merriam and Tisdale (2016), the study’s data underwent numerous rounds of organization and analysis throughout the course of the study. This allowed iterations of analysis to inform the trajectory of document mining, modification of follow-up interview questions, and development of common themes and categories. Throughout the study, the various sources of data were brought together and organized into a comprehensive case study database (Yin, 2016).
Documents and data sources were tagged as they were collected to ensure information could be readily accessed and categorized during analysis. The six individual schools comprising the case study sample underwent “within-case analysis” as well as “cross-case analyses” after data gathering (Merriam & Tisdell, 2016). During each phase of the study, field notes, jottings, and analytic memos were generated and attached to the appropriate documents within the case study database (Saldàña, 2016). Analytic memos were guided by Saldàña’s (2016) fourteen reflections. An audit log was maintained throughout the study to document my progress in the development of my findings (Creswell & Poth, 2018).

**Data Analyses**

Throughout the study, I utilized inductive coding to reduce bias in data interpretation and to maintain openness to emergent theories (Saldàña, 2016). A code book was kept to track codes utilized at all phases of the study. Data was coded on the macro level initially (“lumping”), then on the micro level to identify more nuanced codes (“splitting”) (Saldàña, 2016). Ultimately, analysis moved from decoding into encoding as I generated core themes across the various data sources (Saldàña, 2016).

Results from the initial qualitative survey were analyzed using ATLAS.ti. After the seven representative campuses were screened and selected for further analysis, documents and artifacts from these IHEs were mined, archived, and coded for themes (Yin, 2016). Where applicable, files were converted into text documents in ATLAS.ti and grouped by category. Like the survey data, these documents helped guide the study as I
moved from document mining into interviews. Additionally, the documents mined provided context in preparation for elite interviews (Natow, 2020).

Following the conclusion of the first seven interviews, interviews from virtual and in-person modalities were transcribed using Otter.AI and underwent a round of reading and revision using recordings for reference. This first revision occurred prior to coding to ensure accuracy of the transcript and to develop a nuanced and detailed understanding of the data on my part (Saldaña, 2016). For the first round of coding, I primarily utilized structural and categorical codes at the macro level and in-vivo codes and descriptive codes at the micro level. After this initial phase of coding, I engaged in more detailed, source-specific coding. This process included versus coding and values coding, to analyze how program decisions are made and what informs these decisions. Because this was a study of preparedness activities, process coding was heavily utilized. Transcripts were paired with documents containing researcher comments derived from field notes and jottings taken during the interview (Saldaña & Omasta, 2018). These notes included observations relating to non-verbal communication during the interview (use of space, pacing, body movement, posture, and variations in volume and tone) (Fontana & Frey, 2005; Irvine et al., 2013).

I next moved from the analysis phase of the study into the synthesis phase (Saldaña & Omasta, 2018). This process began with “re-reading the data corpus with the research questions as a filter to determine which sections merit relevance for thorough analysis” (Saldaña & Omasta, 2018, p. 193). Codes underwent patternization and were condensed into initial categories. These categories were in turn synthesized into
overarching themes supporting key assertions regarding preparedness work at IHEs in Oregon. Previous analytic memos were reviewed for low-level and high-level inferences to inform the generation of these themes, and from this work, new analytic meta-memos were generated (Saldaña & Omasta, 2018, p. 221). After several weeks of analysis, a final summative interview was held with an expert on emergency management in higher education to discuss the study's initial findings. Insights from this interview guided a third and final review of the original seven transcripts, and codes and categories were updated once more. Finally, axial codes from the three phases underwent “categorical aggregation” to develop “naturalistic generalizations” for the final analysis (Creswell & Poth, 2018). Codes and categories were consolidated into themes presented in the results chapter.

**Procedures to Ensure Validity, Transferability, and Protection of Participants**

In establishing the study’s design, attention was paid to ethical considerations relating to confidentiality, protection of participants, as well as social justice and equity (Creswell & Poth, 2018). Procedures for how ethics were addressed are outlined below.

**Protection of Participants**

In collaboration with leadership from the Institute for Resilient Organizations, Communities, and Environments, the study was made known to participating institutions in advance of the initial survey phase through announcements to the Oregon Alliance of Independent Colleges & Universities and the Oregon Community College Association, as well as email follow-ups shortly before survey distribution. These emails are presented in Appendices C, D, and E. During this initial outreach, it was made clear to participants that
no university or college was required to participate in the study. The benefits of participation were made known to stakeholders, namely that the results of the study could have a direct impact on improvements to preparedness education practices throughout the state, as well as contribute to the rationale for increased state funding of preparedness work in higher education.

Data collected during all phases of the study was de-identified. The identities of any institutions selected for document mining and interviewing were de-identified. IRB approval was obtained before survey distribution or any interviewing and fieldwork to ensure that all ethical issues were considered and addressed. Data from the study was stored in a password-protected cloud drive (Creswell & Poth, 2018).

While I am involved in student preparedness work at both statewide and university-wide levels, my primary campus role does not directly relate to emergency preparedness, reducing potential ethical concerns around power dynamics and becoming overly involved in the sites comprising the case study (Saldaña & Omasta, 2018). While interviewees for the study held high-level positions at their institutions, none were in positions of direct supervision over me during the study. Finally, while there was a desire on the part of the Institute for Resilient Organizations, Communities, and Environments to see research conducted into student preparedness interventions at Oregon colleges and universities, neither the IROCE nor other key gatekeepers consulted for the study made efforts to influence the study’s design or its results.

Validity and Transferability
My overarching approach to assuring validity followed Creswell and Poth’s (2018) three-pronged approach: “accuracy” as defined by “the author of this study, the participants and the readers (or reviewers)” (p. 258). On the part of the researcher, the case study's design improved validity by including multiple case study subjects and a variety of data sources. Document mining and interview results were triangulated across the seven sites comprising the case study sample, as well as against the results of the survey conducted at the outset of the study (Creswell & Poth, 2018). Thus, conclusions drawn in the analysis phase of the study were not dependent on a single source or form of data. Validity was also prioritized through adherence to Yin’s (2016) four principles of data collection: “Use multiple sources of evidence; create a case study database; maintain a chain of evidence; and [where relevant] exercise care when using data from social media sources” (p. 125).

I sought to ensure consistency between answers provided in the various phases of the study; for example, whether the practices described by participants in the survey phase reflected the interventions they described during interviews, or in past interviews with campus media. The research was conducted over several months (between August 2023 and January 2024) to ensure “adequate engagement in data collection” to the point of data saturation (Merriam & Tisdell 2016, p.246). In addition to the initial positionality reflection conducted within this chapter, I continued to reflect on possible sources of bias and blind spots through the maintenance of a research journal, as well as consultations with colleagues to elicit alternative explanations or suggestions about the data (Margarita & Steven, 2015; Yin, 2016). My research journal also functioned as an audit trail,
detailing the rationale for various decisions made over the study and the reasons for the conclusions drawn from the data. (Richards, 2015).

“Piloting” the Survey and Interview Guide

Many researchers recommend the use of a pilot study to improve the validity of their qualitative research before starting the research in earnest (Alshenqeeti, 2014; Kallio et al., 2016; Majid et al., 2017). Pilot studies provide the author with opportunities to practice interviewing and identify problems with the interview guide or the survey questions before those issues can negatively impact the quality of the data gathered (Majid et al., 2017). While the time and logistical limitations of a doctoral study prohibit the use of an official pilot study, efforts were made to test the survey instrument and interview protocol with participants outside the case study’s sample.

Pilot testing can take three main forms. “Internal testing” refers to “the evaluation of the preliminary interview guide in collaboration with the investigators in the research team” (Kallio et al., 2016, p. 2959). Given my close work with a doctoral advisor and recurring rounds of edits to the study’s proposal, the study underwent internal pilot testing during the proposal phase. Secondly, “Expert assessment” “refers to exposing the preliminary interview guide to a critique by specialists outside the research team” (Kallio et al., 2016, p. 2961). This was accomplished by a review of the interview guide and survey instrument by an expert within the Institute for Resilient Organizations, Communities, and Environments. Thirdly, “Field-testing” “refers to a technique where the preliminary interview guide [is] tested with the potential study participants” (Kallio et al., 2016, p. 2961). Rather than specifically pilot testing in the field using potential study
participants, which could violate IRB restrictions or contaminate the eventual study example, I field tested the survey and interview guide with a peer at an East Coast institution of higher education whose feedback helped improve the survey instrument and the interview protocol.

**Triangulation**

Triangulation is of particular importance in the context of elite interviews (Natow, 2020). While elite interviews can provide a vital, high-level perspective to researchers, elites themselves may be disconnected from the “on-the-ground” work of their organization. Leaders of organizations may fear embarrassment or liability by providing transparent details about their organization’s pitfalls or shortcomings, leading them to provide vague or misleading answers or a more rose-colored perspective of the organization’s effectiveness. According to Natow (2020) “Triangulation with multiple methodological resources can address these issues by providing ‘corroboration’ for initial findings, as well as ‘the incorporation of additional information’ to what a single data source may provide” (p. 161).

Triangulation can take several forms. Researchers can triangulate using multiple data sources by “gathering data from different time periods, locations, or perspectives” (Natow, 2020, p. 161). The use of multiple methodologies “occurs when a researcher employs more than one type of qualitative data collection procedure, such as gathering data via interviews, observations, and documents” (Natow, 2020, p. 162). Using multiple methods can serve as a “fact check” against the claims of the elite interviewee. A common form of multiple-method triangulation is pairing document reviews with elite
interviews (Natow, 2020). In the study's analysis phase, multiple forms and rounds of coding served as a form of triangulation (multiple data analysis technique triangulation). Finally, the above three methods of triangulation were combined in a form of triangulation called “Multiple Triangulation,” involving multiple data sources, multiple methodologies, and multiple data analysis techniques (Natow, 2020, p. 167). This study incorporated the Multiple Triangulation approach by using multiple study participants, use of surveying, document mining and interviewing, and multiple rounds of data analysis using different coding techniques.

**Reliability**

The study did not seek to generalize findings for application at schools nationally. An effort was made to gather data from all Oregon colleges and universities in phase one of the study; however, as not all institutions of higher education in Oregon participated at even the broadest level of analysis, generalizations even within the state should be approached with caution. That said, by employing “rich, thick description,” the hope is that this study can be transferable, so states other than Oregon can conduct a similar analysis of preparedness interventions. Additionally, by approaching sample selection with a goal of “maximum variation,” results from the study could be considered more transferable than if the study had only included one particular institution type in its sample (Creswell & Poth, 2018 p. 157).

Having described the design of the study and outlined the methods used for analyzing the data collected, in the following chapter I will present an analysis of the data.
CHAPTER 4: RESULTS (PREPAREDNESS INTERVENTIONS)

The study’s data analysis has been broken into two chapters. In this first chapter, I will review the findings from the qualitative survey that initiated the study and share how the findings informed the remaining phases of the study. From there, I will present data pertaining to the factors that influence preparedness program development at participants’ institutions, including data about how participants define preparedness in relation to their work. I will conclude by outlining the specific preparedness interventions presented by study participants.

Findings From the Qualitative Survey

The qualitative survey included responses from all seven colleges and universities that served as interviewees in the study’s interview phase. The survey results provided a broad overview of the participating institutions’ emergency preparedness interventions, and helped formulate follow-up questions regarding their programs that were later asked in the interview phase. However, the survey also served as a valuable source of data itself, summarizing participants’ concerns related to student preparedness, challenges faced in implementing preparedness interventions, and the specific programs and initiatives aimed at meeting those challenges on participants’ campuses. The survey also introduced which threats preparedness managers viewed as most significant for students in Oregon.

In assessing the level of preparedness on their campuses, all survey participants indicated that they felt students and the broader university community were underprepared. All indicated a desire to improve the state of preparedness among
students but offered reasons for that work being stymied. These challenges broadly fell into the categories of budget limitations, buy-in from the campus community, and strained capacity insofar as limited full-time employment (FTE). All three of these themes featured prominently in the later interview phase. The survey responses also indicated an additional challenge faced by preparedness managers participating in the study: the majority of them were new to their role (having been hired within the last three years, or some as recently as within a month of the study beginning). During the interview phase, participants shared details about how their limited experience with their campuses had impacted their preparedness-building efforts.

Summarizing the kinds of programs implemented on their campuses to improve student preparedness, participants gave examples such as campus-wide trainings, utilization of apps and websites to disseminate emergency information, emergency plans on the university and department level, use of mandatory campus alerts, Community Emergency Response Teams (CERTs), and participation in state and national programs like the Great Oregon Shakeout and the “I Love U Guys” program. In addition to interventions already in place, survey participants also spoke about programs in the process of being built. Several of these included potential academic partnerships, such as offering academic credit for participating in programs like CERT, or working with faculty to include emergency information in their syllabi. One participant, Dennis, spoke extensively about a program his institution was just beginning to participate in, the “I Love U Guys” protocol. This program provides a comprehensive framework for
preparing for and responding to incidents of mass violence, through training, standardized practices and emergency plans, and outreach materials.

In discussing their programs, survey participants indicated a mix of optimism and pessimism, with some expressing excitement for the potential impact such interventions could have on students, and others expressing doubt that students would participate, or concern that the afore-mentioned challenges of budget, capacity, and buy-in limitations would impede their work. In relation to their programs, all participants were asked about metrics for assessment to determine program success, as well as what learning theories or educational frameworks had informed the development of preparedness interventions. None of the participants indicated that frameworks or theories had influenced the development of their preparedness interventions, and insofar as assessment, none indicated that they had formally assessed the success of their programs (though several offered educated assumptions about whether students were engaging with their interventions, or presented correlational data such as the number of students enrolled in campus alerts as indicators of program success).

Finally, participants were asked to share which disaster threats they felt were most pressing for students on their campus. The threats referenced with the most frequency were active harmer incidents, the Cascadia Subduction Zone earthquake (referred to hereafter as the CSZ earthquake), and issues related to climate change. A few participants also mentioned cybercrime, though this did not come up as frequently. Participants did not go into great depth as to why they saw these threats as most pressing during the survey phase; however, in the interview phase of the study, participants were given the
opportunity to expound on their concerns. In the following section, I will share details about these threats, and how emergency preparedness leaders at colleges and universities in Oregon predict their students could be impacted.

**Threats Facing Oregon’s Campuses**

Before delving into the interventions employed by emergency managers on college campuses, it is important to first identify for which emergencies they are seeking to prepare students. Several disaster threats were referenced explicitly by participants in the survey and interview phases. Others came up only through follow-up conversations during the interview phase.

**Increased Risks of Mass Violence**

Incidents of mass violence were viewed as a significant threat by all seven participating institutions. While other threats seemed to invoke a greater sense of dread given the potential scope of their impact (such as a CSZ earthquake), mass violence was described as particularly concerning due to its wide prevalence and its propensity to happen at any time on any campus. This concern was summarized by Dennis, referencing one of Oregon’s most notable incidents of mass violence: “It's probably nine years now or eight years, the shooting at Umpqua. If it can happen there, it can happen anywhere. It happened in Uvalde, Texas. So at least from my perspective, it's not a matter of if, it's a matter of when we'll have an incident.”

Participants who spoke about mass violence seemed to agree that despite shootings occurring in malls, churches, K-12 schools, and virtually all other aspects of public life, colleges and universities are at heightened risk. Kevin pointed to an erosion in
civil discourse and the feeling students have that they cannot express themselves freely, leading to increased risk for those feelings to eventually be expressed in violent ways:

You may have heard about this, but Linn-Benton did a survey of students and staff [that] got some attention a couple of years ago. They found that 70% of students and staff did not feel like they could speak about their personal opinions without some sort of retribution. So, as a manager I'm thinking, “Wow, if our culture is 70% of employees and students can't express themselves” ... I have a lot of history in threat assessment. You look at any targeted violence, and you go down the checklist of feelings, and ‘not heard’ is a huge indicator in threat assessment as far as somebody who could be an issue to worry about.

Steven shared his perspective that the increasing prevalence of severe mental health conditions, exacerbated by academic stressors, could be a factor driving mass violence incidents, and that this put institutions at elevated risk if their student population has a higher-than-average population of students with serious mental health concerns.

While their reasoning varied, all participants seemed to agree that mass violence incidents were a “when, not if” threat. Another disaster participants viewed as an inevitability was the 9.7 earthquake predicted to strike Oregon within the next 50-100 years: the Cascadia Subduction Zone (CSZ) earthquake.

**Earthquakes**

While disaster threats with a higher likelihood of occurring, such as those posed by active harmers or climate change, were seen as more immediately pressing by study participants, in many ways the CSZ earthquake seemed to be the most feared disaster
threat overall. Every participant, save one (whose inland campus location would be insulated from a seismic event emanating from the offshore fault lines), spoke of the potential 9.7 quake with a tone of dread. Kevin shared how learning about the CSZ quake during graduate school impacted his own preparedness habits. “Two weeks ready is just not enough, but it's a nice bare minimum,” he reflected, referencing public health guidance about having two-weeks’ worth of emergency equipment on hand. “But Cascadia happens and we are just...I shudder at that.” Ryan addressed the threat posed by the CSZ earthquake in similarly existential terms:

The earthquake, I think, is the biggest threat facing everything we do and life as we know it here in Oregon. COVID was a good warm up, so to speak, but it did not destroy the infrastructure. It stopped the workforce a little bit. But because we kept our utilities, our infrastructure, we expanded the web access, we were still able to continue life. Jobs got done, people graduated, they completed courses, babies were born, etc. The earthquake will take that away from us. It'll take a first-world nation and probably bump it to third-world status for 30 to 60 days.

One of the challenges the CSZ earthquake poses for preparedness managers on college campuses is that it is a low-frequency, high-impact event, making it hard to prioritize or raise awareness for in comparison with other, more pressing budgetary concerns on college campuses. “[It] could happen tomorrow, but it might not happen for another 100 years,” Megan shared. “So that makes it really difficult for individuals to decide to take action and spend money to prepare, but also for an institution.”
While unlikely to occur on any given day, the earthquake is a geological inevitability, and when it occurs, participants predict it could permanently reshape Oregon’s higher education landscape. The effects of the CSZ earthquake discussed in interviews ranged from immediate to longer term. In terms of the immediate damage, participants felt schools would be impacted insofar as their physical buildings and infrastructure. During our interview, Steven joked:

Somebody was showing us a product where they'd done a 3D scan of the campus. But it was just the campus, which made it look kind of like an island in a big thing of water. And I was like, “Oh, that's after the Cascadia Subduction, that's what the campus will look like.”

Steven went on to clarify: “We are very fortunate. We're essentially directly on bedrock across the entire campus,” meaning their campus buildings might be spared the more acute destruction faced by other campuses that are positioned along fault lines. However, bedrock alone may not be able to fully insulate campuses from nearby damage. At least one school spoke about being positioned near industrial areas on liquefiable soil. In an earthquake, chemical or fuel storage may break apart, releasing hazardous materials into the air and water, affecting numerous nearby communities including some colleges and universities.

Longer term, participants worried, some campuses would face issues in the weeks following the quake due to damage to roads, bridges, and infrastructure. “In a Cascadia event, we would be cut off from everyone,” predicted one participant, referencing the way in which a large river bisects their city’s major government centers on one side and
the university on the other. “And we would also be a beacon for many people too.”

Infrastructure threats extend beyond those posed by the CSZ earthquake; in their interviews, preparedness managers also spoke of impacts to infrastructure posed by climate concerns and active threat scenarios. Collectively, “threats relating to infrastructure” form their own category of disaster threats discussed in interviews, and will be described in the following section.

**Threats Relating to Infrastructure**

According to participants, infrastructure can be either the "victim” of a disaster (i.e., the damage done to water lines by an earthquake), or an exacerbating factor. In other words, problems with infrastructure can make the impacts of a large-scale emergency worse or create new disaster threats entirely, particularly when it comes to climate concerns. Referencing the trends in temperatures in Oregon over the last several summers, Steven reflected about the ubiquity of major heat events. In the past, he noted, Oregon summers were cooler on average; consequently, most residential spaces on his and other campuses were not built with air conditioning. However, Steven felt heat was becoming a more pressing concern as schools make increasing use of their buildings during the summer as a means of generating revenue:

We used to be in this space where it was like, yeah, it's nice if we have a couple of camps over the summer. But if the dorms stand empty all summer long, we don't really care. And now we're kind of getting into this space where it's like, “That's a long time to not be generating revenue.” And those buildings continue to draw resources. So, what are ways that we might more fully engage those resources
over the summer? Well, if you're going to do that, they can't be the brick ovens that they are today.

Climate-related infrastructure concerns are not just limited to heat: Oregon has also begun experiencing more frequent cold weather events. Steven joked about Midwestern transplants coming to his urban university and laughing about schools shutting down in the city for “an inch and a half of snow.” But as Steven explained: “[The city] doesn't necessarily have the infrastructure to handle it, and it's not really designed with that in mind. And so, I think that's a really big risk. We still have a large number of commuter students who are dramatically impacted by that.” In more rural parts of Oregon, Dennis reported being similarly challenged:

Once we get frozen, we're up on a hill. Our facility director has been here, six, seven years. And it changes from year to year as to what to expect. The other part of it is unlike K-12, we can't necessarily make up days in the school year, so that makes it more challenging.

Finally, flooding (which has risen to the most common form of natural disaster in the United States) poses threats to infrastructure, despite being a “known quantity” compared with the novel effects of recent snow and heat trends. At colleges like Kevin’s, building outside of established floodplains ensured that his school sits outside the immediate path of danger posed by overflowing streams and rivers. The water resistance of his campus’ stone buildings also insulates the college from some risk. However, colleges and universities are part of a larger, interconnected web of infrastructure that can affect a school’s population following a disaster. Kevin explained:
Our campus can be unaffected by a wildfire or a flood, for example. But 2000 of our students could not be able to get here because of flooding. So, how do we manage them getting their education still, without them having to come here for that? And so, that's planning both ways: if it's an event here, how do we manage the event (if there's a fire on campus and it disrupts our buildings)? But what if there's an event that prohibits our students or staff [from being] able to come to work? And so, how do we manage that as well?

Infrastructure concerns intersect with the other aforementioned disasters in unique ways, including active threat scenarios. Participants like Ryan think one major risk to campuses related to their infrastructure is their openness, as both public universities and community colleges are readily accessible to the public. Attendance is not tracked as people move in and out of campus spaces, making it hard to determine how many people are on campus on a given day. According to Kevin, colleges and universities also have less security infrastructure, particularly when compared with K-12 institutions. In addition, Kevin felt that college students and staff are less willing to accept the kinds of restrictive security measures accepted as normal by K-12 schools. So, while certain safety measures have become more commonplace in elementary and secondary schools following years of mass shootings, Kevin opined that security on college campuses has evolved more slowly.

These challenges could be offset by improvements to the safety infrastructure; however, many institutions are limited by budget constraints. Speaking of these limitations, Kevin shared that one of his biggest challenges is keeping aging cameras
online. Most of the cameras on his campus are between nine to ten years old, and within his budget there is no funding designated for replacements as cameras stop working. Other schools, like Dennis’s, have a longer list of infrastructure improvement needs to combat active harmer threats:

We need to add speakers outside our campus for clarification. We're in the process of installing a couple of panic buttons at some front counter areas. Our camera system could be more robust. So not only do we lack people resources, we also have equipment challenges as well.

Speaking about the CSZ earthquake, participants noted that infrastructure could be impacted not only by a building’s positioning on bedrock or a fault line, but also the stability of the buildings themselves. Many of these buildings are unequipped to withstand the damage an earthquake may cause, Ryan noted, since until relatively recently in Oregon’s history buildings were not constructed with seismic resistance in mind. The infrastructure of a college or university’s surrounding town or city may also be impacted. Ryan spoke about “the fragility of the electrical system, or linear gas lines that don't flex well, or pipes for wells that go down into the ground 30 feet, made of ceramic or whatever.” Chris spoke about the potential for water service to be disrupted for up to six months should those pipes break during the CSZ quake. What will the effects of that kind of service disruption have on higher education in Oregon? “Thin the herd,” Chris speculated. “There will be fewer higher education institutions post-Cascadia. Period. [Pause] Not all of them are going to make it through.”
Cascading Disasters

The threat posed by large-scale disasters comes not only from the disasters themselves, but also from the potential for one disaster to lead into another. This phenomenon is known as “cascading disasters,” and can occur on micro and macro levels. On the micro-level, Jessica reflected on the precarious financial situation most students operate in, and theorized on the cascade of impacts one disaster could initiate:

A lot is expected from each and every one of our students. So, on one side that gives them less capacity to be able to invest in preparedness. And then the other is that they're also more vulnerable to any form of impact. The reason I bring that up is that, yes, we're all thinking about Cascadia. And we're all thinking about whatever here, but the reality is that the less someone's able to recover from a fire in their house or their dorm room, then that can impact the larger community.

Other preparedness managers warned of cascading disasters on a larger scale. Ryan’s interview was conducted in late fall, and as he spoke about the threats posed by the CSZ earthquake, he wondered how an earthquake of that magnitude might impact Oregon differently if it came in winter rather than spring. "We're going into winter months,” he reflected. “We just had torrential rain last night. I'm thinking, ‘Man, if I was in my tent, how could I keep my tent dry?’ Asleep and out there and water's coming up through the ground.” Others, like Megan, speculated on the impacts to supply routes, and how the immediate crisis posed by an earthquake’s destructive force could cascade into a longer, more pervasive hunger crisis. She drew contrast between her school and schools like Stanford that have built warehouses to store MRE (“meals ready to eat”) and
nonperishable foods (enough to feed their campus for up to two-weeks in the event of an emergency). Conversely, her institution and many like it only maintain the supplies needed for normal dining operations.

“Disaster as a Deathblow”

In some cases, if an institution of higher education is embroiled in an existing crisis, such as a reputational or financial disaster, then the arrival of a large-scale emergency can create the kind of cascade that Chris referred to as “disaster as a deathblow:”

The work that I used to do in research was looking at disaster resilience.

Whatever the condition was, so if your institution is trending down, you're having a hard time making budget, hard time recruiting, you can think about a disaster as a deathblow, in the sense that that is going to amplify whatever was happening the day before. Very rarely have organizations that were in a slump or a slide been able to quickly pull the nose up and get out.

This phenomenon was apparent during the COVID-19 pandemic, when some institutions that were already navigating enrollment and budget crises had to fully shutter their doors due to the public health disaster. Chris felt that the result would be more drastic following the CSZ quake: “The other part you'll see post Cascadia is that level setting. Some institutions may not exist, others are going to have to scale. So that's a bit of Darwinism. What are your strong programs, what are your weak programs?”

Pointing to another historical natural disaster, Chris argued that the best example of “disaster as a deathblow” comes from Hurricane Katrina. He shared an anecdote about
the ability of Tulane to adapt to the disaster and build back stronger than before the storm. Conversely, University of New Orleans, which was already experiencing leadership transition and fiscal challenges, was less able to recover. Following Hurricane Katrina, their enrollment dropped from 17,000 to 8000. Chris reflected, “These institutions, if they can’t really get their mooring or bearing you might see progress, an infusion of cash, but the model doesn’t work anymore.” Speculating on a future where some higher education institutions could be driven to close by a large-scale disaster, one does not need to look as far afield as Louisiana; within the state, and even within the interview sample of this study, some schools are already navigating financially insecure waters, potentially positioning them for a “disaster deathblow” should an event like the CSZ quake occur before they can right-size.

**Continuity of Operations**

In speaking about cascading disasters, several interviewees referenced the importance of “continuity of operations” plans to ensure their institutions could persist in the wake of one or multiple disasters. In the absence of such a plan, the resulting personnel crisis becomes the cascading disaster itself. In some cases, continuity of operations is outside the institution’s control. Chris reflected:

Let's say the university has everything right, we're ready to go. If our workforce is in homes, and they're not prepared, they can't take care of their family, you don't have a workforce. I've always boiled continuity down into three things: What do you do if you don't have your people, your place (meaning your building) or your data? That's continuity in a nutshell. And so, we might have, if we build our
campuses to be more resilient, we're ready to go. But if the population isn't ready
to go, then you have buildings that are vacant and not ready.

While the value of a continuity of operations plan is vital, some participants like Megan
have had difficulty rallying FTE to ensure such plans are comprehensive and up to date.

**Novel Threats**

A final area of threat noted by participants was threats too novel or emergent to
fully prepare for. Climate was a primary area of concern, particularly in relation to the
escalation of wildfire threats across Oregon. Megan shared that in the past, wildfires had
never been a concern to the university. But after witnessing the increase in major fires
over the last several summers, Megan now worries some areas of her institution’s city
could be at risk, even if the campus itself is somewhat insulated from risk. Cybercrime is
another growing area of concern given the rapid pace of technological innovation. Megan
shared her campus had not experienced cybercrime on a wide scale, though she clarified
there had been incidents where individual students had been “scammed out of 1000s of
dollars” through phishing emails and texts. Outside of her institution, she had heard about
the devastating effects of large-scale cyber incidents:

> There are lots of campuses who have had ransomware where they had to burn
down their whole systems and start from scratch. Luckily [for] that particular
school it was during the summer, and so it wasn't super, super impactful, but it
took them months to give people their access back to email and stuff. And so, I
think that that's a bigger concern, not just because there might be individual
impacts to students and their ability to progress, but like bigger institutional impacts as well.”

Despite the threats posed by cybercrime, Jessica worried that students and the wider university community are not adequately aware of the threats posed, and how learning could be significantly disrupted by an attack, particularly for students who primarily learn online.

Understanding practitioners’ views on what threats natural disasters pose to college and university campuses brings one closer to understanding how these practitioners engage their campuses in preparedness work. However, another vital factor is how these practitioners define the scope of their work, or even the term “preparedness.” In the following section, I will share the definitions of preparedness proposed by study participants, and the way these definitions affect their approach to preparing students for disasters.

**Practitioner Definitions of Preparedness**

As outlined in Chapter 2, preparedness as a concept has myriad definitions, which can create confusion given its various interpretations across different industries. This is particularly true on college campuses, according to Chris. “I don't think we've got really great measures of what we consider [to be] a prepared citizen,” he reflected. “A prepared university student. What is that? What does that look like?”

While preparedness remains an elusive concept in higher education and beyond, study participants were able to offer their own interpretations of the term as it relates to their work on campus. Their definitions are outlined in Table 1. Expanding on these
definitions during their interviews, participants seemed to view preparedness as falling into three categories: physical preparedness, preparedness knowledge, and preparedness as a mindset.

Table 1

Practitioner Definitions of Preparedness

<table>
<thead>
<tr>
<th>Participant</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jessica</td>
<td>It's kind of like one of those memes, where it's like, &quot;what I actually do, what I think I do, what other people think I do.&quot; In regard to general preparedness, I acknowledge the many layers of preparedness, and that it's a shared responsibility. So individual, neighborhood, community, organization, government, etc.</td>
</tr>
<tr>
<td>Ryan</td>
<td>Preparedness, with respect to [an] emergency of a student would be: they would be self-aware and self-confident that when something happened. They'd feel they could do the right thing at the right time.&quot;</td>
</tr>
<tr>
<td>Steven</td>
<td>I think that the truly prepared student is not the one who necessarily has had a list provided of all possible contingencies that they know to reference and to work off of, but the student who feels empowered to understand what they may be asked to do, what should they be considering, and what are the things that are most likely to arise in certain circumstances, and have developed the neuroplasticity to engage those tough questions in a moment of stress and not be overcome by the more--what do we call it, the lizard brain? The amygdala-based responses that that tend to arise in true emergencies</td>
</tr>
<tr>
<td>Diana</td>
<td>Preparedness is just: what are my risks, and what can I do about them?</td>
</tr>
<tr>
<td>Dennis</td>
<td>It's the students following the right protocol and following those directions and understanding them and not doing something outside of protocol.</td>
</tr>
<tr>
<td>Megan</td>
<td>What I would say the goal would be for students to be prepared, would be to think about all three of those things: communication, how to get home, how I take care of myself.</td>
</tr>
<tr>
<td>Kevin</td>
<td>A prepared student is somebody who is aware of what hazards or issues there could be in the community they’re in, what the response systems are, an understanding how to be an effective participant in those systems and how to engage those systems for their own safety. (Knowing how they'd be notified of an issue, being a part of the drilling that happens).</td>
</tr>
</tbody>
</table>
Physical Preparedness

Almost every participant named some element of physical preparedness as part of their definition for a prepared student. This is consistent with national messaging regarding personal preparedness from groups such as FEMA, the CDC, and the Red Cross, who all suggest having up to two weeks’ worth of supplies (food, water, clothes, and other essentials) in the event of a disaster. Jessica emphasized this point, referring to the personal responsibility students have to provide for themselves and their immediate household in the event of a crisis:

If we have an emergency here, and people are like, “Shelter in place in your house, because there's something outside.” Well, what I do in that house is my responsibility. How I feed myself, how I water myself. Like if it’s a long-lasting emergency, outside of my capabilities, then I would ask the city to give me food. But the city, that’s why they're telling me to be prepared, so they don’t have to help me.

Despite the importance placed on the idea of physical preparedness, many participants expressed skepticism that students had put aside the essentials to subsist through an emergency, such as nonperishable food and bottled water.

Preparedness as Knowledge

While participants agreed that students should be physically prepared for possible emergencies, they also highlighted the importance of scaffolding students’ physical preparedness with preparedness knowledge. This includes knowledge of the specific risks of a given area, such as colleges like Kevin’s that lie near a flood plain. Diana shared
there was an additional layer of knowledge needed: knowledge of one’s resources. She stated that students, in relation to threats posed by natural disasters, should be “prepared to either react to them, or know how to ask for help with them.”

A third area of preparedness knowledge participants agreed students should be versed in is knowledge of what to do when a disaster strikes. This knowledge can refer to specific protocol or best practices like using “run, hide or fight” in the event of an active harmer incident, or “drop, cover and hold” in the event of an earthquake. It can also refer to the individualized emergency plans students are expected to make for their specific circumstances. Kevin added the importance of aligning those individual plans with the college or university’s emergency response system. Armed with this knowledge, Ryan felt, students could feel more confident and self-effective in a disaster: “I think there are certain things that we will never be able to truly protect them from but if we can equip them so that they rest a little easier knowing that they know what to do in those circumstances, that's of benefit to their learning environment.”

However, as important as preparedness knowledge is according to participants, it is also an area where they feel students are markedly lacking. Jessica recalled a classroom visit where students were uncertain as to where the evacuation points were, despite the availability of this information being presented on posters throughout the building. This example points to the need for a third kind of preparedness discussed by participants: preparedness as an overall mindset.
Preparedness as a Mindset

More valuable than physical preparedness and preparedness knowledge, participants shared, is developing an overarching preparedness mindset. A preparedness mindset goes beyond creating emergency plans or go-bag; it refers to the broad ways students see and engage with their surroundings. Steven felt this type of mindset could help override panic instincts in the event of a novel disaster:

I think that the truly prepared student is not the one who necessarily has had a list provided of all possible contingencies that they know to reference and to work off of, but the student who feels empowered to understand what they may be asked to do, what should they be considering, and what are the things that are most likely to arise in certain circumstances, and have developed the neuroplasticity to engage those tough questions in a moment of stress and not be overcome by the more--what do we call it, the “lizard brain?” The amygdala-based responses that tend to arise in true emergencies.

Diana expressed that a “truly prepared” student was one who was on the lookout for threats and adaptations in every situation. By paying attention to their surroundings, Diana shared, students would be better able to identify and address hazards as they arise. Several participants maintained that students who fostered a preparedness mindset were not only the most likely to withstand the worst impacts of a disaster, but could also be an asset to their college community. By requiring less immediate support themselves, these students could instead provide help to other students who were less prepared. Diana saw this as particularly important given the delays students might experience in receiving
support after a disaster like the CSZ quake, when the university might be cut-off from city and state intervention:

I do a lecture for some of the classes. The name of the lecture is “No one's coming to save you.” And that's intended to get their attention and have some shock value. And it’s basically about them being their own first responder, and how do you understand your capacity to respond? What is your physical capacity, what is your mental capacity? What are you able to do, because those who can should for those who can’t. And that’s the lesson that is taught with that lecture.

Having established which threats preparedness managers viewed as most pertinent to their work with students, and having overviewed the definitions that guide preparedness managers in setting the scope of their preparedness objectives, I will next share how these professionals have chosen to meet these objectives through programming and initiatives.

**Interventions to Improve Student Preparedness Outcomes**

In the following sections, I will first outline some of the overarching frameworks that guide program development at the study participants’ institutions. I will then overview the specific interventions used by preparedness managers to improve preparedness outcomes for students. These interventions will be broken into two categories. First, I will describe the “common” interventions that appeared most frequently in participant surveys and interviews. Then, I will share several unique interventions that could show promise for meeting the emergent needs of students living through a period of greater risks from natural disasters.
What Informs Programming

As was shared in the description of the qualitative survey results, none of the schools comprising the study’s sample shared any specific frameworks that informed their program development, including educational theories or curricular approaches. Jessica shared that the mere existence of student-specific preparedness work on college campuses was relatively rare, let-alone programs driven by a particular plan or framework:

To my knowledge, to date, in regard to a concerted effort to even create student preparedness planning...I’m not aware of one. It’s possible that there was engagement [on this campus] previously, it’s possible that someone just said, “You should prepare students,” and then someone said, ”Well, let’s do workshops, or let’s do this.”

However, the absence of a program framework or theoretical underpinning does not indicate preparedness interventions on college campuses come from nothing. In response to specific interview questions about what influences program development related to emergency preparedness, participants shared that there were several drivers. These fell into four categories: following peer examples, programs based on national precedent, compliance-based programs, and programs based on the needs of students.

Following Peer Examples

Programs based on peer examples came from both local and national sources. Dennis referred frequently to his institution’s adoption of the nationally recognized “I Love U Guys” protocol, referring often to the program’s successful implementation
throughout the United States. When asked about the genesis for the idea to adopt “I Love U Guys” as a college-wide framework, the inspiration came from local peers presenting at a regional summit. Other participants also indicated a desire to coordinate with county and city government, school districts, and other local partners to ensure their programs were consistent with nearby institutions, given that these groups would be likely collaborators in the event of a large-scale disaster.

Participants also pointed to taking cues from other nearby colleges and universities. During her interview, Jessica referenced an upcoming visit to a college in Oregon to learn more about their emergency response protocols and specific tools the college had adopted. Following peer examples could also be seen in respondent answers pertaining to influence on their work from the Universities and College Caucus within IAAM (the International Association of Emergency Managers), or the Disaster Resilient Universities Network.

However, participants noted that peer examples not only informed how they planned programming on their campus, but also presented examples to avoid. Jessica said: “I want to hear what other universities are doing. But I also want to nit-pick. I want to select which ones are actually engaging students in that decision-making process.”

Though most participants saw value in creating preparedness interventions that aligned with best practices at other institutions, given the dearth of student-specific preparedness initiatives nation-wide, some interviewees also felt their institutions should feel empowered to try new things. Steven suggested:
As a personal goal, I've said, let’s stop thinking in terms of, “Is anybody else doing it this way?” and think more in terms of “wouldn’t it be great if somebody did it this way?” Instead of looking for other folks to cut the path for us, let's blaze a trail. Let's be innovative and inventive and take initiative. That’s certainly not always an easy sell.

**Programs Based on National Precedent**

Programs based on national precedent significantly influenced the development of participants’ campus preparedness initiatives. The majority of these influences originate from federal programs, such as those recommended by FEMA or NIMS. “We work within the federal framework,” Steven shared. “The FEMA programs are really very robust and a fantastic opportunity for students. We're big on: if we don't need to reinvent the wheel, that’s not really something we want to have to do.” Ryan agreed, sharing that many of his campus’ training programs are grown from ICS, “so our units have more knowledge of how to organize and respond [as] teams.” Other program influences included the Great Oregon Shakeout, and Dennis’ institution’s participation in the “I Love You Guys” framework.

**Compliance**

Most interviewees agreed that their existing preparedness interventions were largely informed by compliance with state and federal policy. The Jeanne Clery Act, for example, requires institutions to train their campuses in emergency response and to provide timely alerts to the campus community regarding a disaster or criminal incident. This legislation has led to the prevalence of training and campus alerts as emergency
preparedness interventions for the majority of the schools interviewed. Other federal policies, like those governing funding for emergency relief, require universities to create and regularly update emergency plans. “For me, that plan is a compliance check box plan,” shared Megan, speaking about her institution’s Natural Hazard Mitigation Plan, explaining its absence of preparedness-specific information for students. Other preparedness interventions cited by interviewees, like emergency protocol posters, are requirements under OSHA.

Compliance seemed to be the driving influence for the most frequently cited preparedness interventions: campus alerts, emergency plans, drills and training, and emergency posters. However, several participants expressed concerns with operating their programs solely based on compliance. Some, like Kevin, expressed concerns that an over-focus on compliance can lead programs to stagnate. In doing so, he worried, programs failed to grow, as their focus was always on maintaining “checklists.” Chris agreed, arguing that the laws and policies that govern the required programs of emergency managers should serve as a starting point, not an end-goal. Speaking about emergency preparedness plans and posters, he reflected: “It’s like building codes are a baseline. It's not where you want to be if you want to be resilient.”

Some interviewees questioned whether programs required by state or federal policy were effective for adequately preparing students for disasters, or if they were even utilized at all. Kevin reflected:

My thesis was on Clery. And there're studies on Clery that 10% or less of students were looking at a Clery report before they go to college. People aren't looking at
it. So, all the money and time and effort that all the colleges across the US put into doing the Clery report because of the federal requirement doesn't have any value if nobody's looking at it.

While compliance seemed to be the primary driver for most emergency preparedness programs, several interviewees spoke of a desire to move beyond meeting standards and instead create programming that directly pertained to the needs of students.

**The Needs of Students**

While not all participants shared that their programs are currently informed by student need, most reflected on a desire to tailor preparedness interventions to the specific needs of students at their campus. Of the seven interviewees, Diana seemed to most embody this effort, sharing her inclusive approach to soliciting student feedback in designing her programs. Using topics brought to her by students as a springboard, she has managed to build onto these discussions and incorporate other necessary preparedness information into her work with students. These conversations have covered topics as diverse as mass violence to the more recent concerns raised by student responses to the Israeli-Palestinian crisis. “We're pivoting to address that,” Diana shared. “And how do we provide safe spaces for answering those questions, and who's the right person to speak to those, which is not a traditional emergency management piece.”

While interfacing directly with students to ensure their needs guide preparedness interventions was viewed as a best practice by interviewees, several shared the challenges of engaging students in this way. These challenges were particularly difficult for practitioners who shared they were new to their role. “I don't know what students want,
and one student is very different from another student,” Jessica reflected. “So, I think that that is particularly challenging.” But that hasn’t stopped her from trying: “I’m taking the first while to listen, and really understand what the needs of the university are.”

**Common Interventions**

In addition to sharing their broad approach to the work of preparing students for natural disasters (through sharing prescient threats, their definitions of preparedness, and their core program drivers), time was spent discussing the various interventions preparedness managers employ to prepare their students for natural disasters, and how these interventions are implemented on their campus. In the following section I will describe these interventions and what participants shared about their use on their campuses.

A note on the term “preparedness interventions:” given the challenges with defining preparedness as a concept discussed in Chapter 2, it can be equally difficult to determine what constitutes a preparedness intervention. For example, one would rightfully question whether something like a campus alert, which comes in the moment of an emergency rather than before, constitutes a preparedness intervention. For the purposes of this study, intervention was defined loosely and largely left to the interpretation of study participants. While later chapters will address where specific interventions may sit in the disaster cycle, and which interventions schools should prioritize to improve student preparedness, the inventory of preparedness interventions presented in this chapter includes any interventions shared by participants in their
responses to the study’s qualitative survey as well as follow up interview questions regarding their programming.

**Emergency Plans and Templates**

The purpose of emergency plans and emergency plan templates is perhaps most succinctly described in an open letter from Jessica to her campus community: “Through developing and exercising emergency response and recovery plans, we identify the protocols and resources needed to deal with various hazards or threats, should they occur.” These plans, which help guide university community members to understand their roles and resources in the event of an emergency, can take the form of campus-wide plans, departmental plans and annexes, or Natural Hazard Mitigation Plans. Plans are updated as needed, but most are minimally updated on five-year cycles. Updates to the core plans are often marginal, as Kevin shared regarding his campus’ most recent update:

Most of the hazard stuff we’ve identified is pretty similar, we just changed what we perceive as being in the priority of them. So what hazards are more prevalent. One hazard they had on there was volcano, you know, volcano eruption. Now I'm sure that that's a hazard, but it's not very high priority because we've seen a lot more wildfires and we've seen a lot more of some of those other things. So, the work mostly is just changes in recognition of what changes in our community’s experience, and [are] more common so that we can plan for how we mitigate those.

Despite federal regulations requiring the update of such plans, several participants noted delays in their review and implementation, often due to strained FTE or employee
turnover. “I think right now we have some really good plans that were done in 2014,” Steven disclosed. “They're obviously in dramatic need of update, but even with those needs for update, they offer a really good template for actions that should be undertaken under certain circumstances.” These plans are designed to be as comprehensive as needed, but still adaptable to novel circumstances. Ryan shared an example of this flexibility, referring to a recent incident on his own campus that necessitated the implementation of the campus’ emergency plans:

I don't have a specific plan for explosive devices in the food delivery robots. But we have an all-hazards plan. And it still means pulling a couple of people together and putting our minds around it and taking the guidelines of the plan and [our] knowledge of the plans and tweaking it. So, it’s not a car bomb, it’s a mobile robot bomb. Okay, what do we do there? And we pulled that together, and within 30 seconds, we said, “Okay, we’re gonna’ recall to a safe point, we're going to get the bomb dog out,” and we just applied our normal threat response.

Most of the interviewees shared that in addition to the campus’ central emergency plans, they also offered templates for individual departments and campus organizations to develop unit-wide emergency plans, specific to their stakeholders’ needs. Ryan spoke about the apparent success of this effort on his campus:

I developed a template to work with each of those institutions and get buy-in. I’d go to the college and say, “Hey, you need emergency preparedness. I made this. I’ll fill it out for you. Let's just have the conversation. Who’s your second in charge, how are you going to evacuate your floors, who’s a floor monitor?”
didn’t really tell them they didn’t have a choice. I ended up with 130 individual plans, all based on the same template, renewed every three years.

Ryan described this relationship as symbiotic: by assisting departments with their organization-specific emergency plans, the central emergency plans of his entire institution become better informed. Megan also supports preparedness managers working with individual departments to create organizational plans, as the general university emergency plans are not able to address site-specific eventualities. However, while campus-wide emergency plans are federally required, department-specific plans are not, and when asked to what degree such plans have been taken on by different campus organizations, interviewees were not able to provide firm numbers. Responding to a question regarding how many departments had provided her with their department-level plan, or whether she knew of any stand-out plans among her campus’s departments, Megan was unable to provide an estimate. She went on to explain:

They’re not required. They’ve been out there on the website, I think maybe we've gotten one or two units that have sent them in. Back in the day there was a [student center] director who did develop one that was quite good. It wasn’t our template. So, some people are doing it. I have noticed that there is more interest in this topic recently than when we first started the program.

Even if campus departments engage widely in the creation of departmental emergency plans, study participants shared that the plans themselves do not generally address student preparedness. Speaking about the absence of references to student preparedness in her institution’s Natural Hazard Mitigation Plan, Megan shared that such
plans were developed in compliance with FEMA policies. While they included aspects related to mitigation, FEMA’s focus was largely on physical mitigation, like seismic retrofits. Other campuses, like Steven’s, have attempted to address student preparedness in supplementary planning documents, but he was uncertain as to how well known these plans were to campus community members. “I think a lot of folks would be very surprised to hear that we have those plans,” he reflected. “Because they’re just not aware of them.”

**Emergency Posters**

Another preparedness intervention referenced by all interviewees were emergency protocol posters. These posters, which take the form of one-page flyers or multi-page flip books distill campus emergency plans into easily read and understood guides. As Jessica described, they inform the reader “What are the things that are likely to happen here, and what do we want people to know about them.” Emergency posters are generally intended for “just-in-time” reference, to inform disaster victims of what to do in the moment, though as Chris shares, they may be helpful for planning ahead: “I do believe that something like a poster in a hallway, you know, maybe you don't look at it all the time, but every once in a while, you do. There’s some benefit, it’s just there.”

Some have attempted to go beyond the minimum OSHA requirements to ensure their emergency posters are a robust resource for students seeking to build their personal preparedness. Diana shared that on her campus:

> We’ve created these big posters that we have that have QR codes that make everything very accessible for students to get to bigger information. We went
from having these very cluttered boards of paper that people didn’t know if it was relevant or current, and it wasn’t accessible if you had any kind of mobility or sight issues. If you were in a wheelchair, you couldn't reach the board. So, everything’s gone to QR codes, bright colors.

Diana’s updated boards reflect a widely shared concern among interviewees that emergency posters, while framed as a preparedness intervention, may not meet student needs in their basic forms. Without intentionality in their design, they can become a source of “content without context.” As Jessica reflected, gesturing to the poster hanging in her own office (which included space for individual departments to add site-specific information at the top of the poster):

We have these posters, but for example, they’re not always filled out on the top. And there’s not much…what is this poster? I think it’s pretty, I think it makes sense, there’s good information, but it doesn’t necessarily have context, and how to actually use this tool. So, you have the tool, but not the instruction.

Jessica also expressed concerns about whether the posters reflected the actual resources they referenced, or whether the stakeholder groups described in the resources section connected as the poster described. An additional concern expressed by Megan, given the ubiquity of these posters in virtually every campus space, is that they can quickly become part of the scenery and consequently be ignored by students.

**Apps and Web-Based Interventions**

Combining the dense preparedness information of campus emergency plans with the navigational ease of emergency posters, emergency preparedness websites and apps
were likewise referenced by multiple interviewees. Six of the seven participating schools had websites dedicated to their emergency management offices, and all contained some information pertaining to emergency preparedness. While the websites varied in their design and content, most contained the following elements: campus emergency plans and hazard annexes, links to resources for continued education (often directing to websites operated by the Red Cross, FEMA, and the state and county’s emergency offices), and template language for syllabi or other documents looping faculty into the preparedness process. Some, like Ryan, spoke about the steps they’d taken to ensure their websites had robust preparedness resources (though in doing so they acknowledged that most users would access the information during an emergency, not before):

Each tab has a different purpose, I have an educational training tab. But it’s all for “just in time.” So, people can pull it up on their mobile device and say, “Okay, I heard about an explosion on the south of campus, what do I do for bombs?” Or “What do I do for bomb threats?” It’s all there [for] somebody who hasn’t prepared and needs some just-in-time reference.

Ryan’s website also includes an embedded tool that updates in real time to provide users with regional information about everything from the current weather to regional volcanic activity.

While the information provided by these websites could undoubtedly be useful to students seeking to improve their disaster preparedness, interviewees noted some predictable shortfalls. Jessica’s primary concern was related to the consistency and
accuracy of the various campus sites that provided students with preparedness information:

What I’m hearing and seeing (from my perspective, not as a student), is that a lot of our information on our website conflicts. So, my first steps related to that are doing an audit of at least the Emergency Management website, and I’m working with University Communications for hazard-related information to make sure things connect and are consistent. [Campus police] have a site about [campus] alerts, which is our emergency notifications. We have a site—are they saying similar information? So that, the audit of public facing information online.

Some participants also questioned whether these sites were designed in such a way as to be user friendly for students, or if the overwhelming amount of “content without context” deterred students from using it effectively. Some, like Steven, were actively working on their website layouts to ensure the resources listed were easily accessible to students utilizing the site: “Anything that's four, five, six clicks down, nobody’s gonna get to it, because they’re just going to be like, ‘What, that’s not what I’m looking for,’ and then move on to something else.”

Another pitfall noted during interviews was that while tools exist to track website traffic, which links students click, and how much time they spend on the site, none of the preparedness managers interviewed actively tracked those statistics. However, when asked if they suspected students were using these resources to improve their preparedness, the answer was generally no. Steven expressed that he would be “awfully surprised if we had a high degree of engagement there,” and that whatever traffic the site
Some participants have turned to user-friendly apps in hopes of engaging more with students. These apps provide similar information about emergency resources, but in more dynamic ways and with better assessment. Ryan described one such app employed at his university, HazAdapt. The app, which is in the process of being introduced on Ryan’s campus, will have better usage tracking to help Ryan and his office identify where additional engagement is needed. During the pandemic, Chris’s school experimented with engaging students via apps as well, utilizing a “Crush COVID” platform to gamify student prevention efforts.

**Campus Alerts**

Campus alerts, which can come in the form of texts, calls, emails, or even desktop app notifications, were touted as a preparedness intervention by all interviewees. The ubiquity of campus alerts within the study sample is unsurprising: multiple federal policies require the use of campus-wide notification systems, including the Higher Education Opportunity Act and Jeanne Clery Act. According to Steven, the latter policy requires the testing of campus alert systems twice annually. Outside of these tests, preparedness managers try to use their alerts as minimally as possible to ensure students know they are serious when messages are distributed. Steven shared, “We don’t use the system for anything except emergencies. And so that helps keep it notable enough that most people still recognize that it’s important.” This makes campus alerts another “just-in-time” resource.
Despite this, several interviewees framed the campus alerts as a preparedness measure. This perspective was reiterated by several campuses’ emergency management websites, which listed signing up for campus alerts alongside procuring a two-week supply of food and water as indicators of a person’s personal preparedness. Some interviewees even used campus alerts as a formal assessment measure, offering the number of students signed up for campus alerts as an indicator of their student body’s preparedness, or, for campuses with fewer sign-ups, an indicator of preparedness problems. The value of this metric is lessened at campuses that automatically enroll students in campus alerts, like Ryan’s. Ryan’s move from opt-in alert enrollment to opt-out enrollment raised the number of enrolled students from 5000 receiving text alerts to over 30,000.

While vital as part of a campus’s overall emergency management infrastructure, campus alerts have numerous limitations as a tool to improve preparedness, as shared by the interviewees. To begin with, their penetration into the student body is variable for campuses that do not require enrollment. For schools hoping to move to compulsory signups, there are logistical challenges. Megan, whose current campus notification enrollment hovers around 65%, shared that the biggest barrier to moving to compulsory alert enrollment was identifying a working cell phone number, since the phone numbers provided at the point of application could be tied to a parent or guardian’s phone number. These barriers can be overcome, however, as Ryan’s move to opt-out enrollment proves. He shared the first major test of the alert system following the move to an “opt out”
versus “opt in” model initially resulted in 2000 “bad numbers” being identified, but after cleaning out the registry, the next test yielded only 36.

Others, like Jessica, worry about the possibility of students unsubscribing even if they are automatically enrolled:

There’re also people who don’t want the alerts and they think they’re annoying. I work in emergency management, so I think they’re super cool and informative, but I acknowledge that if we just send out, “Hey, it’s winter you should be prepared” all the time, people are going to tune out, and then also we may not be aligning with [the] larger university voice. I feel like a lot of people nowadays, they get these newsletters all the time and it’s like, “I thought that was a fun idea, and now you email me every other day.”

**Trainings and Drills**

Like emergency plans and campus alerts, campus-wide trainings for disasters are a Clery Act requirement. However, multiple study participants also viewed them as a critical emergency preparedness intervention on their campuses. Trainings can take numerous forms for colleges and universities. They can be large-scale, campus-wide roleplays. For interviewees, these are often opportunities to not only rehearse how they would address a disaster themselves, but also an opportunity to coordinate with other local resources to see how these various organizations would collaborate in the event of an emergency. Kevin spoke about the utility of these kinds of trainings:

When you bring those interfaces together, and you have police and fire on your campus, and you have the students and the staff involved and [they] get to be a
part of it, when you run through that scenario, you inevitably always find, “Oh, this piece is a piece we didn’t know or a gap we didn’t know we have, it’s easy to fix.” In my mind, there’s just no way to replicate that. Until you have the event, or roleplay to that size, you just don’t run into those things about how technology may interfere with what you’re doing or helps with what you’re doing.

Trainings can also be implemented on a smaller scale for specific campus constituencies. Interviewees referenced trainings they had led for resident assistants, members of their incident management teams, faculty senate, or college deans. While most interviewees spoke about trainings from the perspective of an in-person workshop, many of the resources linked from their emergency management websites connect users with online trainings, either through official university channels and orientation modules, or trainings offered via partner sites hosted by the Red Cross or other organizations.

While all the interviewees spoke about the merits of drills and trainings as a preparedness intervention, the capacity for hosting such trainings was variable. Some, like Megan, have designated professional staff for this purpose. Others, like Diana, hope to expand their training program by hiring additional student employees. Even when able to be widely implemented, however, there are further limitations to drills and trainings to improve student preparedness. For one, some emergencies are prioritized for drilling and training over others. Several interviewees spoke about recurring fire evacuation drills, but other kinds of incidents (such as earthquakes and active shooter incidents) were more likely to be drilled annually, if at all. Interviewees also spoke about the importance of drilling regularly to ensure the material is adequately absorbed; however, in most cases
drills are treated as “one and done.” Regular drilling represents a far more challenging ask of campus community members, for whom capacity is already strained in the estimation of some interviewees.

Additionally, as was indicated regarding emergency plans or emergency apps and websites, drills and trainings were seldom utilized for preparing students specifically. Speaking about the roll-out of the “I Love U Guys” framework, Dennis shared that while aspects of the program could eventually be utilized with students, “Right now we're just concentrating on employees.” Megan agreed, sharing her experience with trying to engage students through drills and trainings over almost 15 years at her institution:

When it comes to preparedness, we’ve taken an approach of like, “It's available.” And when we've hosted a training session on disaster preparedness, nobody comes to it. So, when we offer stuff up, people just aren’t interested, right? Because it’s not a topic that a lot of students are thinking about when they’re coming to college for the very first time.

Another challenge for bringing training to students directly is faculty and administrators’ concerns that the content may be too disturbing. Other times this fear is expressed by students themselves. Megan shared that her office had been uninvited from resident assistant training years before after several students shared that the information her office had presented was too distressing.

An important component of drills and trainings are after action reports, which some interviewees reported are overlooked in the interest of timely compliance with the minimum requirements of the Clery Act. Speaking about a campus-wide training exercise
I had seen referenced on her campus’s Facebook page during document mining, Diana clarified:

I knew about that exercise when I came here, but I have no documentation. I don’t believe an after action was done. The emergency response plan they had back then was very substandard. It’s been completely rewritten. So, there was no after-action. When they say full-scale, I don’t know that it was actually. It might have been just a big tabletop. I don’t know, because I don’t have any documentation. And a lot of those folks aren’t even here anymore. We’ve had a lot of turnover.

We have a lot of new VPs. So, there's been a lot of change.”

Without that element of formal assessment, Diana argues, describing “what worked well, what could be improved on,” trainings fail to rise to the potential benefit Kevin described. Like other interventions described by participants, they become simply “compliance checklists.”

**Mutual Aid**

In describing his approach to mutual aid when he worked as a county emergency manager, Ryan shared, “Everybody had something that other people wanted. Some people had space, some people had stuff, some people had staff.” The phrase “space, staff and stuff” is an effective distillation of the concept of mutual aid as a preparedness intervention on college campuses. Broadly, it can refer to the exchange of these resources (or the agreed upon future exchange) between a college or university and their local government and non-government organizations, or between the college and another institution of higher education.
“Town and Gown” Mutual Aid. Mutual aid agreements between an institution of higher education and its local community can take a number of forms. Kevin spoke about the partnership between his college and his counterparts in county and city government to co-host an area-wide CERT. Steven framed the relationship as “looking for opportunities to be of service to the [city].” He gave examples such as providing housing to residents displaced by an apartment fire. However, the purpose of mutual aid is not strictly philanthropic. Schools who initiate these relationships with local community organizations report reaping numerous benefits.

One benefit is sufficient cost savings through partnership, a welcome relief given the tight budgets preparedness managers may operate under. Steven planned to develop his campus’s CERT in partnership with the city’s CERT trainers, offering training spaces on campus in exchange for trainers in the city providing their services for free. Megan’s campus has leveraged mutual-aid arrangements with the city government to co-author grants. This not only saves time, but it increases the chance of success for the grant.

“[With] all of this grant funding, if you have a collaborative project, your points go way higher,” Megan explained. “So, the goal is to try and match people up to say, ‘Oh, we’re both working on the same thing. Could we go in together on this?’” These relationships are useful for any school, but for smaller programs like Dennis’s, they can be essential. Since his campus has no in-house security force, he is reliant on local law-enforcement partners to host trainings and respond to incidents.

Coordinating with the local government and non-government organizations also helps clarify roles and prevent duplication of efforts. As Jessica puts it, her goal for
coordinating with the city was to “integrate and understand where we fit in, before we build too many processes here, and we’ve done the outreach, and then it conflicts with what the county says.” A third benefit is that by engaging in mutual aid, colleges and universities see returns on their investment. Sometimes this comes through the immediate exchange of ideas and expertise. Other times it comes in the form of aid given when the college or university inevitably experiences an emergency of its own. Speaking about the benefits of fostering town and gown mutual aid agreements, Ryan shared:

The Enlightened (as I like to call them), realize that emergencies don’t know boundaries. They don’t know tax codes. They treat everybody the same. So, my approach has always been to not demand because of my position, but to offer and support. And if you see that I’m serious and intentional about supporting you, then you’re going to be able to reciprocate back to me.

Reliance on agreements with the local community is not without its challenges, however. City and county government may be similarly hampered by budget and capacity, resulting in increased delays in executing programs. Kevin, while speaking positively about his community’s shared campus and county CERT, also acknowledged, “what’s slowing down [the application process] is that [the participating counties] both are so backlogged with background investigations for their police and fire, that they don't have time to do background checks on their CERT applicants.” Communication between the university and the local government can also be interrupted by siloes and bureaucracy. Megan spoke about this occurring between her campus and city:
One of the challenges we’ve had is that we have not been invited to the table for even city-wide [meetings] like evacuation planning stuff. And when I finally got on my soapbox a year ago, I was like, “You guys aren’t inviting us. We need to be at the table, because I want to make sure if we develop an evacuation plan, we’re not dumping people into a place that you don’t want people to go to.” And they were like, “Oh, well [your campus] was there.”

Megan soon realized that the city was referring to a contracted research center they had confused with her school’s emergency management program. Even after making this correction, Megan’s campus has still not been invited to the table. “And maybe they’re just not doing anything,” Megan wondered. “Which is also really scary.”

**Campus Mutual Aid Agreements.** Mutual aid agreements can also be created between schools. Speaking about potential partners in the event of her campus being impacted by the CSZ earthquake, Megan proposed:

There’s a national intercollegiate mutual aid agreement that we have signed on to. So, some of the things we’ve talked about is to say, “Hey, Utah, when you hear in the news that this earthquake happened, start shipping us this stuff, like air dropping us this stuff, rather than us investing in a warehouse and doing all this stuff right now.” Because when it happens, we will absolutely be willing to pay whatever those costs are, even if we’re not willing to do it now.

Multiple campuses can also connect through national or even international collegiate organizations. Some of these, such as the Disaster Resilient Universities (DRU) Network, are longstanding, while others are still in development. Speaking about
ongoing legislative efforts within Oregon and beyond, Chris shared his hopes of receiving funding to create a “collaborative network focused on preparedness in higher education” that could serve as a model for similar networks in other states throughout the country. The purpose of such networks would be to create standardized educational interventions that could be applied at any college or university to help improve student preparedness, freeing up FTE by preventing staff at each of these institutions from having to develop interventions from scratch.

**IMT and Other Crisis Teams**

IMTs are generally made up of representatives from university leadership, and may have different names or membership across different campuses (Dennis’ campus, for example, has a “safety committee” that includes student membership). The role of preparedness managers, Jessica says, is “preparing [these teams] to respond to an event, also making sure that they’re prepared so that if we had an event, they can respond and be available.” In addition to a centralized university IMT, some participants like Ryan shared that their campuses have satellite or departmental IMTs as well, including larger programs like housing and dining and student health services. Ryan often sits in on their exercises and training, and they do the same with his programs, leading to a close collaborative relationship.

Crisis teams on Oregon campuses tasked with supporting preparedness efforts are not limited to IMTs. Several participants named their campus’s BETA (Behavioral Threat Assessment) and Care teams as vital partners in the work of student preparedness. One participant reported they had crisis teams localized as specifically as building to building.
Speaking about her campus’s new BERT (Building Emergency Response Team) program, Diana shared:

We’re hoping to get one per building per floor. And after the first of the year, we’re gonna really try to ramp it up with CPR training, AED training. We’re gonna have monthly meetings with them. Quarterly, we’ll do exercises, tabletop exercises with them. They participate in all of our evacuation and lockdown drills, which is another incentive for them to join. I’m like, “If you join, you’ll know when those are happening. And not only will you know it’s happening, you can be a leader, and you get to participate and get feedback and your voice will be heard.”

**Using Surrogates**

In addition to working with formal campus crisis teams, some preparedness managers spoke about the benefits of delegating surrogates to promote emergency preparedness throughout campus. Ryan was the strongest proponent of this method, viewing it as a solution to the challenges of having limited FTE within his office. He described his approach as:

I have to do a different approach than “direct from me:” direct through my surrogates. I have points of contact in each of the major units. The number changes as new units merge, let’s just call it 130, I can communicate to, and they can spread the word. Or they can not spread the word. But at least they got the word. So, I’ve got those contacts doing it on a voluntary part time, 0.005 FTE as part of their job.
Other participants, like Diana, spoke about working through partners in faculty and academic leadership. She attends faculty all-staff and delivers presentations and safety briefings. This not only provides the faculty with important safety information, but also models how they can serve as surrogates by passing on this information in the areas they oversee.

While participants primarily spoke about working with professional staff, students can also be utilized as representative surrogates. Megan spoke about her desire to work more intentionally with resident assistants in housing. But establishing surrogates within the student residential population, Megan hopes to have greater reach than her staff could hope to have working with their limited professional FTE.

**CERTs**

Distinct from campus-wide emergency teams with appointed representatives, CERTS are more open and inclusive of the campus community, including students. CERTS, or Community Emergency Response Teams, use a FEMA curriculum to train members to prepare for and respond to large-scale emergencies. Training to become a member of a CERT occurs across several sessions, and includes training in first aid, search and rescue, and ICS terminology.

In the examples offered by participants, CERTs took two forms: campus CERTS and partnerships with county CERTs. Representing the former, Steven shared some of the goals he hoped to accomplish with his campus CERT, which was being relaunched after a years-long hiatus. Specifically, he wants to ensure that the graduates of CERT training go on to meet regularly and ingrain preparedness into the broader student culture. He felt
that in doing so, students would be more likely to participate in their local CERTs after graduation.

Other campuses, to conserve resources and prevent duplication of efforts, have chosen to partner with their local CERT. Kevin’s school is one of these. He spoke about the reasons for shifting from a campus CERT to a collaborative one. When working outside the county CERT, campus CERT members were often overlooked for large-scale emergency response. Networking directly with the county CERT, Kevin hopes, will result in student and staff CERT members being able to engage more actively in emergency response.

One participant expressed doubt on the efficacy of devoting limited resources to connecting students with CERT as a preparedness intervention. “Some campuses are using CERT,” they shared. “What you’re gonna’ get there are the people that are really interested in that. But often what we find is it’s self-selecting. So that’s not moving the dial on social/behavioral change.” Acknowledging the success some schools have had with the program, Chris suggested that even schools with large and engaged campus CERTs have predominantly had success with first-year students, and did not see strong participation from returning students.

**Great Oregon Shakeout**

Participation in the annual “Great Oregon Shakeout” was referenced by most study participants, though their level of engagement varied. “I would say on the low end, it’s just pressing the button with earthquake resources then adding lecture series that particular week,” Megan shared. Steven’s experience with the program is similar: “Right
now it’s just like, everybody’s phone buzzes and they go, ‘Oh, good, [our campus alerts] work.’ And then we call it a day.” Despite these less than robust experiences, several participants spoke about wanting to do more with the program. One school, Megan’s, had engaged more intentionally in years prior:

There was one year where for Great Shakeout we did a whole bunch of stuff. We did lunchtime sessions with our Earth Sciences faculty who study earthquakes, we did a preparedness session, we did an emergency food cook off. People could sign up in teams of three, and we gave them a bag that had non-perishable foods, and they had to make a meal and a dessert out of the stuff that they were given. We had little camp stoves and stuff like that.

When asked about why that program was discontinued, Megan explained: “How many people are like, ‘Oh, that’s cool, I’m gonna’ come to it?’” she recalled. “We had to really hunt to get teams to participate. If it's solely driven by us, it's not going to be super effective.”

**Go Bags**

Go bags or go kits are a means to collect and store the supplies necessary to withstand a major emergency or disaster. They typically contain medicine, first aid, extra clothes, flashlights, and food and water for 72 hours. While the use of go bags was recommended on some participating campuses’ emergency preparedness websites and interviews between several participants and their campus media, none of the schools interviewed had a formal program by which these materials were disseminated to students. That does not mean schools are disinterested in the idea. In fact, it’s on Megan’s
shortlist to collaborate with campus housing to have the cost of pre-assembled go-bags built into student housing fees.

Other interviewees were skeptical that providing students with the supplies would result in changes to preparedness behavior. Chris in particular was unsure about the idea. He worried that by giving a student a go-bag they had no role in assembling, students would feel less “bought in” to the idea. As well, they would lack the requisite knowledge for how to maintain the go kit and update it with new materials as old materials expire.

Alternately, some interviewees have opted to promote assembling go kits to their students, encouraging them to take this responsibility on themselves to improve their preparedness outcomes. Jessica references “putting together an emergency kit of supplies” in her open letter to the campus community, which is featured on the front page of her office’s website. But in her interview, even she showed skepticism that students had the will or resources to do so.

**Unique Interventions**

While the previous eleven interventions came up more frequently in both the interviews as well as in the review of literature, two other categories of interventions are worth mentioning for their unique approach to the work of improving student preparedness and their potential for success in a challenging engagement landscape. These were: hiring student workers and engaging in academic partnerships.

**Hiring Student Employees**

One interviewee, Diana, shared some of the more unique and creative approaches to student preparedness during our interview. She also seemed to have made the greatest
strides in engaging students in preparedness work, despite professing the same capacity challenges as similar “offices of one” interviewed. When asked about the secret to her success, Diana’s response was simple: she credits it to having hired student employees to work for her office.

Diana shared that this initiative could yield numerous benefits for a preparedness manager working with limited staffing. For one, it has been inexpensive to implement, as all of Diana’s student workers are work-study, and their training and onboarding has largely been conducted through free FEMA and OSHA modules. Additionally, Diana felt that campus leadership was more likely to invest in interventions promoted by students themselves, and that these students would be more effective preparedness ambassadors when speaking to their peers. But more than cost-savings and effective messaging, having direct student involvement in her work has helped Diana answer a question that plagued several of the study’s participants: “What are the needs of students?” With her student workers, Diana has a direct line:

The student workers, they’re the voice of the students and what the students want, instead of me presuming what is needed based on very traditional Emergency Management norms. The student workers bring a whole other voice. We’ve also folded accessibility into our preparedness work. So that’s a big piece of it, because [my students have] helped teach me.

In addition to assisting with building inspections and contributing feedback to the design of the emergency procedures posters referenced earlier, Diana’s student workers have also come up with preparedness interventions of their own, such as the student “Party
Pack,” a twist on the conventional go-bag that includes items like ponchos, hydration packs, and other items students need to stay safe while socializing or attending peer gatherings.

Diana’s program extended beyond direct hires. She shared that she had also recruited volunteers through her student workers’ and her campus presentations. “Because of student presentations I now have three Public Health practicum students doing projects under my guidance,” she shared. “They are now active participants in the planning process.” While Diana’s program is unique, other interviewees expressed interest in similar programs to help empower students to be part of campus preparedness work. Linking the idea with existing models in the field of wellness and sexual health, Chris suggested that by using student workers as peer mentors around preparedness and resilience, the message about preparedness would be more readily received by their peers.

**Academic Partnerships**

While Diana has focused her efforts on recruiting students to the work, other interviewees see possibilities in leveraging faculty involvement. “Who sees the students the most?” Ryan asked. “It's the faculty and the unit they're in.”

Faculty involvement could take different forms across different campuses. In Jessica’s case, her work is predominantly with her college’s emergency management graduate program. “I think it's a really innovative emergency management program,” she shared, referring to its interdisciplinary curriculum. “There are a lot of emergency managers who are too focused, in my opinion. So, by being able to collaborate with different groups, you can better accomplish your goals.” Jessica has worked directly with
faculty in the program to develop projects and assignments aimed at fostering solutions to preparedness and response challenges, led by students.

Something that I’ve asked the students to do as part of a project with the professor is to identify a couple of low-barrier, low-cost actions that class they can take, test it out, and they’re gonna’ reflect on it and do a group project. Instead of just saying, “What are people's barriers to preparedness, or what should students do to prepare themselves,” that’s where we came up with, “Well, why don’t you just test it on yourself? Come up with something, test on yourself and see what works.” So that I think might be promising in the future for us.

Jessica has found faculty members to be willing partners in this initiative, in part due to the challenges faculty are facing with course design in an AI-powered era. “The reason I’m engaging with the classes is because particularly with Chat GPT, professors are looking for experiential learning opportunities,” she shared. “And this is an example of one of those.”

While Jessica’s approach has been to generate new programs to engage students through faculty, others are working to involve faculty in existing projects like CERT. In describing his plans for the campus CERT reboot at his institution, Steven envisioned “trying to find a way to get the class credited, even just an elective. You get a couple elective credits that help flesh out your degree, and we get more participants because you actually get class credit for it.” Steven has several partners in mind for this kind of collaboration, including his campus’s nursing, engineering, and health innovations programs. Minimally, interviewees have suggested working with faculty to include
preparedness information in their syllabus, or to discuss some of the pressing safety concerns at the start of their classes. Even with smalls asks such as this, Megan has encountered pushback:

We have some sample emergency language that faculty can put into their syllabus. Several years ago, there was a committee on syllabi, and I went to them and I was like, “Hey, can you require that this gets included,” and they were like, “No, because then more people will call in bomb threats to cancel class.” And I was like, “What?” (Laughs) So there’s been tremendous resistance in a lot of places across campus to preparedness in general.

Despite those experiences, Megan remains hopeful that attitudes may change, and that in the future faculty will be more engaged in helping prepare students for large-scale emergencies. She has observed that more recent faculty hires have shown greater interest in campus preparedness, with some coming from campuses where they had witnessed first-hand the consequences of underpreparedness. In time, Megan hopes this gradual influx could result in a turning of the tide insofar as the wider campus safety culture.

**Conclusions**

It is clear from the data presented that preparedness is on the minds of the professionals responsible for campus emergency response. Even if the most common interventions fall short in meeting preparedness needs in some ways, the sheer number and scope of preparedness interventions indicate a willingness to engage students on these topics. Despite this willingness, all study participants indicated that despite their efforts, student preparedness remains dangerously low on their campuses. What then is
the cause of the discrepancy between effort and effect? In the following chapter, I will share data from the study pertaining to the challenges faced by preparedness managers as they work to implement these preparedness initiatives and interventions, as well as some of the best practices that have helped managers succeed despite these challenges.
CHAPTER 5: RESULTS (CHALLENGES AND BEST PRACTICES)

In addition to questions regarding their preparedness interventions, survey respondents and interviewees were asked to discuss challenges they faced in implementing these programs. Unanimously, study participants shared that their efforts to help improve student and campus preparedness at their college or university had proven difficult, and many expressed concerns about how these challenges had increased their campus’s risks from disasters. However, despite these obstacles and concerns that challenges would persist, there was a sense of optimism given the successes study participants had achieved around student preparedness, as well as potential success as they looked ahead to interventions in development. In the following chapter, I will share the challenges participants said they face as preparedness managers in Oregon related to their efforts to improve campus preparedness, as well as some of the best practices that have helped them rise to meet these challenges.

Obstacles Faced by Preparedness Managers

I will begin by sharing the major obstacles that were addressed in discussions with preparedness managers, and some of the specific challenges these obstacles created for promoting safe and prepared campuses. While there were significant differences from institution to institution, and nuances as it related to the difficulties faced by study participants, the following sections outline the prevailing themes present across participant responses. The three primary themes were “Lack of Campus Buy-In,” “Budget,” and “Capacity.” The COVID-19 pandemic was also brought up repeatedly in interviews by almost all participants. While the pandemic and its aftermath were not
always framed as a challenge (and in fact, several participants saw benefits to their field from the experience of a shared international crisis), given that the majority of responses pertaining to COVID were framed as a net-negative insofar as preparedness work, it is presented here as a fourth challenge.

**Lack of Campus Buy-In**

Regarding emergency preparedness, buy-in from campus community members was the most frequently referenced problem in survey and interview responses. Participants did not feel their campuses and particularly their students cared enough about emergency preparedness to take steps to improve their disaster readiness. The reasons participants offered for this indifference varied, but most viewed it as resulting from a lack of personal stake and salience, confusion about responsibility of the individual versus the responsibility of the institution, and student and employee turnover. Participants also discussed challenges caused by poor campus buy-in and the potential ways these problems could be mitigated, particularly through the support and engagement of university leadership.

**Stake and Salience**

According to participant responses, the primary reason college campuses in Oregon have such poor buy-in related to emergency preparedness might be described by the literature as a lack of stake and salience. In other words, the risk from disasters does not feel real for students, relative to other more immediate concerns. As Jessica put it, “I’m just assuming they don’t care. And I’m assuming that they don’t have the capacity or the knowledge. Because they have a lot of other stuff to deal with.” A low sense of
personal stake and salience pertaining to large-scale emergencies is not unique to students. Researchers in emergency management and decision-making science have noted this in research dating well into the last century. As Chris summarized:

I think we’re also up against a hurdle, and the decision sciences folks have already pegged this: people discount risk. People don’t like to think about harm. They don’t want to think about, “I could be injured in an earthquake, I could be injured in an ice storm or wildfire.” So, it’s very easy for the population to discount [risk].

That said, youth may be quicker to dismiss disasters, Chris thinks, because they are more prone to risk-taking, or thinking that they are “immortal.” Ryan suggested student disinterest could stem from a lack of historical context: he believes that because the typical college student has lived for a little over two decades, many view disasters as something purely academic:

As we grow older, we start to realize longer-term thinking and start to understand history, because we’ve been part of history. When we’re younger, we don’t get that. It’s just theoretical, it’s in a book. It hasn’t happened to me yet; therefore, I don’t grasp it.

According to some participants, the ability to “tune-out” disaster preparedness is heightened when those disasters are low-frequency, high-impact. As Jessica shared, offering the CSZ earthquake as an example, “If there is not an emergency in front of us, and we don’t experience one on a day-to-day basis, not everyone across that whole organization cares.” Several participants agreed, noting that especially given the absence
of smaller, more frequent quakes in Oregon, it’s difficult for students to conceptualize how they could be impacted by a 300 to 600-year seismic event. Diana contrasted earthquake risks with threats like those posed by active harmers, which she and other participants agreed evoked a greater sense of personal stake and salience for students.

Still, even given the comparative frequency of disasters like active threat incidents, participants believed preparedness for disasters fails to capture the attention of students when competing against their day-to-day challenges. One participant spoke about the overwhelming social, academic, and financial responsibilities preventing students from thinking ahead to a possible disaster:

> With all the competing interest out there of, “I’ve got to get to class, I’ve got to study, I’ve got this test, how am I getting home from vacation. I’m having trouble here, I’m tired of getting all these texts from everything else. Somebody’s blowing up at me on social media.” All of these competing interests for the here and now is why I say they’re unwilling or not voluntarily looking to the future and preparing.

Competing interests can be more mundane. One participant spoke about hosting an active harmer training that attracted zero attendees. The participant speculated that the reason for the poor attendance was that the training coincided with a large campus event and the weather outside being “78 degrees and sunny.”

> Unfortunately, several participants argued, the only certain way of increasing stake and salience relative to disaster preparedness would be for students to experience a disaster themselves. While some research indicates that experiencing a large-scale
disaster can inspire future preparedness behaviors, most participants agreed that ideally there were ways to capture student attention without exposing them to direct experiences and potential for harm.

Confusion Over Responsibility

Another reason for a lack of buy-in and participation in student preparedness interventions is confusion over whose responsibility preparedness is. In times of crisis, students look to staff, faculty, and other university leadership to guide them through the emergency. Ryan has observed this phenomenon within his own campus population:

We sort of operate from this idea of, “Okay, campus safety is going to do this, or facilities is going to do this.” And really, at the most basic level, the folks who have the least idea of what is expected of them are the folks who don’t have that official role. The students, the instructor in the classroom. [They] are like, “Oh, nobody’s told me what to do, because I’m not part of the team that’s responding.”

This confusion over roles can happen on the individual level, as Ryan described, or on a group and departmental level, as Megan indicated occurs with emergency plans and posters. Rather than tailoring these documents to their unique organizational needs, department heads may assume the plans can exist “as is.” Megan worries that in doing so, departments set themselves up for additional risks by not tying the information to a site-specific context.

In addition to the buy-in challenges created by confusion over responsibility for preparedness, several participants expressed concerns over the liability role confusion could create for universities and colleges. Megan and Jessica both speculated about the
potential legal complaints that could be made against an institution of higher education if that institution failed to protect its communities in the event of a disaster, even if the assumption of protection was a flawed premise. Finally, participants shared that confusion over responsibility can create challenges insofar as building partnerships and coalition around preparedness—community members may not see themselves as having a role in supporting these initiatives or see reasons to contribute their expertise. Such challenges can be exacerbated by frequent student and employee turnover.

**Turnover**

Turnover can exacerbate buy-in challenges by creating renewed need for building buy-in annually as staff and students circulate into and out of the college or university. Diana shared the deleterious effect changes in staffing can have on preparedness efforts:

> Every academic year, we have a rotation of students, and we have a rotation of faculty. So, it’s almost like we’re starting back over. Even though we have students that are here for all four years, there’s this whole new influx of students and we start back over. So, it’s hard to get and sustain the momentum.

In particular, turnover can decrease campus buy-in related to emergency preparedness through the loss of champions and the stalling of programs and initiatives.

**Loss of Champions.** Several participants shared the importance of having staff or student champions embedded in the campus community to promote preparedness work. Champions can help preparedness managers by spreading the word about programs and initiatives, increasing buy-in given the existing trust and rapport they have with stakeholder groups, and accessing spaces otherwise unavailable to the preparedness
manager. The loss of these champions, therefore, can be devastating. Steven spoke about the departure of a faculty member who had been a key voice in the discussions to make CERT participation eligible for academic credit. While the faculty member did not leave the institution, the employee who managed CERT did, and the consequential dissolution of the campus CERT program led to frustration and disillusionment on the part of the former champion. Now, even as Steven tries to reboot the campus CERT initiative, he worries that rebuilding that trust with that faculty member will be more difficult.

Participants also spoke about the importance of having high-level champions within the administration, and how turnover of VPs and presidents can be particularly damaging to preparedness work even as new leadership transitions in. As Diana shared: “My VP left, and so I have an interim VP. So, a lot of the initiatives that I was moving forward with, I had to reset. And my interim VP is on board, but he’s interim, he can only make so many decisions. So, I feel like I’m stalled out there.”

Sometimes, the lost champion is the preparedness manager themself. As shared in Chapter 3, five of the seven preparedness managers participating in the study had been in their roles for three years or less, and two had only started that fall. While all came to the work with extensive experience and backgrounds in emergency management, their relative newness to the campus created challenges insofar as knowing their network, stakeholder mapping, building trust and coalition with campus partners, and understanding their student populations. Three of the participants who came from roles outside of higher education spoke about the “culture shock” of transitioning from working in government or public safety sectors to working with students and faculty.
Even those who worked previously within higher education experienced road bumps acclimating to new schools and systems. Steven shared an anecdote: Because of a difference in the UI between his previous institution’s campus alert system and his current institution’s, a campus alert regarding a gas leak went out to the campus lacking important context:

It turned out that in the new software that we’re using, there was a default setting that used what is called “the subject line” as the one thing that got sent out as a text message and as a phone call. And it did not dispense the body of the message except by email. So, we hit send, and all we put in subject was the subject: gas leak. Everybody got a text that just said, “Gas leak!” And got a phone call that just said, “Gas leak!” and then hung up (Laughs). So that was the snafu.

While there were minimal consequences from this error, the incident demonstrated that even small adjustments to life at a new university can impact preparedness work for officials onboarding into their role.

Stalled Progress or Overlooked Preparedness Elements. Turnover can also lead to vital elements of a campus’ preparedness program being delayed or overlooked. In some cases, these delays and oversights were directly related to turnover in the emergency management office, insofar as hosting annual drills or maintaining emergency management plans on a five-year cycle. Other programs sunsetted because of turnover within the wider campus body. Speaking about a required biannual report pertaining to Title III alcohol and drug prevention requirements, Kevin shared:
When I came to the campus, the report hadn’t been done for like, two and a half years. It had fallen off the radar. And what I learned the longer I was at [my institution], a lot of these programs or support systems (things that were requirements), lived in a certain position. And [when] we cut the FTE, the position went away, the knowledge of that even having to be done went away, and so you ended up with all these holes.

In addition to some of these critical compliance-related initiatives, participants agreed preparedness interventions were often neglected due to turnover.

**Challenges Created and Hopeful Solutions**

Overall, participants shared that the biggest challenge created by a lack of campus buy-in was diminished support for preparedness interventions. As an example, several participants shared that campus-wide drills, which may require faculty to adapt their lesson plans, were often unpopular and hard to rally support for (beyond strict compliance). Lack of buy-in and campus participation can also make it harder for preparedness managers to communicate across knowledge gaps, particularly with faculty. Diana has faced such resistance at her campus. She spoke about the perception on the part of faculty and administrators that students might be too disturbed or “triggered” by participating in preparedness interventions like active-threat training.

Insofar as solutions to these challenges, participants were hopeful that increased engagement from campus leaders could result in improved buy-in throughout their campus communities. “I think we’re now in a place where the senior leadership of the institution much more acknowledges that, ‘Hey, this is a reality that we have to contend
Steven shared regarding his own campus leadership transitions. “And we actually look better if we're acknowledging those risks, and telling people what we think they should be doing.” Several other participants agreed, though in speaking of the need for support, there was consensus that support in the form of words or promotion was insufficient--second only to buy-in, the kind of support participants most desired was financial.

**Budget**

Even participants coming from larger, more well-funded emergency management offices spoke about encountering budget challenges in their efforts to promote student preparedness initiatives on their campuses. In discussing budget challenges, participants shared that they had to navigate limited sources of funding and competition for resources, often leading to preparedness being deprioritized. This has created numerous challenges for preparedness managers, and in the minds of some participants has created increased liability risks for their colleges and universities.

**Sources of Funding**

Funding for emergency preparedness or even broader emergency management programs can be limited, according to participants. In some cases, such as Diana’s, participants did not even have a designated program budget for preparedness:

I actually don’t have a budget at all. I'm rolled into the VP of Finance and Admin budget. Sort of an “ask and hope you shall receive” type situation. Which has been okay, but I can’t go purchase training materials, I can’t just go and hire a consultant to come do some of this training.
Nor can all emergency management functions be supplemented by state or federal funding. In the latter case, while FEMA and other government organizations will fund physical mitigation, such as seismic retrofits for older buildings, these grants do not cover many of the kinds of preparedness interventions discussed in Chapter 4. Even when money can be awarded through federal grant programs, it often requires extensive application materials and back-end reports that many “offices of one” simply can’t dedicate time resources towards. In terms of state funding, preparedness managers face the same challenges as any other university office coping with less and less funding due to divestment. “The state’s not giving us any more money to really get a hold of things and do lots of work, or be proactive to things,” Kevin lamented. Due to this difficult financial climate, preparedness managers have faced increased competition for financial resources and attention on campus.

**Competition for Attention/Resources**

The preparedness managers interviewed faced pushback from university leadership when vying for funding and prioritization of their programs. Most of the participants credited resistance to enrollment challenges impacting the university’s broader budget, particularly post-COVID. In particular, participants pointed to the desire of university leadership to prioritize funding more immediate, day-to-day expenses, or expenses that were put off during the pandemic. Some, like Megan, also referred to the afore-mentioned difficulty of building support around low-frequency, high-impact incidents:
We have lots of risks that we’re balancing. Not just natural hazards, but all sorts of stuff with limited resources. And so, how much money do you invest in something that might not happen in the tenure of a CFO or president? Same thing happens with cities and counties. Elected officials have a four-year window. And so, I think that’s often the reason why earthquake stuff doesn’t get funded. Because it’s easy to say, “It might not happen in this timeframe.”

Other times, when financial support is given, that support reflects a need perceived by university leadership, not necessarily the needs indicated by the preparedness manager. Diana shared that once she had been pursuing a research grant pertaining to active threats, however, she was asked to pivot from this work when another research grant was approved, this one requiring an animal welfare plan. For Diana, this request was particularly frustrating given that she had once before tried having the animal welfare plan prioritized. “Yeah, I actually tried to push that a year ago,” she recalled thinking to herself. “Let me pull that draft back up and let’s finish it.” This emphasizing of what Diana calls “the fire of the day” allows other initiatives to be deprioritized until such time as they draw the immediate attention of university leaders.

**Challenges Created**

Budget shortcomings have created numerous challenges for preparedness managers. For one, they can exacerbate existing issues related to buy-in. For reasons outlined elsewhere in this chapter, building buy-in around preparedness is already a difficult task. When combined with budget limitations on the micro and macro-level, the task can become almost impossible. As Steven shared:
[Budget] contributes to that inertia of like, “Hey, man, you barely pay me enough or don’t pay me enough for what I’m doing. So, I’m clocking in and clocking out, don’t ask me to be here after hours or anything like that.” So, it’s a tough sell to get employees to participate in emergency response programming.

Kevin specifically pointed to the difficulty of compelling new faculty at his college to participate in required OSHA training. Since OSHA training requires seven to eight hours to complete, and part-time faculty are only paid for their classroom time, there is next to no motivation for faculty to complete the training, despite it being federally required.

One participant felt that reduced budgets led to “bare minimum operations” that did not adequately prepare college communities for disasters. Kevin worried about the potential for liability this creates. “When you don’t do best practices, and something bad happens, the excuse that you didn’t have the budget doesn’t keep you from getting sued, and losing more money, because you weren’t doing the best practices,” he suggested, offering that with a “little forward thinking,” colleges and universities could stave off far greater expenses down the line. This suggestion aligns with data cited by Chris pertaining to the return on investment for mitigation practices, which FEMA puts at $6 for every $1 invested. However, despite that business case, preparedness managers interviewed say they continue to compete with decreased enrollment, state divestment, and a push by governing boards and students alike to keep tuition low.

“Budget—for what?”

Though the preparedness managers interviewed unanimously agreed their preparedness programs would benefit from increased funding, Chris, the consultant
expert interviewed for this study, was skeptical that money alone was the answer. “What we hear over and over is ‘We're not funded well,’” Chris shared. “For what? If we don’t know what the objective is, how do we know if we have enough funding for it?” This question, “for what,” is one Chris views as essential to answer if campuses are going to overcome challenges of stake and salience, particularly in the case of university leadership. He went on:

If the leaders aren’t committed, meaning this isn’t salient to them and they don't view it as important, you can bark all you want, you’re likely not going to get anywhere. They’re not going to readily shut you down, but you have to make it germane to what they’re trying to achieve.

In particular, Chris spoke about a need for preparedness managers to make a strong business argument to university leadership, demonstrating how investment in preparedness will contribute to the broader strategic goals of a university. Some interviewees shared similar insights, discussing the ways they planned to present their case in future budget cycles given the increased risk of disruption to campus operations posed by large-scale disasters.

Others, like Kevin, spoke about being less equipped for long-term planning and goal setting given staffing limitations. For him, the “for what” question is an easy one to answer. He pointed to technology that he considered “force multipliers,” like security cameras that can recognize a trespassed student when they step onto campus, or automatic locks that would free up cumulative hours of FTE currently spent on key-ins (“My officers do 70 to 80,000 physical key unlocks every year”). Indeed, concerns
pertaining to staffing and capacity were mentioned with nearly the same ubiquity as concerns about buy-in and budget, as will be discussed in the following section.

Capacity

Participants discussed capacity in their own offices and the offices they frequently partner with. As with buy-in and budget, limits to capacity can create challenges for preparedness managers insofar as expanding their preparedness efforts, which participants enumerated in their interviews. Participants also shared how the addition of FTE to their program could help them meet these capacity challenges and expand their programs, particularly insofar as bringing training to more students.

Internal Capacity Challenges

Over half of interviewees shared that while their campus network included numerous outside partners who engage in emergency preparedness work alongside them, their own offices were “offices of one.” “I’m a section over there, myself, and only myself, one-person emergency management,” Jessica shared, tracing the lines of her institution’s organizational chart. While other interviewees shared that they had comparatively higher staff resources, few had offices that exceeded 2-3 individuals explicitly tasked with preparedness responsibilities.

As well, most participants spoke about the phenomenon of “wearing multiple hats,” meaning preparedness was just one part of their wider portfolio. While many working in higher education would say they have a wide range of “other duties as assigned,” for some interviewees the scope of their role left very little time for preparedness interventions. Dennis, in particular, estimated that preparedness accounted
for 10% of his overall work. Even within the range of responsibilities pertaining strictly
to emergency management, some interviewees expressed feeling over-encumbered.
Kevin noted that elements of emergency management are often conflated and brought
beneath the umbrella of the emergency manager, at the cost of necessary attention being
paid to those individual facets:

There’s not an understanding between emergency management, public safety and
risk management and that they are not--I mean, they are related topics, but there is
so much expertise in each one of those silos, that if you take any one of those
three people who have expertise in one of those three silos and they’re not going
to be an expert in the other ones. They’re gonna’ have to learn on the job or learn
on the fly. And you’re going to miss big things when you don’t have the expert
history that’s behind those roles.

For Kevin that is more than just an academic assessment—he spoke about the challenges
of personally needing to learn the ins and outs of university insurance when that duty was
brought into his portfolio.

External Capacity Challenges

Capacity concerns extended beyond the immediate areas the interviewees
oversaw. Kevin shared that at his community college, IT is so overworked and
understaffed from cuts to budget that he has stopped sending them work orders in many
cases. Instead, if there is an issue with an alarm or door access, he works with a vendor
he has contracted with outside the college. While this has resulted in additional costs for
Kevin’s department, the alternative (waiting up to three weeks for in-house staff
members to respond to the issue) is not a possibility when it comes to immediate safety concerns. In addition to the costs, managing contracts with outside vendors eats into Kevin’s already limited FTE. He shared, “As you take on more duties and responsibilities in different areas, you have less time to do your own job that you started out with.”

Interviewees did not see capacity as a problem unique to their offices. Many recognized that other campus departments are similarly strained, and noted the way that capacity campus-wide can contribute to the same buy-in issues discussed earlier. Kevin spoke about the deprioritization of preparedness training given the full plates of professional staff, while Jessica pointed to limited FTE as a potential reason for the small number of department-specific emergency plans turned into her office. Put another way, she asked: “When you don’t care about something, are you going to divert your limited capacity towards that?”

**Challenges Created**

In addition to the increased challenges of building buy-in given the limited FTE dedicated to emergency preparedness, participants shared other difficulties created by a lack of capacity. For smaller schools in particular, diminished capacity can lead to an absence of redundancies, meaning when one staff member departs the institution or is even out sick for the day, it can create a domino effect of consequences. For Kevin, those consequences have to do with preparedness training:

I say minimum staffing: I have minimum staffing in that, if somebody calls in sick, I have to call somebody and bring them in to replace them. There’s not any gap of two people on a shift, it’s one person a shift, and if one person’s gone, and
we have to bring somebody else in. So, if I want to teach a class in first aid/CPR, I’m paying overtime for somebody to come in and teach a class.

Kevin’s example is indicative of a broader concern expressed by participants pertaining to program growth. While most participants spoke about the ways they would like to see their preparedness program evolve, most felt that under the current conditions they could only maintain. Some expressed concerns that given capacity challenges, even maintaining program compliance could be difficult (in terms of hosting annual trainings, producing required reports, or updating emergency plans). One survey participant went as far as to refer to higher ed emergency programs as “mere shells without substance” given the lack of personnel and financial investment to grow them beyond their current state. In the absence of capacity to grow programs, Kevin suggests programs may linger in the realm of compliance and “checklist” programs.” Or as he put it, preparedness managers could become “website sheriffs:”

[There was] a sheriff and [people] called them “The Website Sheriff.” Because the substance of the program didn’t mean anything. It was just [about] if you could put it on a webpage and say, “Well, we have a traffic team.” Well, our traffic team was one person. “Oh, we have a domestic violence team.” Well, that was one person. So, you advertise something, or you check the box. And that’s what I see a lot of in community college land: we like to tick the boxes on a lot of things, and say we’ve met this standard and met that standard. But the work is always to meet the standard. It’s not to grow the program, or that the information
is being distributed, [or that] we know it’s being received by the students, or we know that there’s value in it.

Some participants were hopeful about the potential for future relief of their capacity concerns. Ryan believed that by 2026 his office would add at least one more full-time staff member, while Diana hoped to grow her student employment program. Both interviewees hoped to delegate training and student engagement to these staff members. Jessica planned to continue working with the emergency management graduate program on her campus to continually generate new low-cost, low-barrier preparedness interventions, and Megan has considered hiring a post-baccalaureate student who could be assigned to continuity of operations planning. For Steven, capacity relief may come in the form of student engagement in campus CERT, and for Dennis, through the voluntary support of the campus safety committee and student government. However, for the moment, all seven institutions continue to wrestle with the three-fold problem of buy-in, budget, and capacity.

**COVID**

A final challenge is one that affected not only every interviewee, but every one of their campus community members. The historic and global COVID-19 pandemic, that has only just begun its slow fade into history, impacted emergency preparedness and response efforts at the participating institutions. While some interviewees spoke about the potential positive impacts for their programs, the majority of responses about COVID related to the ways it has left preparedness managers with lasting challenges.
In terms of positive effects, interviewees spoke about the ways in which COVID helped evolve systems for campuses to work remotely and mobilize in a crisis. As Kevin put it:

Ironically, COVID has given us the best infrastructure and support for natural hazard mitigation for our teams, because we figured out how to teach classes online, we figured out how to use Zoom and do some of those things. And while it’s not always the best environment for everybody in that realm, it gives us that temporary solution if we have to go [remote] two weeks, because there’s flooding in our campuses, we can still carry out our mission temporarily.

However, others questioned whether the progress made in crisis adaptability was a true result of the pandemic, or if the pandemic just expedited technology that was already beginning to emerge, like remote learning and communication. As well, some interviewees suggested these remote alternatives, while vital during a protracted disaster like the two-year COVID-19 pandemic, are not as useful or responsive to sudden, acute crises. In these instances, faculty and staff may not be able to switch modalities quickly enough to meet the needs of the moment. The result could be disruptions to service and learning loss, even if ultimately the college or university is able to pivot. Jessica noted the limitations to transferability of these technology improvements and lessons learned:

“How we responded to COVID and what we did doesn’t necessarily mean it’s the way that we would respond to another incident.”

More broadly, some participants hoped that COVID had drawn attention to the importance of a robust emergency preparedness and response program, and taught
campuses to be able to pivot under unexpected and dire circumstances to remain resilient through crisis. Others were less optimistic, pointing to continuing budget shortfalls and “languishing” preparedness programs as evidence that emergency response had not become a priority for campus leadership or the broader campus community post-COVID. Ryan worried that may be particularly true for students:

I don’t think all students realize that we’ve just come through a major emergency in COVID. And so, it’s sort of like this thing that happened, and thank God it’s over, but nobody’s going, “Okay, but what should I be doing to make sure I’m ready for the next time?” Or, “What are the things that I learned from that that I can transpose into how I prepare for some future event?”

Part of the issue may be what Chris referred to in his interview as COVID fatigue. Having lived through a three-year global emergency, he felt, students and campus community members may be less willing to engage on the topic of emergency preparedness given the significant time spent personally responding to the COVID emergency. Chris pointed to historical precedence for this phenomenon:

This isn’t unique for COVID. If you look at the Spanish flu, and you look at historical context of the Spanish flu and influenza in the early 1900s, not a lot of research or documentation post coming out of that. And I always found that fascinating, but now that we’ve lived it, I think I understand why. People just wanted to be out. They just wanted to move on.

Perhaps most significantly, Chris worried about the impact on trust brought about by COVID. Before the pandemic, Chris shared, trust in institutional guidance around
emergency management was already low. Chris pointed to resistance to messaging about floodplains as an example. “As soon as you started talking math, people [would say], ‘Well, how can you assure me that the water would be here?’” he recalled. “‘How can you prove [it]?’ It’s prove a null. ‘Well, we have a model.’ ‘Well, I don’t believe that model.’” But after COVID, that trust in institutional guidance and institutions generally seems to have cratered. Chris worried about the effect this could have on emergency preparedness efforts moving forward:

I think COVID has set us back. To take the positive out of that negative, I think what it did is it daylighted that you can’t assume that everybody’s going to believe the facts. You can’t assume that you’ll put out information and people will act on it. My hope would be that we do not start to politicize things like plate tectonics or severe weather events. But we need to be ready that some people may question the facts.

COVID, capacity, budget, and buy-in all represent significant barriers to preparedness managers implementing successful emergency preparedness interventions on their campuses. However, despite these obstacles, many of the interviewees saw reasons to be optimistic about the future of emergency preparedness on their campuses. They pointed to past successes as well as future endeavors, in addition to established best practices, as a means of helping promote preparedness with their students.

**Best Practices**

In addition to inventorying their current and planned preparedness interventions and outlining the challenges they faced in implementing these programs, study
participants also shared ways they had found to maximize their success in improving student preparedness. Some of these were specific program ideas, but most were best practices for approaching the work. These best practices included strategies for increasing buy-in, strategic inclusion of students in preparedness work, low-cost, low-barrier initiatives, and curricular approaches to preparedness work.

**Strategies to Increase Buy-In**

As described earlier in this chapter, all study participants indicated that they have had to navigate challenges around building buy-in for preparedness on their campus. In discussing these challenges, some participants offered ways they had found to overcome buy-in challenges and increase stake and salience. These included tying interventions to current events or student “hot topics,” being strategic with how preparedness information is presented, and building in incentives.

**Tying Interventions to Current Events and Hot Topics**

Megan noted that when campus-wide emergency preparedness trainings were offered to staff and students, attendance was frequently poor except in the aftermath of a recent tragedy, particularly one heavily circulated in the media. This was true for a variety of incident types:

If I were to do an active shooter training, and just post it on our training website, I might get like 10 or 12 people. But after Michigan State, I did like seven in a three-week period, and we had 300 people come. So, we do try and be flexible, knowing that when something’s in the news, people are more interested. After the
Japanese earthquake, we did earthquake trainings, and we had a lot more people coming because they’re thinking about it at the time.

Megan noted, however, that this “salience spike” was most pronounced with parents or campus staff and faculty, and that she has observed students are less responsive to disasters in the news.

Diana has had more luck in leveraging the temporary spike in stake and salience caused by current events as an opportunity to engage students in preparedness. Sometimes this requires her to be adaptable, since the salient topic may not neatly align with a particular preparedness topic. “Like if we’re going to talk about domestic violence, we’re gonna talk about active threats, we can also talk about what that means if there’s a natural disaster,” Diana shared, speaking to the nimbleness with which she sometimes must approach program content. By being responsive in this way, Diana also believes it helps her to build trust with students and helps them to see her office and the information it provides as relevant and tailored to their needs.

Diana also noted the challenge of hitting hot topics at just the right time—if she delays, she noted, salience can slip away, and the content may become less appealing to students. Chris added that in addition to leveraging current events to build buy-in, preparedness managers could connect preparedness topics to subjects that are evergreen. Offering student enthusiasm for sustainability issues as an example, Chris suggested, “If they’re passionate about climate change, we make this connection that they’re living in it right now. And preparedness is an adaptation to what is now the reality.”
Presenting Content Thoughtfully

Participants agreed that whether talking about current events or future events, practitioners should be thoughtful as to how they deliver preparedness content when it comes to building buy-in. Too academic, interviewees shared, and the content may fail to grab students’ attention. “Do I show videos that are traumatic, that are heart-wrenching?” Ryan mused, speaking on past trainings with students. “So, I do that, try to get a little emotional capture so they’ll listen and pay attention. And then I break it down into doable chunks.” But too much “emotional capture,” some participants suggested, can lead to a different form of “buy-out:” fatalism. Chris notes that fatalism sometimes arises from religious beliefs (referring to disasters as an “act of God,” for example), but both he and Ryan agreed it can also arise from students being scared into paralysis by preparedness managers. Ryan reflected on observing this phenomenon with new preparedness managers who had not yet learned how to strike an appropriate balance when working with campus community members (including himself):

They’ll get in front of the new organization they got hired into or something, and they’ll do the scare tactic. The world is falling, and they’ll tell you all the problems that an earthquake is going to bring on. Even I did that [in the] beginning, and I’ve had people say, “The heck with this, I’m just gonna die anyway.” I’m like, “Oh, not the point I was trying to get across.”

Diana suggested fatalism can also result from students being so inundated by information that they consciously or unconsciously block out the possibility of disaster to avoid becoming overwhelmed.
In addition to avoiding delivery methods that could induce fatalism, some participants spoke about the importance of being trauma-informed in their delivery of preparedness information, knowing the content may be disturbing to some students. In the absence of trauma-informed approaches, Megan warns the consequences can include being shut out of student spaces. She recalled her leading a training for resident assistants:

We did go and do active threat one year, but there were a couple of people where that was a sensitive topic to them, and so we were never invited back. And to me, that’s problematic, because I understand that there are some people who are not interested. I think what you do is you say, “This portion of this training is not required. Here’s what we’re covering. If you think that that is going to be hard, please excuse yourself.”

Diana offers similar disclaimers for her student presentations, and even writes them into her video content. Videos are preceded by warnings like, “This particular video has no scenes of violence or presence of weapons or anything presented,” or, “This is just a reenactment, there’s no violence, no loud noises.” As well, she offers individualized pathways for students to engage with the content in ways that feel safer and more accessible to them (for example, availing herself for one-on-one versions of the presentation or program, having “safe spaces” for students to decompress outside the program space, or directing affected students to online, self-paced resources). Trauma-informed approaches also guide Diana in selecting which topics to cover with students:
I keep an eye on global events, national events, and try to make sure that if we have any student support needed when there’s large-scale disasters somewhere (earthquakes or fires or storms), I do some outreach and try to figure out, do we have people over there? When we had the big forest fires out, I asked, “Do we have staff and faculty, do we have students living out there? Do we need to step in? Do we need to find resources, support, temporary housing?”

Again, Diana hopes that such efforts make participants more receptive to the content in the moment while building trust for engaging in future interventions.

**Building in Incentives**

A final suggestion offered by participants for increasing buy-in is building incentives into preparedness interventions. “[Students] often need some sort of external motivation to participate in programs,” Steven shared. “Telling people, ‘Trust me, you’ll thank me later when things go really pear shaped’ doesn’t seem to work.” For Steven, incentives could look like the afore-mentioned effort to make campus CERT a program that offers academic credit. For Megan, building in incentives for program participation looks even simpler. When asked how she had built and maintained robust participation from student affairs in her campus’ IMT, Megan answered: food. While Megan felt certain there are other compelling reasons for IMT members to show up for trainings and meetings, she shared that offering them lunch demonstrated gratitude and value for the time participants were committing. Diana also spoke about using incentives to promote participation. In her case that included creating onboarding kits for her BERTs: “We
bribed them with really cool, fluorescent yellow vests, and they thought that was cool. And we’re gonna put emergency kits together for them.”

**Strategic Inclusion of Students in Preparedness Efforts**

While most participants agreed that their inclusion of students in emergency preparedness efforts was minimal, almost all shared a desire to more strategically include students as stakeholders in the future. This kind of student involvement could take different forms, but broadly fell into two categories. These were: going to the students “where they are” and rethinking approaches to inclusion and accessibility.

**“I Am Going to the Students Where They Are”**

A quote from one of the early survey responses “I am going to the students where they are” became a code in the analysis phase collectively referring to the strategy of engaging students where they are already likely to congregate. As Megan put it, “What we’ve learned is: they won’t come to us. So how do we go to them?” One way she has accessed students is through collaboration on large campus events, like the annual campus safety walk. This event invites staff and students to walk around campus after dark to identify places that need additional lighting or emergency blue phones. Megan shared how she engaged proactive students at this event as potential preparedness collaborators:

Typically [the walk] doesn’t have a great turnout. Like last year, I think we had 40 people, which was awesome. And this year, we had 100 people show up. A student organization (which does not really have a connection to safety or anything like that, it’s just a topic they’re interested in) got 50 people in the span
of 48 hours to come to this event. So, I talked to the student who led that effort, and I was like, “Hey, we want to do active shooter training. I will do it if you can get people into the room.”

Others, like Ryan, have considered holding programs like competitive evacuation drills in fraternity house. Diana sees accessing digital spaces as another means of “going to the students where they are.” She regularly publishes pieces in the weekly e-news, following her own advice of ensuring salience by tying the write-up to a contemporary topic (like safety tips for enjoying Pride Month in June). Sometimes accessing student spaces involves coordination with campus partners who can ensure a “captive audience,” like Housing or Orientation. Finally, several participants spoke about their work with student advocacy groups like their campus’ student government.

**Rethinking Approaches to Inclusion and Accessibility**

While almost all study participants agreed that it was important to be intentional about using an inclusive approach to student engagement, the approach to inclusion differed among participants. When asked about how their offices considered minoritized populations when designing preparedness interventions, several interviewees were able to list campus individuals or organizations that work with vulnerable populations but were less clear about how those offices were intentionally integrated into the work. Or, if they described ways inclusion or accessibility informed programming, it was limited to an individual (like the VP of Diversity Equity and Inclusion being asked to review the campus emergency plan), or physical accommodations for students (like increasing the
number of “Stryker chairs” in campus buildings for evacuating people with physical disabilities in the event of an emergency).

Kevin reflected on the ways in which these efforts might fall short: “[Email] has become the answer or the solution to everything. It’s like, ‘Oh, I emailed that group,’ or, ‘I emailed this group’ or ‘I emailed him, and I didn’t hear anything back, so there must not be any interest.’” Like many things, Kevin believed failing to meaningfully engage minoritized students in preparedness planning was less a matter of disinterest, and more-so a challenge of capacity:

I think where we struggle is, it’s not that we’ve ever discounted any group, but we’ve never had the bandwidth to say every time. We’re doing it sometimes, but to be able to have it be more institutionalized, I think we have a lot harder struggle, always asking those questions or always making sure that we're connecting with those groups.

To combat these challenges, Jessica recommended stakeholder mapping, and identifying champions already working within demographic groups. “When you look at socially vulnerable populations, you need to find who are the influential actors in each of those communities,” she offered, but clarified that this process went beyond finding a name or department. “Everyone thinks it’s XY and Z. But are they actually?” she asked. “Or are they just on paper the lead of a student organization? Do people trust that person? I think those are things to understand and to continually evaluate.”

For Diana, the answer to those questions can be found by being an active participant in stakeholder groups, rather than consulting with them on an “as needed”
basis. “I'm the chair of the Accessibility Task Force,” she shared, discussing the ways she has been able to tailor preparedness content to disabled students. “So that’s been very beneficial in tying my office together with those pieces of the puzzle.” By becoming an active member of the community she hoped to serve, Diana not only was able to gain insight into the community’s needs, but also build trust, which Kevin sees as a vital component of supporting marginalized groups in emergency management contexts:

You have to go to that community, you have to be there as a person and be present and talk about, “This is what I'm doing,” or, “This is the problem,” or, “This is the challenge.” You have to have that relationship to have that communication. So, if you don’t have the time or the energy, and you’re just shooting the emails out, “Hey, here’s this, here’s this,” [it increases] the impersonalness of it, the apprehension of those groups often not wanting to come to public safety, or not wanting to voice their opinions.

A final strategy offered by participants for improving inclusion and accessibility is going beyond the “usual” stakeholders when it comes to involving partners in emergency preparedness. Most interviewees referenced their collaborative work with public safety, risk management, housing, and others, but Diana has expanded her partnerships to include work with counseling services, student health services, and the campus cultural centers. She also counts student groups among her partners. The benefits to this approach, she feels, are numerous. In addition to opening channels for feedback to improve and expand on preparedness interventions, she felt it could help leverage critical support from leadership:
Here's my “aha” moment: once I get the students excited and the students on board, it’s hard for leadership to tell me no, because the students are their client. So let me get a student that says, “This is what we want,” and then I’ll take that to leadership. And then I can get people engaged. Because the students are the heart, the students are the revenue stream. And if the students want it, and I can get them to the table, then I can typically get leadership to say, “Okay.”

In addition to strategically integrating students into preparedness planning, some participants offered an additional method of gaining support for preparedness interventions: by making those interventions “low-cost and low-barrier.”

**Low-Cost, Low-Barrier Initiatives**

When discussing challenges pertaining to budget, participants alluded to the need for preparedness managers to make a strong business argument for investing in preparedness interventions given the numerous competing needs on campus. This business argument can be made more readily, some participants felt, if the interventions offered were low-cost to implement with low-barriers to entry. Such low-cost, low-barrier initiatives can be developed within existing programs and frameworks or can take the form of completely new programs.

In the case of the former, participants spoke about improving on programs they were already required to implement to make them more educational for students. As Steven put it, he is “trying to look at opportunities where we’ve already begun to invest time, and we can just increase that without trying to impose additional constraints on
folks or co-opt more of their calendar than we already do.” He shared his ideas for what such a program could look like:

We’ve talked about maybe carving out a time, prepping instructors to really work with the students on...15 minutes left in a class period, everybody gets a notification saying that we’re going to do an active shooter drill, but the drill is: everybody talk about, “How would you shelter in place where you are right now? What does that look like for you? What are the considerations? What are the things that you're thinking about?”

Kevin’s community college has an existing program of this kind, but he shared that the results have been less effective than desired:

I will go walk the campus and just look at the response and see what people are doing. And inevitably, I’ll walk by classrooms, and in the 10-minute window they’re supposed to be training and talking about the process, I still see the math professor teaching math and they’re not going over the map like they’re supposed to. When the alarm goes off, and they’re supposed to be evacuating, I’ll see people out in the students’ square in the middle, just sitting at tables, not doing anything. Not listening to the announcement telling them to do anything.

Other participants spoke about creating entirely new initiatives that similarly cost only time and cooperation of campus partners. Megan is hoped to leverage relationships with faculty to have them utilize classroom time in the first week of class to talk about preparedness information like evacuation routes. Several participants considered adding syllabus information about emergency exits and other details to helps students consider
preparedness needs in individual classes. Steven believed he could lower costs for his campus’s CERT by partnering with trainers from his city’s CERT in exchange for providing free training spaces on campus, while Ryan shared that he worked with his school’s student union to include campus alerts on public screens. Overall, even if the concept was not tied to a specific program or interventions, participants seemed to be in consensus that the programs most likely to succeed on their campuses were those with the smallest price tags.

**Using Behavioral Change Models to Set Benchmarks and Guide Work**

A final strategy for success in promoting preparedness interventions came from the summative interview with the study’s expert consultant, Chris. Unlike the other best practices described in this chapter, aligning preparedness interventions with behavioral change models is not a method currently employed by Oregon colleges and universities, nor does Chris believe there is a prominent example of this approach nationally. Still, in the face of limited budgets and capacity, Chris felt preparedness practitioners needed to do more to answer key questions about the goals of preparedness interventions, and how those goals can be measured:

I do think that when you're thinking about budget, buy-in and investment, we have to answer some of those core fundamental questions of, “What are we trying to achieve?” Because any other program that we’re going to invest in, like, “Okay, we’re gonna try to matriculate students in four years, as opposed to five or six.” There’s a benchmark, there’s an end goal. What is our end goal with preparedness?
For Chris, the use of behavioral change models in preparedness education could provide the answers to these questions and bring an element of formal assessment missing from most of the preparedness interventions discussed by interviewees.

While Chris did not offer a specific framework or model for practitioners to utilize, he tied the idea to efforts by the EPA to inform Americans about the risk posed by radon:

Okay, if you’re thinking about behavior change, you have to go from the first part: knowledge of, sharing information. That could be, “You live in an earthquake zone.” Then there is the understanding, which is, “Okay, I live in an earthquake zone, what do I need to know about living in an earthquake zone?” And in that model, there’s the acceptance, and once you get to that acceptance part, that’s a personal choice, in the sense that there aren’t laws, rules, regulations that say, “Thou shalt do it.” So, if you think about knowledge, understanding, acceptance, knowing that at the acceptance point some people will accept it, and that acceptance could be, “I’m not going to do anything, I’m accepting the risk,” or, “I’m not going to accept the risk, so I’m going to mitigate, I’m going to prepare.”

This suggested model is in many ways similar to the study’s theoretical framework, the Extended Parallel Process Model, a connection that will be explored in greater depth in Chapter 6.

Once a model is selected, Chris proposed individual interventions could be collected into a matrix according to what element of preparedness they’re seeking to
address: raising awareness, improving understanding, or prompting a behavioral change.

Interventions could also be organized according to whether they are required programs (such as preparedness posters), educational initiatives (like programming around the Great Oregon Shakeout), or a combination of the two, such as in the case of the “enhanced” annual trainings proposed by Steven and Kevin. By creating a matrix or preparedness curriculum, Chris said, preparedness managers would be better able to set goals, achieve benchmarks, and make the afore-mentioned business case for investment in preparedness interventions:

If you came in here and said, “Here’s all the money,” I would want to set up that model that looks at these kind of different branches. And then in each one, what’s my benchmark and measuring to know, “Is it successful?” So that when you’re talking to somebody that’s on the budget side, your CFO and others, it doesn’t seem like it’s just this black hole and this pit, but you actually have a way to one, see how the investment's going.

Chris suggested there could be numerous benefits to this kind of curricular approach to preparedness, beyond just convincing hesitant university leadership to invest in preparedness interventions. By tying specific interventions to their role within a behavioral change model, Chris felt, it would prevent the possible pitfall of “putting the horse before the cart” with preparedness interventions. He offered CERT as an example:

“Okay, well, we want to do CERT.” Well, CERT is going to be action oriented. So, you’re operating under this assumption that you already have awareness, you have understanding. But where I’ve seen programs fail is they run right to CERT
and they’re like, “Nobody's signing up.” Well, what did you do to make them aware and understand that they should be part of CERT?

As well, Chris suggested, building a preparedness curriculum based on a behavioral change model could free up limited preparedness manager capacity by offering an existing, evidence-based framework for preparedness managers to use to guide their programming efforts, rather than needing for each individual college or university to generate ideas from scratch or overly rely on interventions that may not achieve their desired preparedness outcomes. “Does it make sense for every post-secondary institution to design the program?” Chris asked. “Or does it make sense to have a collaborative or cohort where we design this program together. One consistent program for everyone.”

**Conclusion**

While campuses in Oregon are indeed engaging in preparedness work, not all preparedness interventions have met the outcomes desired by preparedness managers. As well, staff tasked with preparedness work on their campus face significant challenges implementing successful preparedness interventions, even as they succeed in some areas. The following chapter will offer recommendations for practice to help overcome these challenges and sustain successes in improving student disaster preparedness.
CHAPTER 6: DISCUSSION

This study found that while clear efforts are being undertaken by preparedness managers at IHEs in Oregon to ensure their communities are equipped to withstand the impact of large-scale disasters, students remain underprepared, and interventions intended to improve their preparedness may be falling short to improve the state of community preparedness, in part due to the myriad challenges faced by preparedness managers in implementing these interventions (pertaining to buy-in, budget, and capacity). These findings align with existing research pertaining to student preparedness for natural disasters and point to a need to rethink how IHEs approach student preparedness interventions. In the following chapter, I will discuss the study’s findings about institutional vulnerabilities for IHE’s in Oregon, how the study aligns with the existing literature about student preparedness, and recommendations for practitioners to help build student preparedness on their campuses. These recommendations include a tool practitioners can use to improve the likelihood that interventions undertaken at their college or university will result in behavioral change relative to preparedness.

Key Findings

The study affirmed that the threats facing Oregon colleges and universities are numerous and diverse, and that campuses are underprepared for these threats. These threats have been amplified by the COVID-19 pandemic. Looking to the future, in part due to the pandemic, preparedness managers at college campuses will have increased challenges overcoming barriers to trust and building buy-in around preparedness interventions. As well, the prevention interventions currently employed by preparedness
managers at IHEs in Oregon may fall short of their intended mission: to motivate behavioral changes related to disaster preparedness.

The State of Risk

Study participants concurred that even relative to similar institutions elsewhere in the country, students at their schools are at particular risk for natural disasters. Participants spoke about the increasing challenges presented by climate change, particularly related to campus and surrounding community infrastructure. Such disasters can take the form of more frequent ice and heat events. As well, wildfires, which are increasing in scale and frequency, create immediate challenges for students whose homes are impacted by the fires, as well as challenges on campus related to air quality and smoke. Some participants worried that in the coming years, campuses themselves may be threatened by the destruction of wildfires even within their relatively insulated urban environments.

Less immediate but more devastating in its impact is the long-awaited CSZ earthquake. While participants hoped this seismic event would not occur within their lifetimes, all agreed that its impacts on colleges and universities in Oregon would be incalculable insofar as the physical and emotional toll. In addition to natural disasters, participants viewed the threat of mass violence as an approaching inevitability given the number of similar incidents that have occurred at schools and other institutions throughout the United States. While preparedness managers unanimously acknowledged the risk posed by large-scale disasters, none felt that the state of community preparedness on their campuses was sufficient, particularly among students. This indicates that college
students in Oregon are at high risk for the various educational and mental health impacts discussed in Chapter 1.

**The Effect of COVID-19 on Preparedness Programs in Oregon**

This study indicated that overall, IHEs are worse off in 2024 than they were in March of 2020 as it relates to student preparedness. Participants shared that while some elements of their emergency management programs were boosted by the heightened attention to response and recovery efforts, other program elements were deprioritized, leading such programs to “languish.” Participants agreed that preparedness interventions have continued to receive less institutional attention, citing evidence such as the discontinuation of programs like campus CERTs, decreases to funding, lapses in creating or revising emergency plans and holding required drills.

As well, COVID created systemic issues that inhibit improving student preparedness in the future. Obstacles may come in the form of decreased institutional trust. On a macro level, the pandemic resulted in many community members coming to distrust scientific sources once considered inarguable, and the politization of public health messaging. As well, the pandemic may have created fatigue related to disaster preparedness, with many students and other community members wanting to move on from the day-to-day hyper-vigilance required of them over the last several years. While that fatigue certainly relates to COVID-19 specifically, there is concern that it may extend to all forms of disaster preparedness, particularly preparedness for events that are low-frequency and high-impact. These obstacles will make the work of preparedness managers more difficult than in the decades preceding COVID-19, requiring
preparedness interventions that are maximally efficient and accessible to students. However, this study revealed that the current interventions employed at IHEs in Oregon fall short of those goals.

**Not All Preparedness Interventions Are Preparedness Interventions**

While some of the preparedness interventions discussed by study participants have been effective at improving student preparedness at their institutions, others could not be accurately defined as preparedness initiatives. Several, such as campus alerts or emergency preparedness posters, provide information for “just in time” reference. While these interventions play a valuable role in that regard, by the time a student interfaces with them, a disaster may already be occurring. Given the numerous benefits disaster preparedness has for students, related to mental health and educational outcomes, response and recovery interventions are insufficient. Attention needs to be paid specifically to interventions that precede a disaster event, so that when students experience these events, they are better equipped to deal with the immediate and long-term effects.

**Alignment Between the Current Study and Existing Literature**

Having outlined some of the study’s key findings related to community preparedness at IHEs in Oregon, and before sharing recommendations to address student underpreparedness, I will briefly discuss how the research from this study aligns with or departs from existing literature related to emergency preparedness and student preparedness specifically. While the study's findings mostly support what has been noted by other researchers, there are some unique points of departure that may provide helpful
insights to practitioners. As well, these disparities could inform directions for future research.

**Most Pressing Threats**

When assessing which threats were most prescient for colleges and universities, answers from study participants aligned with national findings from FEMA's 2018 Threat and Hazard Identification and Risk Assessment (THIRA). Participants in both THIRA and this study indicated that among their primary concerns were mass violence, seismic concerns, and climate-related events. Certain threats noted by THIRA were not mentioned, given their lack of regional relevance (e.g., strong coastal hurricanes, tornadoes).

However, while THIRA identified cyber-security as a top security concern (over 70% of THIRA participants indicated they were underprepared for a cyber-attack), cyber-security was mentioned infrequently in this study compared with the above referenced threats (FEMA, 2018). While several participants made mention of cybercrime when outlining disaster risks, far more time was devoted to the discussion of earthquakes, wildfires, and mass shootings. Another area of threat understated in this study relative to the literature regarding IHE vulnerability was concern pertaining to specific demographic groups. While most participants spoke about the unique needs of disabled students, relatively little was said about the vulnerability of international students, who make up an increasingly large percentage of college student populations. Prior research indicates international students are vulnerable themselves as well as a source of vulnerability for IHEs during a large-scale disaster (US Department of Education, 2013). This disparity
between expert recommendations and current practices could point to a need for preparedness managers to consider international students more explicitly in their interventions, alongside other under-represented populations.

**Difficulties Defining Preparedness**

Disaster preparedness research, particularly the work of Staupe-Delgado and Kruke (2018), indicates challenges related to defining the concept. The myriad definitions of the term across different industries have led to inconsistent approaches to the work and difficulty aligning best practices. Participants in this study likewise did not indicate a shared definition of preparedness work related to students. The absence of a universally agreed on definition of preparedness may contribute to the apparent confusion as to which interventions constitute a preparedness intervention, confusion over the role of the institution in building preparedness versus the role of a student, challenges measuring preparedness program efficacy, and other pitfalls that appeared in the study.

To overcome some of these challenges, institutions could benefit from shared definitions and defining their preparedness goals. IHE’s could begin by aligning understanding of preparedness as a process versus a quality, in other words, something that is “active, continuous, and anticipatory in nature” rather than a static trait (Staupe-Delgado & Kruke, 2018, p.212). In terms of the study’s participants, most seemed to view preparedness as a quality, defining it as knowledge acquisition or certain indicators of physical readiness (see Table 2, an annotated version of Table 1). Defining preparedness in this way could lead institutions to overlook one of the most important facets of preparedness, as noted by FEMA (2015): that it continually evolves and adapts
to the changing circumstances affecting higher education’s landscape. As well, it may influence how a preparedness manager views something like mass violence response trainings (something to be done once annually for compliance reasons, versus something to engage the community in more continually).

**Table 2**

**Definitions as Qualities or Processes**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Definition</th>
<th>Quality or Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jessica</td>
<td>In regard to general preparedness, I acknowledge the many layers of preparedness, and that it's a shared responsibility. So individual, neighborhood, community, organization, government, etc.</td>
<td>Quality</td>
</tr>
<tr>
<td>Ryan</td>
<td>Preparedness, with respect to [an] emergency of a student would be: they would be self-aware and self-confident that when something happened. They'd feel they could do the right thing at the right time.”</td>
<td>Quality</td>
</tr>
<tr>
<td>Steven</td>
<td>I think that the truly prepared student is not the one who necessarily has had a list provided of all possible contingencies that they know to reference and to work off of, but the student who feels empowered to understand what they may be asked to do, what should they be considering, and what are the things that are most likely to arise in certain circumstances, and have developed the neuroplasticity to engage those tough questions in a moment of stress and not be overcome by the more-what do we call it, the lizard brain? The amygdala-based responses that that tend to arise in true emergencies.</td>
<td>Process</td>
</tr>
<tr>
<td>Diana</td>
<td>Preparedness is just: what are my risks, and what can I do about them?</td>
<td>Quality</td>
</tr>
<tr>
<td>Dennis</td>
<td>It's the students following the right protocol and following those directions and understanding them and not doing something outside of protocol.</td>
<td>Quality</td>
</tr>
<tr>
<td>Megan</td>
<td>What I would say the goal would be for students to be prepared, would be to think about all three of those things: communication, how to get home, how I take care of myself.</td>
<td>Quality</td>
</tr>
</tbody>
</table>
Kevin

| A prepared student is somebody who is aware of what hazards or issues there could be in the community they're in, what the response systems are, an understanding how to be an effective participant in those systems and how to engage those systems for their own safety. (knowing how they'd be notified of an issue, being a part of the drilling that happens). |
| Quality |

**Reasons for Student Underpreparedness**

In addition to the kinds of disaster threats students are underprepared for, participants also concurred with the literature as to the primary reasons for student underpreparedness. Participants noted the lack of importance with which students viewed preparedness, aligning with literature indicating that individuals and particularly students discount risk (Lovekamp & Tate, 2008; Slovic, 2020). Participants also believed that there is a widely held attitude among their students that emergency response and preparedness are not students’ responsibility, but the university’s. Past research into student preparedness supports the prevalence of this belief (Davis et al., 2019; Lovekamp & Tate, 2008).

However, such research also indicates that university staff themselves are underprepared. The findings from this study support that assumption, given the difficulties expressed by participants with promoting preparedness interventions to staff, including engaging staff in drills and trainings, creating departmental emergency plans, and including emergency information in faculty syllabi. Study participants spoke about the kind of fatalism that can occur because of this abdication of preparedness responsibilities, a finding supported in previous research into disaster preparedness. As
well, the three core challenges referred to by participants in the study (buy-in, budget, and capacity) were discussed extensively in the literature review, indicating a high-level of alignment between past research and this study.

**Budget Barriers on the Micro and Macro Level**

Challenges related to budget for preparedness interventions discussed on the micro level (the campuses that participated in this study) are challenges that also appear in literature related to preparedness on the macro level (nationally). In the same way researchers have noted that preparedness can be politically unpopular due to its expense and competition with more immediate interests, participants shared it was difficult to obtain funding specifically for emergency preparedness interventions, even while programs pertaining to emergency response and recovery were supported during and after the pandemic (Staupe-Delgado & Kruke, 2018). The result of this financial deprioritization of preparedness has been an approach to preparedness that researchers and some participants in the study referred to as “projectized,” or “checking boxes” (Staupe-Delgado & Kruke, 2018, p. 217). Bartlett (2016) similarly writes about a culture of reactivity versus proactivity when it comes to emergency management, a concern shared by several of the study’s participants.

Participants were also in concurrence with existing research that there is increased politicization of natural and manmade disasters, particularly climate disasters and mass shootings. This can make the work of preparedness managers more difficult, as community members may hold biases that make them averse to discussions of certain preparedness topics. As well, they may have to contend with beliefs on the part of college
and university leadership that talking about disaster preparedness is too controversial or runs the risk of “triggering” students.

**Stake and Salience as Predictors of Message Acceptance in Fear Appeals**

The Extended Parallel Process Model, a theoretical framework for this study, indicates that for individuals to change their behavior (message acceptance) in response to interventions relating to disaster risk (fear appeals), the fear appeal must lead them to consider the potential impacts a disaster could have on them personally (Witte, 1992). As noted in the literature review, research indicates that whether someone views something as a threat is influenced by perceived “severity and susceptibility” (salience) as well as the likelihood of them being affected by the threat (stake) (Miller et al., 2012; Witte, 1992, p. 332). Stake and salience can be affected by phenomena such as “social amplification of risk” (the over-focus on threats that provoke societal dread relative to more common but mundane threats) and “value prominence,” which influences what students may choose to prioritize given limited attention and resources.

Participants were unanimous in their belief that stake and salience related to disaster preparedness are low for students. This was frequently referred to as a problem of “buy-in,” which was the predominant challenge expressed by study participants in attempting to improve campus-wide preparedness. Given low stake and low salience as starting points in both the broader population (according to research) and campus populations in Oregon, efforts to improve student preparedness and promote behavioral change may be hampered from the outset.
Measuring Preparedness

Without a research-based metric, it is impossible for preparedness managers to know whether community preparedness outcomes are being met, or by how much (Stoto, 2013). As noted in Chapter 2, measuring preparedness can be a difficult endeavor, something emphasized by study participants. Yet, using a synthesis of some of the methods discussed in the literature review, institutions could do more to measure community preparedness.

In the study, participants most frequently referred to measuring preparedness by “capacity” and “capability.” Measuring by capacity took the form of enumerating certain resources, such as departmental emergency plans, IMT members, and sign-ups for campus alerts. However, as noted in Chapter 4, this kind of measurement does not account for the preparedness of students on those campuses, and therefore may not be an effective measure. Measuring by capability is described as preferable by Stoto (2013) and Jackson (2008), and this belief was shared by some study participants, particularly those who were most vocally in favor of large-scale annual drills involving community partners. Measuring by capability also poses challenges: participants spoke about the difficulty rallying financial and time resources to conduct such drills, and the low participation of the campus community. These challenges were similarly reflected in the literature.

A third form of measurement might help provide an additional metric for campus preparedness while also improving campus relationships: stakeholder mapping. Multiple studies referred to the importance of a strong stakeholder network (Jackson, 2008;
Similarly, participants in the study spoke about the value of incorporating campus offices, faculty, and community partners into the work of building student preparedness. Those with some of the most unique preparedness interventions were participants who had taken time to build relationships throughout their campuses.

**Whole Community Preparedness**

Both the study’s participants and the existing literature indicate a need for campuses to embrace whole community preparedness in order to persist in an increasingly threatening risk landscape. All participants shared that their students were underprepared, and all indicated that they felt this was a significant problem for their campus. Participant responses reflected what most disaster research has concluded: that modern risks have simply become too great to fall under the purview of a single individual or organization. A more prepared student populace can take the strain off these overcrowded preparedness offices, easing capacity issues noted in the study and the literature review. As well, whole community preparedness can help build buy-in and trust according to research, something that participants have indicated is needed after the challenges of the COVID-19 pandemic. By engaging in whole community preparedness through student preparedness interventions, Oregon IHEs can fend off some of the acute impacts to mental and educational wellness and even foster post-traumatic growth in the event of a disaster on their campus.

However, this shared value for whole community preparedness is not always reflected in the specific interventions utilized by preparedness managers. As well, the
challenges discussed throughout this study and in the broader research can create difficulties implementing preparedness interventions. In the following section, I will share recommendations and best practices for preparedness managers seeking to improve student involvement in emergency preparedness, including a tool to ensure preparedness interventions build both threat awareness as well as self-efficacy (both necessary components of message acceptance according to the EPPM).

**Recommendations for Practice**

Several recommendations for practice can be offered as a result of this study. I have broken them into categories based on the challenges they have the potential to address. For addressing issues pertaining to budget and buy-in, I suggest that preparedness managers engage in low-barrier, low-cost preparedness interventions designed to improve stake and salience. For concerns related to capacity, practitioners can supplement limited FTE through the development of collaborative relationships, within their universities and throughout the state. As well, I will present a tool practitioners can use to identify which interventions are likely to result in behavioral change pertaining to preparedness, based on foundational concepts from the EPPM. This can help preparedness managers devote their limited time and personnel resources to the interventions most likely to result in improved student preparedness behaviors.

**Building Stake and Salience Through Low-Cost, Low-Barrier Initiatives**

Data from this study as well as prior research on preparedness work supports the idea that investment from university leadership is vital to the success of preparedness interventions on college campuses. However, it is also evident that administrators may be
hesitant to invest in these interventions due to perceived cost as well as other factors such as the politicization of certain disaster threats and concerns about the emotional distress discussing disaster threats may cause for students. While the societal taboo around preparedness is not a problem easily solved by an individual preparedness manager, concerns related to budget can be overcome by focusing on interventions that are low-cost and low-barrier to implement. Creating low-cost and low-barrier initiatives will be a continued necessity, as all evidence points to increasingly difficult financial conditions combined with increasing threats from disasters.

Directly working with students on preparedness interventions can be an effective means of building stake and salience while also reducing costs. Programs like Diana’s that directly integrate students into preparedness outreach support the work of the program without requiring additional full-time staff. Others, like Jessica, have found success by enlisting students from relevant academic programs to create low-cost, low-barrier initiatives as a form of experiential learning. While the immediate benefits of working with students are apparent insofar as the financial savings, perhaps more significantly, it has helped to increase the number of student preparedness “surrogates” in the university community. Studies have noted increased buy-in when community members feel directly involved in their community’s preparedness efforts; consequently, schools that utilize students to create preparedness interventions may over time notice increased stake and salience on their campuses related to preparedness. Additionally, working with students in this manner gives preparedness managers a unique lens into the
needs of students, something multiple study participants shared they wished to know to better to inform programming.

Connecting with students in low-cost low-barrier ways can be less direct and shorter term. Preparedness managers can involve students in drills and training and make such interventions more educational and robust, perhaps by including storytelling related to disaster experiences. Allowing students to talk about disaster experiences in their own words can help these topics feel more real to their peers, rather than relying on drilling and training alone. Preparedness managers can also connect more intentionally with student stakeholder groups on campus, using visits to campus housing or Greek organizations as an opportunity not only to speak to a captive audience, but also tie preparedness topics to their immediate surroundings, making the topic more salient to those students. Finally, preparedness managers can do more to connect with students in locations where they are already present, such as while tabling at orientation. While participants in this study spoke about orientation as an opportunity to drive signups for campus alerts or assuage parent concerns around campus safety, tabling could additionally be seen as an opportunity to engage more interactively and harness student enthusiasm at the outset of their college career.

**Expanding Capacity Through a Community Approach to Preparedness**

The discussion of capacity challenges related to preparedness work indicates that we must move from individual approaches to preparedness toward a community-wide approach. While turnover was frequently referred to as a challenge for maintaining momentum on preparedness initiatives, it can also serve as an opportunity to establish
new connections and cement a culture of preparedness. By using turnover as an opportunity to capture stakeholder attention at the point of entry, preparedness managers can begin to change the preparedness culture on their campuses. One means of doing this could be through formal orientation modules assigned alongside other required educational trainings. However, trainings alone are unlikely to sustain the kinds of connections that lead to robust community partnerships. Preparedness managers should be regular fixtures at their new employee orientation fairs, and consider membership in various campus stakeholder groups, particularly those that relate to supporting marginalized staff and students.

Preparedness managers can also connect intentionally with their counterparts on other campuses to share challenges and exchange best practices. In her interview, Megan spoke about every school having programs that stand out as exemplars. This study revealed that Jessica's institution leads on academic collaborations for example, whereas Steven may be the exemplar for campus CERTs, and Ryan a model for building mutual aid relationships. Rather than remaining within "siloes of excellence" (as they were referred to by Jessica), connecting through regular meetings, summits, publications, or presentations can help campuses learn from one another's strengths and improve their own areas for development.

Given the large range of institutional types and the diverse needs of individual campuses in Oregon, creating a community of practice also entails systemizing certain aspects of the work. By defining statewide goals more concretely in terms of college student emergency preparedness and using shared language and definitions, generalized
interventions with a greater chance of success for behavioral change can be created. As well, shared ownership of the “preparedness problem” can help ease capacity challenges by centralizing some of the work. In the following section, I will offer a tool that can be used by practitioners to set consistent preparedness goals college students, using the Extended Parallel Process Model and findings from this study as its foundation.

**A Tool for Preparedness Interventions**

In designing programs and interventions for students, student affairs practitioners have long drawn on educational and student development theory. Aligning their work with research-based frameworks has helped assure practitioners that they are not creating in isolation. Rather, they are guided by time-tested methods with an established history of success. Theoretical frameworks can also help save time when creating behavioral interventions because they provide starting points and guideposts for development.

Despite these benefits, participants in the current study indicated that their preparedness interventions are not theory-informed. However, most indicated that their work is heavily informed by both peer examples and national precedent. For this reason, to design a tool for evaluating preparedness interventions I chose to blend educational theory with public health theory. My goal was for this tool, an analytical matrix, to be simple to use, readily understood by practitioners from diverse backgrounds, and generalizable across a range of contexts.

**Foundations of the Matrix**

Chris spoke in his interview about the need for preparedness managers to identify the goals of preparedness interventions and set benchmarks for success as a precursor to
requests for increased funding or additional FTE. Without a clear roadmap to consider, university administrators responsible for determining budgets will have little reason to fund initiatives especially when faced with competing priorities. Chris envisioned a matrix where preparedness interventions would align with phases of a behavioral change model. Offering an EPA model used to change public behaviors pertaining to radon, Chris suggested the phases of this model would include interventions that build knowledge about threats, interventions that help a person to understand how they can mitigate those threats, and interventions that promote acceptance of risk and ideally behavioral change.

Immediately there were apparent similarities between this behavioral change model and the model chosen as the theoretical framework for this study, the Extended Parallel Process Model. Increasing knowledge about threats and how to mitigate those threats align with the EPPM’s “Threat Assessment” phase, and acceptance of risk aligns with “Message Acceptance,” (i.e., behavioral change). However, the EPPM departs from the EPA’s radon model due to its emphasis on “Self-Efficacy.” The EPPM posits that knowledge of threats or how to mitigate them is insufficient to prompt behavioral change; a person must also believe they can do what is required of them to mitigate risk. In other words, preparedness interventions must lead a student to believe not only that something can be done, but that it’s something they can do.

Combining Chris’ suggestion for a program matrix with the study’s theoretical framework, the first version of the matrix attempted to fit preparedness interventions under the four phases of the EPPM. Interventions that primarily provided messaging
about the existence of a threat were listed under “Threat Message.” Interventions that went further by prompting students to assess the specific risks a threat posed to them were listed under “Assessment of Threat.” Interventions that helped build students’ self-efficacy were listed under “Assessment of Efficacy.” Finally, interventions that resulted in a change to preparedness behaviors were listed under “Message Acceptance, Behavioral Change.”

Figure 2

Model, First Version

<table>
<thead>
<tr>
<th>THREAT MESSAGE</th>
<th>ASSESSMENT OF THREAT</th>
<th>ASSESSMENT OF EFFICACY</th>
<th>MESSAGE ACCEPTANCE, BEHAVIORAL CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency posters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apps and Web-Based Interventions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campus alerts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency plans and templates</td>
<td>Great Oregon Shakeout</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using delegates and surrogates</td>
<td>Mutual aid</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IMTs and other crisis teams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trainings and drills</td>
<td>CERT</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Go Kits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom presentations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency information included in syllabus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hiring student employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Experiential learning collaborations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Several problems were apparent with this version of the matrix. For one, the matrix assumed that each intervention fit into a single phase of the EPPM. However, there was not an easy or consistent way to determine where certain interventions fell. As an example, emergency posters might be seen as falling under “Threat Message,” since they contain generalized messages about the kinds of hazards associated with specific disasters. However, some emergency posters provide space for individual offices or
departments to include site-specific preparedness information. One might argue that these posters would therefore fall under “Assessment of Threat,” since they enable a student to engage in personal reflections on the specific impacts a disaster may have on them. The model was therefore updated to have interventions listed along the y axis of the matrix, allowing for the user to instead identify the multiple phases of the EPPM the intervention may intersect.

However, this version of the matrix remained insufficient. It failed to answer the core question such a tool was intended to answer: What interventions were most likely to prompt behavioral change? While the interventions listed under message acceptance would intuitively be the interventions to focus resources on, how would one determine whether behavioral change could be confidently predicted? As well, reflecting on the findings of the study, I determined that to be useful to preparedness managers the matrix should also answer two other questions that had arisen throughout the interviews: whose role is preparedness (the student’s or the university’s), and how can we measure the impact of a preparedness intervention? This last question was of particular importance, since without providing measurable benchmarks for success, preparedness managers would have difficulty soliciting additional investment from university leadership.

The resulting matrix can be seen in Table 5 (a larger version is included in Appendix H). Rather than seeking to organize interventions under specific phases of a behavioral change model, it instead uses the EPPM to prompt reflection to determine whether something constitutes a preparedness intervention at all, and if so, what behavioral changes it may prompt. The four phases were reframed as questions. “Threat
Message” is reframed as “Does the intervention describe a threat,” “Threat Assessment” was reframed as “Does the intervention prompt reflection on how the threat specifically impacts the student,” and “Self-Efficacy” was reframed as: “Does the intervention created opportunities to build self-efficacy?”

Under the EPPM, if the answer is yes to these three prompts, then the intervention would likely result in message acceptance/behavioral change. However, given the study’s findings and the specific context of applying these interventions in a higher education setting, two additional prompts were generated for the matrix: “Does the intervention clarify the role of the student and the institution” and “Are these impacts measurable?” Importantly, measurement here refers to the specific impacts of the intervention; this is distinct from measuring program efficacy anecdotally, by number of sign-ups for campus alerts or attendance at an event. A final column prompts the user to name one intended behavioral change that the intervention hopes to prompt, providing learning outcomes that can be used as benchmarks of success.

**Figure 3**

The Complete Matrix

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Does the intervention describe a threat</th>
<th>Does the intervention clarify the role of the student and the institution</th>
<th>Does the intervention prompt reflection on how that threat specifically impacts the student</th>
<th>Does the intervention create opportunities to build self-efficacy?</th>
<th>Are these impacts measurable?</th>
<th>What is one behavioral change the intervention hopes to prompt?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency warnings</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>App and Web-Based Interventions</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Campus alerts</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Great Dragon Drillout</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Emergency plans and protocols</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Trainings and drills</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CERT</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Go-Kits</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Classroom presentations</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Emergency information included in syllabus</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Experiential learning collaborations</td>
<td>Yes</td>
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<tr>
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<td>MFRs and other crisis teams</td>
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</table>
existing research and the findings of this study, too often preparedness is nebulous in its definitions, and in the absence of clear goals and criteria, institutions run the risk of under-preparing students by over-focusing on interventions that primarily promote response behaviors, nor preparedness behaviors. While both have value in the context of a disaster, preparedness has the potential to not only protect a student’s safety during a disaster event, but improve their mental health and education outcomes following a disaster. In addition to offering a metric for assessing which programs should be prioritized, this model also provides measurable learning outcomes that can help build buy-in and encourage investment of time and financial resources.

As an example: all study participants referred to campus alerts when sharing their campus’ preparedness interventions. Using the above model, one would likely determine that a campus alert not only identifies a threat to students but in most cases will clarify the role of the institution versus the role of the student. In the case of a campus alert sent out following a major ice-storm for example, the alert may share that staff are working to remove downed branches throughout campus and instruct students to stay off icy sidewalks and plan their routes to campus carefully. Campus alerts may even build self-efficacy by directing students to online resources to learn how to weatherproof their home or navigate potential blackouts. Having touched on three of the five dimensions of the model (defining a threat, clarifying the role of the student, and building self-efficacy), one might conclude that campus alerts constitute a preparedness intervention. However, campus alerts, which are generalized to be delivered to all staff and students, fail to address a key facet of the EPPM: an assessment of the threat personal to the student’s
individual context. As well, the impact of a campus alert is not able to be measured, at least not insofar as its observable impact.

In contrast, CERT achieves all five metrics within the model. It discusses a range of threats, spends time (through classes and workshops) identifying how those risks specifically threaten the student participant, as well as how the student can improve their outcomes through preparedness. It clarifies the role of the institution, and through the assessments built into the program, its impact can be measured. This is not to say that CERT is the right intervention for every student or every campus, or that it should be prioritized over another intervention like programming for the Great Oregon Shakeout. As study participants noted, CERT still carries numerous shortcomings as an intervention, including its expense, the large-commitment of time it asks of students, and its potential to recruit those who are already “bought in” to preparedness. However, reflecting on CERT’s purpose and impact using this model can be a starting point for preparedness managers attempting to make a business case for specific programs, or seeking to clarify their goals for building student preparedness. It is one step in a more ongoing assessment, but it is a vital one.

While this model was created with individual preparedness managers in mind, it has applications at the state-wide level. Chris discussed the value of a centralized preparedness “curriculum” that could be shared with preparedness managers throughout Oregon, reducing the time and capacity needed to come up with effective programming on an individual basis. Using this model, a list of interventions with the greatest likelihood of prompting behavioral change could be generated and presented to schools
alongside recommendations and learning guides. These learning guides could include assessments of each intervention—its benefits and limitations—and successful program exemplars sourced from schools throughout Oregon. This approach could offset the shared challenges of budget (by providing a free tool that can help preparedness managers make a strong business case for funding specific interventions), buy-in (by highlighting programs that improve stake, salience and self-efficacy), and capacity (by providing this tool to be used collectively, rather than drawing time resources from each preparedness manager to develop interventions on their own).

Limitations

The primary limitations of the study relate to generalizability and reliability. Even had the study garnered a high response rate to the qualitative survey and extensive participation from the elite interviewees, the study would still be limited by its geographic boundaries. In qualitative studies, particularly those involving interviews, the identity of the researcher can influence the validity of the data gathered during interviews: either the researcher’s position may be too subordinate to result in meaningful answers from those being interviewed, or the interviewer may hold a position of authority that likewise has a chilling effect (Alsaawi, 2014). While this study did not explicitly seek to evaluate preparedness programs at IHEs in the state of Oregon, given the small sample size, study participants may have been reluctant to share their organization's limitations transparently, leading to an inflated sense of program efficacy. Alshenqeeti (2014) offers that interviews can also be influenced by:
The attitude, views, and prospects of the interviewer; a tendency for the interviewer to see the interviewee on his/her own merits; a tendency for interviewers to seek answers to support their preconceived notions; misperceptions on the part of the interviewer with regard to what the interviewee is saying; and misunderstanding on the part of the interviewee with regard to what is being asked. (p. 43)

An additional limitation comes from the framing of the study itself, which questioned participants specifically about student preparedness. Given that emergency preparedness on the community level is more intertwined than siloed, it’s possible that aspects of the participating institutions’ overarching programs also had relevance to student preparedness, but since these broader discussions did not always occur, program elements may have been missed. As an example, one finding of the study is that preparedness for cyber-threats was under-emphasized relative to the perception of this threat nationally (where it appears in THIRA’s top three major threats). However, as cyber-security may be addressed as a wider campus issue (through the existence of orientation modules, phishing reporting add-ons, etc.), the explicit connection to student preparedness may not have been drawn by participants, leading them to seem less prepared for cyber threats than their institutions may be.

Finally, while inventorying the various preparedness interventions employed by preparedness managers at IHE's in Oregon, I was unable to know with complete certainty where certain interventions stood insofar as their completeness and efficacy in meeting stated goals. Some interventions, like websites and campus posters, could be readily
verified through document mining. Others, like crisis teams and Diana's BERTs, would have required attendance at closed meetings, follow-up with personnel involved, and other data checks outside the scope of this study. Still others were identified as interventions in the process of being built, like the campus CERT described by Steven. Because this study occurred over the course of several months, several of these programs had not concluded their development by the time of the study’s completion. However, I would note that assessing the efficacy or quality of specific interventions was not a stated goal of this research (though having now compiled an inventory of interventions, such an assessment could be a goal for future research).

Despite these limitations, I hope that this study adds value to the ongoing preparedness work taking place across campuses throughout the state of Oregon. Better understanding the range of statewide student preparedness interventions can help preparedness managers expand their whole community outreach efforts, and lead to improved intercampus collaboration by prompting the sharing of ideas for preparedness programs and initiatives. Too often, preparedness work can be siloed, to the detriment of whole community engagement. By helping to deconstruct these silos through the sharing of information and experiences across Oregon campuses, we can take steps to engage students as members of the whole community preparedness concept, leading to safer and more resilient institutions.

**Recommendations for Further Research**

Beyond replicating this study in states with similar institution types and risk profiles, there are a number of paths for future research. While the current study yielded
few responses to the initial survey, future efforts to distribute this survey may be more successful. Determining whether the interventions, challenges, and successes described by this study's participants align or deviate from the broader Oregon IHE network could yield additional findings of value. Alternately, interviews could be replaced by focus groups hosted at annual summits of preparedness managers that take place in Oregon, providing an opportunity to gain insights from the dialogue between different institutions about preparedness on their campuses.

While this study focused on professional staff responsible for leading preparedness interventions on their campus, much could be learned from redirecting the study’s focus to the insights of students. As indicated by the study’s participants, most preparedness managers assume that their students are disinterested in disaster preparedness, but to date, student interest in preparedness has not been explicitly studied or measured in the state of Oregon. Such an analysis could be conducted through survey methods, or through conducting focus groups on select Oregon campuses. Other topics of research that would help inform the work of preparedness managers would be studies into students’ perceptions of threats, students’ rationale for not engaging in preparedness behaviors, and preparedness challenges specific to vulnerable student demographic groups. In particular, research is needed into the specific preparedness needs of international students, whom studies show can experience disproportionate impacts from campus disasters.

It is my hope that the recommendations for best practices and working with behavioral models could lead to the creation of unique preparedness education
interventions in the state of Oregon. If this happens, it would be useful to research the efficacy of these programs by staging a quantitative study, with treatment and control groups, and pre- and post-analyses. Some of the existing programs identified as unique interventions in this study could also be subjects for further research. For example, a case study could trace the impact of Diana’s student employment program on her staff’s preparedness behaviors, or describe an academic term with Jessica and the students in her campus’ interdisciplinary emergency management program as they create and implement low-cost/low-barrier preparedness interventions. Lastly, with upcoming legislative efforts to advocate for additional funding and resources for preparedness work at schools in Oregon, a phenomenological study could be conducted, observing the development and hopeful passage of legislation as well as the barriers the bill’s advocates encounter.

**Conclusion**

The research question for this study (how do organizations responsible for campus preparedness at colleges and universities in the state of Oregon prepare their students for natural and manmade disasters) led not only to an inventory of commonly used preparedness interventions, but also an exploration of what factors and influences have led to the selection of these interventions, and the potential benefits and pitfalls of each. Secondarily, I hoped to learn from this study what challenges preparedness managers face in leading preparedness interventions on their campus. While the challenges of limited buy-in, budget, and capacity have strained preparedness efforts, this study has shown that there are existing and potential methods for overcoming such obstacles and ingraining preparedness into the culture of college campuses.
While approaching preparedness interventions for students with effort and intentionality requires time, passion, and the engagement of campus partners, the potential benefits are innumerable. As the National Preparedness Goal states, campuses must strive for a “secure and resilient Nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk” (U.S. Department of Homeland Security, 2015, p. 1). In doing so, they will help create stability and security for students navigating an increasingly uncertain world, and ensure that after graduation, those students go on to be contributing members to their own community. In the end, the goal cannot be to insulate our students from the threat of disasters--that time has passed, if it was ever there at all. Instead, we must acknowledge that disasters will continue to grow more frequent and daunting; but by developing more prepared students, we will help ensure that our campuses have the resilience to thrive through the challenges ahead.
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https://doi.org/10.2139/ssrn.2819536


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https://doi.org/10.1111/1468-5973.12175


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APPENDIX A: Qualitative Survey

Survey location: https://portlandstate.qualtrics.com/jfe/form/SV_6VD32Zp9ORqEkSy

Descriptive text: Today’s students are subject to threats from natural disasters, as well as manmade disasters in the form of school violence, civil unrest, and cyber-attacks. In order to better address the threats facing students, and in alignment with the National Preparedness Goal of “whole community” preparedness, we are conducting a survey regarding student facing preparedness programs currently utilized by institutions of higher education in Oregon. Please answer the below questions regarding student preparedness programs at your school as completely as possible. This survey is able to be saved and restarted at your convenience.

PAGE BREAK

Descriptive Text: Before proceeding with this survey, please review the below information pertaining to informed consent:

a. Voluntary Consent: You are being asked to volunteer for a research study. It is up to you whether you choose to take part or not. There is no penalty if you choose not to join in or decide to stop your involvement.

b. Why is the study being done: This case study will examine preparedness initiatives at Oregon IHEs to better understand how colleges and universities prepare students for large-scale emergencies in a state where disasters (past, present, and future) are part of the daily context in which these schools operate.

c. What will I be expected to do, and how long will it take: You will be asked to complete a twelve-question qualitative survey. Completion of this survey should take between 20-30 minutes.

d. Risks: Participation in this survey will not place the participant at any risk beyond those experienced in everyday life; while loss of confidentiality is a risk in any study involving human subjects, great care will be taken to safeguard your data.

e. Benefits: Your participation in the survey will provide invaluable information to our study and will help guide statewide preparedness efforts. The de-identified results of this survey will be shared with all survey participants.

f. Options: Participation is voluntary and the only alternative is to not participate.

1. Do you consent to participating in this study through completion of this survey?
   a. Yes
   b. No

PAGE BREAK
Descriptive Text: Definition of Key Concepts:

Whole Community Preparedness: In the context of institutions of higher education, whole community preparedness includes “students, staff and visitors, including those with disabilities and others with access and functional needs, those from religiously, racially, and ethnically diverse backgrounds, and people with limited English proficiency” (U.S. Department of Education et al., 2013, p. 5).

Student-facing Preparedness Programs: These refer to programs that are primarily directed towards students. While the work of Incident Management Teams and the distribution of university-wide emergency alerts are examples of preparedness practices that affect students, our survey contains questions about specific preparedness programs that are directed to students.

Disasters: While campuses are subject to myriad smaller emergencies on a given day (minor criminal activity, mental health crises, large planned events, media incidents, etc), this study pertains specifically to preparedness programs aimed at improving whole community preparedness for large-scale disasters. These could include natural (fires, floods, earthquakes) and manmade (cyber security attacks, terrorism, active harmers) disasters.

PAGE BREAK

1. Institution name  
   a. Short answer
2. Your role  
   a. Short answer
3. Institution type  
   a. Multiple choice  
      i. Community College  
      ii. Private College/University  
      iii. Public University  
      iv. Medical College  
      v. Other

PAGE BREAK

4. In your opinion, what are some of the most significant threats facing colleges and universities in the state of Oregon?  
   a. Paragraph answer
5. Thinking broadly about emergency preparedness at your institution, what are some of the major programs or initiatives you have in place to prepare your campus for large-scale emergencies?
   a. Paragraph answer

6. Thinking more specifically about preparedness education for students, what are some programs and initiatives you have in place to educate students about emergency preparedness?
   a. Paragraph answer

7. Why were these programs chosen?
   a. Paragraph answer

8. Did any learning theories or other frameworks inform the development of these programs?
   a. Paragraph answer

9. How would you describe the student response to these programs? Insofar as their engagement, their effectiveness, and so on?
   a. Paragraph answer

10. How is efficacy of these programs measured?
    a. Paragraph answer

11. Overall, how would you describe the current state of student preparedness for large-scale emergencies at your institution?
    a. Paragraph answer

12. What are steps your office could take to improve student preparedness, given unlimited resources and university buy-in?
    a. Paragraph answer

13. What are some of the barriers preventing your organization from achieving some of those outcomes?
    a. Paragraph answer

14. Is there anything else you would like to add regarding preparedness initiatives at your institution?
    a. Paragraph answer

Descriptive text: Thank you for your responses. This survey is part of a broader case study researching preparedness programs at institutions of higher education in Oregon. The case study will also include interviews with administrators responsible for
preparedness initiatives at their institutions. Would you be willing to be interviewed for this case study?

1. Multiple Choice
   a. Yes
   b. No
   i. If Yes
      1. Descriptive text: Thank you. Please share your contact information below.
         a. Name
            i. Short Answer
         b. Email address
            i. Short Answer

Descriptive text: We thank you for your time spent taking this survey. Your response has been recorded.
APPENDIX B: Interview Protocol

Interview #__________  
Date ___/___/____

Interview Protocol

Interview Site Description:

Script:

• Thank you for your participation.
• My name is Francis Pastorelle, I am a doctoral student at Portland State University in their school of educational leadership and I am conducting a study in partial fulfillment of the requirements for my doctoral degree.
• I appreciate you taking the time to complete the survey I distributed in September
  • Today’s interview will ask you to expand on some of the answers you provided to the survey in hopes of better understanding how you and your institution approach student preparedness.
• At this time, I would like to provide a written consent form to participate in this study. I am the responsible investigator, specifying your participation in the research project: “Embodying Whole Community Preparedness: A Case Study of Student-Facing Preparedness Programs at Institutions of Higher Education in the State of Oregon.”
  • You and I will both will both sign and date this copy, certifying that we agree to continue this interview.
  • Can you confirm that you consent to this interview?  
    • Yes___  
    • No ___  
• With your permission, I would like to record our conversation today to ensure I accurately capture the information you provide. Are you OK with me recording?  
  • Yes___  
  • No__  
• Your participation in this interview is completely voluntary. If at any time you need to stop, take a break, or return to a previous question, please let me know. You may also withdraw your participation at any time without consequence. Do you have any questions or concerns before we begin?  
  • Yes___  
  • No__  
• Then with your permission, we will begin the interview.
INTRODUCTION

1. Can you tell me a little bit about what brought you to this work (emergency preparedness in a university setting), your professional background before coming to [YOUR CAMOPUS], and how your work in [YOUR PREVIOUS INDUSTRY] informs your lens related to this topic (student emergency preparedness)?

2. At your institution, who else is responsible for campus emergency preparedness (this can include members of your direct team)?

WARM-UP

3. How do you define preparedness? When it comes to large-scale emergencies and natural disasters, what does a prepared student look like?

4. What would you define as some of the core goals of your unit, or your personal goals as the [POSITION TITLE], related to campus preparedness?

MAIN BODY

5. In the survey, I asked what you felt are some of the biggest threats facing Oregon college students. You listed [INSERT SURVEY ANSWER]. Can you tell me more about why you chose these threats in particular?

6. In your survey, you shared that some of your student-facing preparedness work included [INSERT PROGRAMS FROM SURVEY RESPONSE]
   a. [INSERT QUESTIONS PERTAINING TO THESE PROGRAMS]

7. In your survey, you responded that theories and frameworks do not inform your program development. Can you tell me what does inform your program development? Federal policy, mission goals or learning outcomes for your division, peer institution examples, etc?

8. Research shows that certain demographic populations (by race, ethnicity, socio-economic status, ability, etc.) are more likely to experience adverse effects from large-scale disasters. The CDC refers to such groups as “socially vulnerable populations,” or SVPs, and encourages their intentional inclusion in preparedness planning. How does your institution engage SVPs, particularly student SVPs, in your community preparedness planning?

COOL-OFF
9. In your survey, you described the overall state of student preparedness at your institution as [INSERT SURVEY RESPONSE]. What informs that view, and what would be required to move the needle on student preparedness?

10. You shared that some of the barriers to enacting your organization’s preparedness goals are [INSERT SURVEY RESPONSES]. Can you tell me more about these barriers and how they impact your organization’s work? What do you feel needs to be done to overcome these barriers?

11. To close our interview: based on the definitions we’ve discussed and your own understanding of the risks posed by natural and manmade disasters, do you consider yourself to be well prepared?

CLOSURE

12. This study involves document mining a source of data. Are there any relevant documents you think would be worth reviewing, apart from those publicly available at LBCC’s website?

13. Is there anything else about this topic you would like to share today?

QUESTIONS FROM DOCUMENT MINING

- [INCLUDE QUESTIONS FROM DOCUMENT MINING]

Thank the participant for their participation.
APPENDIX C: Email to Oregon Colleges and Universities

Dear colleague,

My name is Francis Pastorelle, and I am a doctoral student at Portland State University in their Higher Education Leadership program. This month I am beginning the first phase of my dissertation research, which seeks to better understand how colleges and universities in Oregon prepare their students for disasters and large-scale emergencies.

On August 31st I will be distributing an invitation to participate in a survey regarding student-facing preparedness efforts on your campus. This survey is the first phase of a three-part study, which in later phases will include interviews and document mining for 5-7 volunteer institutions. The study has been approved by Portland State University's Human Research Protection Program and is being conducted with support from the Institute for Resilient Organizations, Communities and Environments.

I am emailing your institution's central email address, as I was unable to find an appropriate contact through your campus directory. If there is someone at your campus who would be able to represent your institution in this study, please feel free to forward me their contact information.

For more information about the survey or the broader case study, please watch this short video. Additional questions can be directed to me: ffp@pdx.edu

Thank you for your support of this initiative.

Sincerely,

Francis Pastorelle
Dear colleague,

My name is Francis Pastorelle, and I am a doctoral student in Portland State University's Higher Education Leadership EdD program. As part of a study into student-facing emergency preparedness practices in the state of Oregon, I am inviting you to complete a qualitative survey regarding preparedness programs at your institution. A link to this survey can be found below.

https://portlandstate.qualtrics.com/jfe/form/SV_6VD32Zp9ORqEkSy

Your participation in the survey will provide invaluable information to the study and will help guide statewide preparedness efforts. The deidentified results of this survey will be shared with all survey participants. The survey contains eleven open-ended questions and should take approximately 25 to 30 minutes to complete. You can stop and restart the survey at your convenience and your progress will be saved.

Note: If there is somebody else at your institution who would have more complete information regarding your institution’s student preparedness programs and preparedness work more broadly on your campus, please forward this email to them. For the accuracy of our records, please also provide us with their name and contact information.

This study is being conducted with the support of Portland State University's Human Research Protection Program and the Institute for Resilient Organizations, Communities and Environments. The deadline to complete this survey is Thursday, October 5th. Thank you for your participation!

If you would like to know more about this study, please watch this short video.

Sincerely,

Francis Pastorelle
Director of the Office of Advocacy, Oregon State University
Doctoral Candidate, Portland State University
APPENDIX E: Reminder email to survey participants

Dear colleague,

We are two weeks into our statewide study of student-facing emergency preparedness programs at colleges and universities in Oregon. This study will help inform emergency preparedness practices at the statewide level, so your participation is highly valued. If you have not already taken the below survey, please take some time to do so at your earliest convenience. The survey closes on October 5th.

https://portlandstate.qualtrics.com/jfe/form/SV_6VD32Zp9ORqEkSy

Your responses will be kept confidential, and as a participant, the de-identified survey results will be shared with you at the conclusion of the study. If there is someone at your institution who would be better situated to speak to emergency preparedness work on your campus, please forward this email to them.

Details about the survey and the broader study can be found by watching this short video, or reviewing the introductory email below.

Thank you for your participation in this work! Together, we can help improve preparedness outcomes for our students and our campuses as a whole.

Best,

Francis Pastorelle
Director of the Office of Advocacy, Oregon State University
Doctoral Candidate, Portland State University
Dear ________,

Thank you for your recent participation in our statewide survey regarding student preparedness programs in the state of Oregon. Thank you as well for your willingness to participate in the broader case study relating to student preparedness work. Based on your answers to our survey, I'm interested in meeting with you to discuss your survey responses.

I'd like to meet with you for approximately one hour sometime between now and December 1st, ideally in person so I can take some time to visit your campus and any spaces relevant to your school's emergency preparedness work.

What days would work best for you in late October or early November?

Thank you,

Francis Pastorelle
Director of the Office of Advocacy, Oregon State University
Doctoral Candidate, Portland State University
APPENDIX G: Confirmation email sent the day before the interview

Dear _____,

Thank you for agreeing to meet with me. As a reminder, your interview is scheduled for today, __/__/__ at ___AM/PM. The interview should take approximately 60 minutes to complete.

Attached is a participant consent form for you to review. The consent form contains important information regarding your rights as a participant and assurances as to how your privacy will be protected. Since our interview is remote, I would appreciate you printing and signing a copy, then sending me a scan of the signed copy at your earliest convenience.

A copy of the Zoom link is below:

_______________________________________

If you have any questions before our conversation, please do not hesitate to email me. Thank you for agreeing to be a part of this study!

Thank you,

Francis Pastorelle

Director of the Office of Advocacy, Oregon State University
Doctoral Candidate, Portland State University
## APPENDIX H: Matrix for Appraising Preparedness Interventions

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</tbody>
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*Note: Student preparedness interventions*
APPENDIX I: Written Consent Form Consent to Participate in Research

Project Title: Preparing students for large-scale natural disasters at Institutions of Higher Education in Oregon

Population: Emergency managers/preparedness coordinators

Researchers:
Francis Pastorelle, College of Education
Portland State University
Karen Haley, College of Education
Portland State University

Researcher Contact: ffp@pdx.edu/ 908-642-7343

You are being asked to take part in a research study. The box below highlights the main information about this research for you to consider when making a decision whether or not to join in the study. Please carefully look over the information given to you on this form. Please ask questions about any of the information you do not understand before you decide to agree to take part.

<table>
<thead>
<tr>
<th>Key Information for You to Consider</th>
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<tr>
<td>• <strong>Voluntary Consent.</strong> You are being asked to volunteer for a research study. It is up to you whether you choose to take part or not. There is no penalty if you choose not to join in or decide to stop your involvement.</td>
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<tr>
<td>• <strong>Why is the study being done?</strong> This case study will examine preparedness initiatives at Oregon IHEs to better understand how colleges and universities prepare students for large-scale emergencies in a state where disasters (past, present, and future) are part of the daily context in which these schools operate.</td>
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<td>• <strong>What will I be expected to do?</strong> You have been asked to participate in an interview. The interview will consist of ten questions pertaining to student-facing preparedness initiatives at your institution. The audio for your interview will be recorded.</td>
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<td>• <strong>How long will it take?</strong> The interview will take 45-60 minutes.</td>
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<td>• <strong>Risks.</strong> Participation in this interview will not place the participant at any risk beyond those experienced in everyday life; while loss of confidentiality is a risk in any study involving human subjects, great care will be taken to safeguard your data.</td>
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<tr>
<td>• <strong>Benefits.</strong> Your participation in this interview will provide invaluable information to our study and will help guide statewide preparedness efforts.</td>
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<tr>
<td>• <strong>Options.</strong> Participation is voluntary and the only alternative is to not participate.</td>
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Who is doing this research?

The researcher (Francis Pastorelle) from Portland State University is asking for your consent to this research. This research is supported by University of Oregon’s Institute for Resilient Organizations, Communities and Environments.

What happens to the information collected?
Information collected for this research will be analyzed alongside survey data collected earlier this year. The data collected from the interview and survey comprise a case study that will be the basis of a doctoral dissertation by the researcher, Francis Pastorelle. While the full case study will be made available publicly, all information contained within it will be de-identified. Raw data will be accessible only to the researcher.

**How will my privacy and data be protected?**

We will take measures to protect your privacy. Data collected during all phases of the study will be de-identified. As well, the identities of any institutions selected for document mining and interviewing will be de-identified. A smaller sample has been chosen for interviews and deeper analysis to make it less apparent which universities are participating. Data from the study will be stored in a password-protected cloud drive requiring two-factor authentication. At regular intervals, cloud drive data will be downloaded onto a password-protected external hard drive, which will be stored in a locked filing cabinet when not in use and destroyed after the study.

Despite taking steps to protect your privacy, we can never fully guarantee that your privacy will be protected. Individuals and organizations that conduct or monitor this research may be permitted access to inspect research records. This may include private information. These individuals and organizations include [the Institutional Review Board that reviewed this research and stakeholders within the Institute for Resilient Organizations, Communities and Environments.

**What if I want to stop my part in this research?**

Your part in this study is voluntary. You do not have to take part in this study, but if you do, you may stop at any time. You have the right to choose not to take part in any study activity or completely stop at any point without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to join in will not affect your relationship with the researchers or Portland State University.

**Will I be paid for being in this research?**

Participants will not be paid for their participation in this study.

**Who can answer my questions about this research?**

If you have questions or concerns, contact the research team at:

Francis Pastorelle  
908-642-7343  
ffp@pdx.edu
Who can I speak to about my rights as a part of research?

The Portland State University Institutional Review Board (“IRB”) is overseeing this research. The IRB is a group of people who independently review research studies to ensure the rights and welfare of participants are protected. The Office of Research Integrity is the office at Portland State University that supports the IRB. If you have questions about your rights, or wish to speak with someone other than the research team, you may contact:

Office of Research Integrity
PO Box 751
Portland, OR 97207-0751
Phone: (503) 725-5484
Toll Free: 1 (877) 480-4400
Email: psuirb@pdx.edu

Consent Statement

I have had the opportunity to read and consider the information in this form. I have asked any questions necessary to make a decision about my taking part in the study. I understand that I can ask more questions at any time.