AN INTERACTIVE QUALIFYING PROJECT

EXPLORING THE RESPONSE TO AN UNPRECENDENTED PANDEMIC

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Exploring the Response to an Unprecedented Pandemic

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An Interactive Qualifying Project Report Submitted to the Faculty of WORCESTER POLYTECHNIC INSTITUTE in partial fulfillment of the requirements for the Degree of Bachelor of Science

by:
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Submitted to:
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ABSTRACT

By the beginning of May 2020, the Covid-19 pandemic has killed more than 75,000 persons in the United States, forced millions of businesses to shut down, devastated the budgets and hopes of countless families, closed campuses and schools, and changed the lives of most Americans in ways that were unimaginable a few short months before. Our team, through extensive interviews, participatory action research, and photo-elicitation, documented the lived experience of workers, students, and health care professionals in the early stages of the pandemic, assessed how people made sense of the health risks related to the virus, and examined the measures they took to persevere during a time of social isolation and uncertainty.

ACKNOWLEDGMENTS

We want to take the time to thank all healthcare workers for tirelessly working to keep our communities safe. We are so appreciative of all of those who have been working on the front line, sacrificing their own health for others. We also want to thank all of the essential workers that continue to keep our communities up and running during these difficult times. The selfless heroism we have seen during this pandemic has been nothing short of awe inspiring.

How you can help
To help show your support and appreciation for medical professionals, please consider donating to the Massachusetts Nurses Association (MNA), where all proceeds go towards supplying PPE to frontline healthcare workers.
https://www.massnurses.org/health-and-safety/covid-19/donations-and-giving

We also would like to thank all of those who took the time to provide us with insight through interviews, Media submissions, and conversations. This report would not be possible without all of these contributions.

A special thank you to our advisors, Robert Hersh and Melissa Belz, for guiding and directing our project site during an unexpected shift in project trajectory upon cancellation of our study abroad experience.

There is a website version of this project that can be found at https://wp.wpi.edu/covidcollection/ . The creation of this website would not be possible without the hard work of Olivia Bogs. She was incredibly helpful and eager to help transfer everyone's work on to the website.

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A collection of reflections living through the pandemic.

INTRODUCTION

Our Story

All the efforts will be worth it, these sleepless nights, and constant revisions and numerous rewrites of our proposals. Greece is only a few days away. These emotions plagued our minds as we embarked on our final week of being stuck in Worcester, Massachusetts, and were only a few days away from traveling to our project site in Thessaloniki, Greece. Our group of twenty-four students and two advisors, from Worcester Polytechnic Institute (WPI), would have never anticipated the events to follow.

On March 6th, the WPI administration announced that all travel was canceled, including all international Interactive Qualifying Projects (IQP), due to a novel coronavirus that was rapidly spreading throughout the world. At the time, we were not aware of the serious threat of the virus and felt that the administration had made the wrong decision. In the weeks to come, we would learn that this mysterious illness, which was named COVID-19, would soon be declared as a global pandemic. In mid-march, WPI decided to turn to remote learning, which led to another pivotal shift in our IQP projects.

Before COVID-19, all 24 of us had spent weeks collaborating with Greek sponsors to develop proposals for a project that we would complete in Greece. These projects included environmental and health studies, urban renewal and education. After several discussions, much confusion, and unfortunate realization, our advisors, Bob Hersh and Melissa Belz, explained that they and our Greek sponsors felt that the projects could not be carried out remotely due to their hands-on nature. The interactive nature of our projects meant, in the eyes of our Greek sponsors, that remote projects offered little value to students or the groups involved in the research. Though disappointed, the students also agreed that completing these projects from thousands of miles away would be immensely difficult. Left at a bit of a crossroads the advisors were faced with a difficult decision, should they keep the general theme of the project or shift to an entirely new direction?

The first approach was to keep the general topic if possible, and transfer it to a Massachusetts context. However, when WPI turned to remote learning, it became clear that the advisors would have to come up with an entirely different approach. Wanting to still give the students the experience of solving an open-ended project from their home, they turned to individual projects, with emphasis on collaboration across topics, rather than the typical team structure of IQP. Our advisors reworked the norm by allowing students to pick their own topic related to the unique problem right in front of our eyes, the pandemic.

This year, what was originally a group of 24 students assigned to six teams in the Thessaloniki Project Center, joined the movement to capture stories of the COVID-19 pandemic. Each of the students focused on a different area of interest for our remote social science research project. The following report is a collective representation of the hard work and the continual effort to make our remote IQP experience meaningful despite the continuous obstacles of the global pandemic.

The National Flag of Greece, Stock Image

Wuhan, China Stock Image

Early Days of the Virus

The scientific name for this virus is SARS-CoV-2, which stands for severe acute respiratory syndrome coronavirus 2 (WHO, 2020). The virus got its name because of how similar it was to SARS-CoV; the virus that caused the 2002-3 SARS outbreak in China (NIAID, 2020). Just like SARS, it was believed to have originated in bats and then transferred to an intermediate species before it eventually reached humans in a wet market in Wuhan (Zhang, 2020).

Respiratory viruses, like SARS-CoV-2, are so effective at infecting people because they rely on human to human interactions to spread (Boncristiani, 2009). Viruses cannot replicate on their own and need other cells to do it for them (Gorvett, 2018). Viruses use cellular machinery inside a human cell to make more of itself and then the viruses catch a ride on water droplets from a person's cough and land on someone new to infect (Gorvett, 2018). Because they use our cellular machinery, viruses are very hard to kill without causing damage to human tissue (McCrimmon, 2020).

Scientists identified the novel coronavirus (COVID-2019) in December of 2019. Wuhan is home to an estimated 11 million people as of 2018, which is over 2 million more than New York City which has 8.4 million (Wikipedia, 2020). The high population of Wuhan allowed the virus to spread so rapidly because in many cases the virus travels undetected by asymptotic carriers. A vast amount of people were exposed to the virus in the Hubei Province (Georgiou, 2020).

This led to approximately 86% of coronavirus cases going undetected in Hubei Province before the government shut down the Wuhan transportation system on January 23rd, 2020 (Coronavirus, 2020). More than 60 million citizens were affected by the government restrictions on personal movement, public events, and business activities (Wright et al, 2020).

Despite these measures, and in part because of the lack of preparedness, the speed at which the virus spread increased exponentially, and the effects this would have on countries around the world were innumerable. There was still much to learn about the virus, however, and trouble for all was brewing on the horizon. The restrictions on air and rail travel put in place in China on January 23rd were just the beginning, and soon their government had quarantined over half the country (Zhong & Mozur, 2020). Affecting over 760 million people, the Chinese soon felt the repercussions of these strict regulations. Not only did the Chinese economy take a hit when workers were unable to return to factories and businesses, but many citizens also felt strictly and unfairly governed.

The effects of the virus were hardly contained in China, however. Italy, the country with the highest number of air connections to China in Europe, was affected even more than China (Praveen, 2020). Starting with two confirmed cases at the end of January the number of infected rose exponentially (Statista, 2020). Soon the entire country was on lockdown as Italians struggled with the sudden change. Although the virus affected economies around the world, Italy was hit especially hard.

Some experts estimate that the loss of tourism revenue could exceed £6.4bn ($8.3bn), and many economists around Europe argue that Italy's economy could revert to 2008 levels (Duddu, 2020; Lombardi, Fairless, Kowsmann, 2020). Italy also became an epicenter for the virus, with the origins of coronavirus infections in at least 27 other countries able to be traced to either Italy or Italians (Duddu, 2020). Despite the severity of the pandemic in Italy, however, the number of infections would seem insignificant once the virus reached the United States.

General Timeline of the United States

It was not long before the coronavirus hit the United States after severely impacting both Italy and China. On January 20th, the US Centers for Disease Control and Prevention (C.D.C.) confirmed the first case of coronavirus in the United States (Taylor, 2020). Following suit on January 30th, the World Health Organization (W.H.O.) declared a global health emergency, which led the Trump administration to restrict travel from China (WHO, 2020). Throughout January, the C.D.C. was working to develop testing kits to distribute to facilities throughout the United States. In early February, the C.D.C. acknowledged that these tests were faulty after tests had already been distributed (Whoriskey & Satika, 2020; Taylor, 2020).

Due to the faulty kits and the strict F.D.A. regulations that limited test kit production, the United States was unable to detect and trace COVID-19 cases during those crucial early weeks. The virus went undetected for several weeks leading to a massive outbreak in the United States (Whoriskey & Satika, 2020). During the early weeks of the pandemic there was little to no response from the White House which led to mass confusion across the United States. To make matters worse, President Trump initially referred to the virus as "a hoax" (Taylor, 2020). As a result of the faulty testing kits and limited federal response, many Americans were understandably upset and concerned for their future (Taylor, 2020).
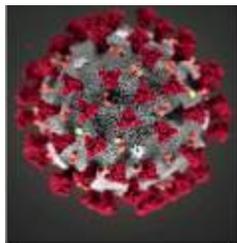
Figure 1: US Timeline December to January

On March 16th, 70 days after the CDC warned the United States of COVID-19, the Trump Administration issued guidelines which included avoiding social gatherings, staying home if you feel sick, and avoiding any unnecessary travel (shopping, vacations, etc.) (Taylor, 2020; Secon et al, 2020). Around this time, colleges, universities and public schools began to cancel classes and turn to remote learning (Taylor, 2020). States began to implement their own guidelines consisting of limiting social gatherings, closing down non-essential businesses and requiring individuals to stay at home.

All of these measures were put into place to flatten the curve, meaning keeping the spread of the virus under control to avoid overwhelming the healthcare system and reduce cases. Towards the end of March, metropolitan areas within New York, Michigan, New Jersey and Massachusetts were hit the hardest and cases began to drastically spike. On March 27th, as cases in the U.S. passed 100,000, the Trump administration enforced the Defense Production Act, a law that increases mass production, and signed a $2.2 trillion stimulus bill to help unemployed Americans (Taylor, 2020; Secon et al., 2020).

COVID-19 Timeline
United States

The disease caused by the virus was named COVID-19
2/11

COVID-19 cases reach 100 in the US
3/2

Closure of colleges & public schools
3/12

US was performing ~110,000 tests per day
3/25

2/6
CDC tests were found to be faulty

2/29
First death in the US

3/11
WHO declared COVID-19 a pandemic

3/16
Trump Admin & the CDC issue guidelines

3/27
Trump signs Defense Production Act
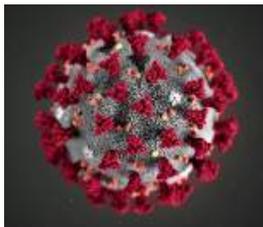
Figure 2: US Timeline February to March

Entering April, the United States was leading the world in the number of coronavirus cases and deaths. The guidelines implemented initially on March 16th by President Trump were extended and further enforced to April 30th (Taylor, 2020). It was also announced that the first week of April would be "one of the toughest weeks" of the outbreak, and hot spots such as Detroit, Louisiana, and New York would be hit the hardest (Perez et al., 2020). In early April, the U.S. was testing around 100,000 individuals a day. Yet, per capita, it was only 305.6 tests per million - a meager number compared to other countries such as Germany, who was conducting 8,063 tests per million people (Lo, 2020). On April 16th, Trump permitted governors to reopen their states. However, experts cautioned against this reiterating that reopening too soon could lead to drastic consequences (Taylor, 2020).

On April 19th, New York governor Andrew Cuomo announced that New York, the state with the highest number of cases, had reached its peak daily cases after hitting 247,512 cases and 14,347 deaths (Soucheray, 2020). Although good news, the virus had taken its toll all throughout the country. Towards the end of April, the United States confirmed that it had hit 1 million cases and more than 50,000 deaths nationwide (Taylor, 2020). State governments began to work towards developing reopening policies, which would allow for areas to reopen, given that they increase testing, wear masks, and various other guidelines that help to reduce the spread (Taylor, 2020; Secon et al, 2020). The effect of the global pandemic, COVID-19, has been detrimental, however, the damage is only further foreseen as we understand the drastic downfall of the United States economy, specifically, the unemployment rate.

COVID-19 Timeline
United States
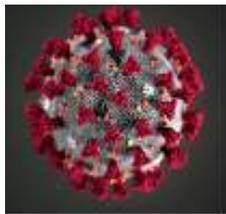
US cases pass 100,000 **3/27**	6.6 million US workers file for unemployment **4/2**	Trump gives permission for states to reopen **4/16**	US cases pass 1 million **4/28**
3/27 Trump signs stimulus package into law	**3/30** Trump extends guidelines on social distancing till April 30th	**4/8** China reopens Wuhan	**4/24** US hits 50,000 deaths
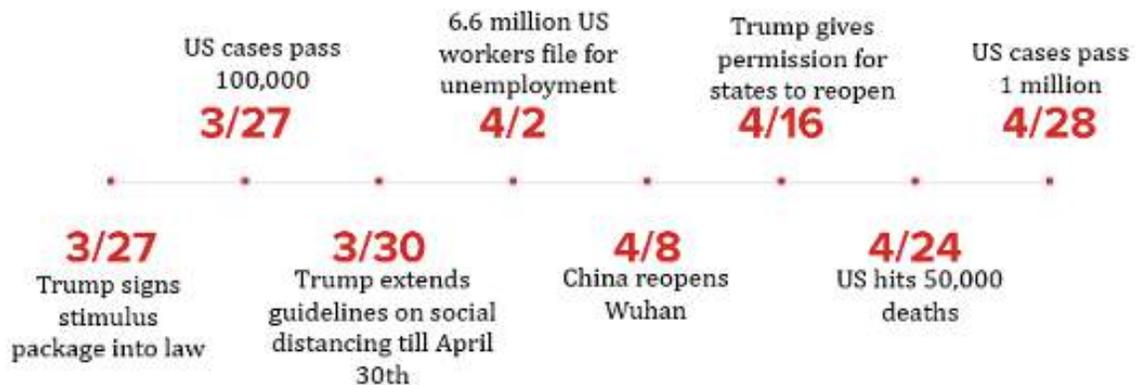
Figure 3: US Timeline March to April

The Impact on the United States Economy

In the United States the impact of COVID-19 took a drastic toll on the US economy. From large businesses to small businesses, many were either temporarily closed or had to reduce their output. The Gross Domestic Product, or GDP, is a measure of the country's economic well-being. (Adams, 2019). Unfortunately, the United States' GDP decreased by approximately 4.8% throughout the first quarter of 2020, the biggest drop since the Great Recession in 2008, and was expected to get worse in subsequent quarters (Torry, 2020). As of early May, the second quarter GDP is projected to again be negative similar to the first quarter (Casselman, 2020). Before the pandemic, unemployment hit a record low for the US, but just after the stay in place orders it hit a record high (Morath, 2020). Unemployment claims in the US rose to approximately 30 million in the first quarter of 2020 and are expected to rise in the coming months (Cox, 2020). These job losses were a direct result of the government mandating stay in place orders to try and limit the spread of the coronavirus ("White House…", 2020). The unemployment rate as of the end of April was 14.7%, which is the worst drop since the Great Depression (Schwartz,2020).
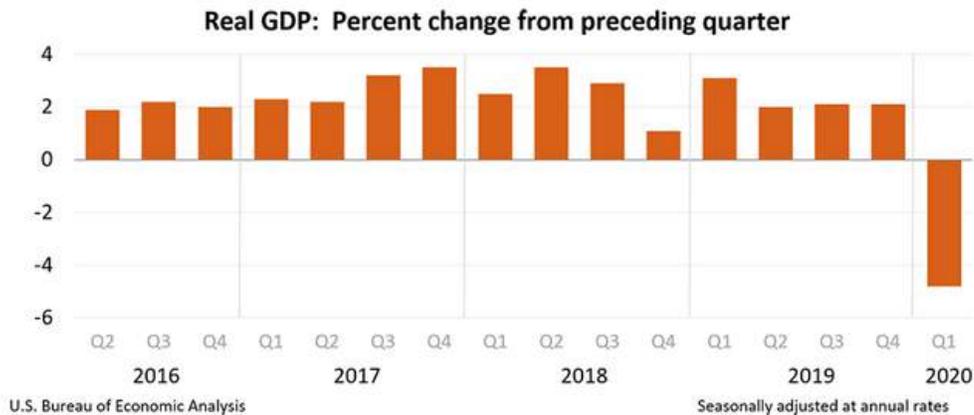
Figure 4: Gross Domestic Product Percentages 2016-2020 (New Release, 2020)
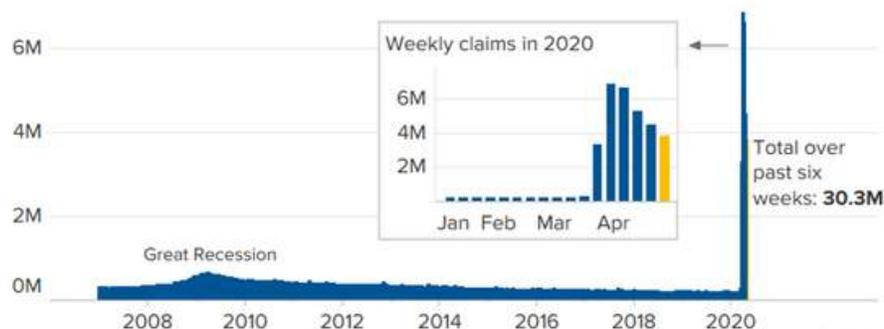
Figure 5: A graph depicting weekly Unemployment Claims in the United States from 2020 (Cox, 2020)

Even though all US residents were negatively affected by COVID-19, African American and Latino populations experienced significantly more infections and deaths due to COVID-19 compared to white and Asian Americans. (Scott, 2020). According to the CDC, some of the contributing factors for these health disparities are poverty, tight living conditions, higher percentage of essential workers, poor diets, and higher instances of underlying health issues like obesity, heart disease and hypertension. Many minorities and ethnic groups do not have access to reliable health care in the US, and may lack insurance("COVID-19....", 2020). As of early May, studies are being conducted to reduce the spread of COVID-19 specifically in the hard hit Black and Latino communities ("COVID-19....", 2020).

Age-adjusted rates of lab confirmed COVID-19 non hospitalized cases, estimated non-fatal hospitalized cases, and patients known to have died 100,000 by race/ethnicity group as of April 16, 2020

	Non-hospitalized	Non-fatal hospitalized	Known to have died
Black/African American	335.5	271.7	92.3
Hispanic/Latino	271.6	198.6	74.3
White	190.4	114.5	45.2
Asian	95.1	82.2	34.5

Age-adjusted case rate per 100,000
- Non-hospitalized
- Non-fatal hospitalized
- Known to have died

Figure 6: Depiction of COVID-19 Cases Based Upon Race in New York City ("COVID-19....", 2020)

Our Story Continued

The first few months of 2020 were hectic. The economy was ravaged, public health systems were unable to cope with the sudden influx of patients, and refrigerator trucks were used as temporary morgues in NYC (Shuster, 2020). For many Americans this is an unprecedented moment that few of us could have imagined was possible. Because the cohort was unable to travel to Thessaloniki, Greece, the group shifted gears and instead examined how people experienced, understood, and responded to the virus and the changes it wrought on society, with each student exploring topics related to the COVID-19 pandemic. These topics include investigating the virus's effect on the medical field, the different ways it has affected college students, how businesses and work life were impacted, the power of nature in helping us cope, and how the public has made sense of the pandemic viewed through their individual experiences.

Medical

In a time of disarray and panic caused by a global health scare, the field of medicine stands on the front lines. Fighting not only the virus, but also an increased workload and critical shortages of personal protective equipment (PPE) among many other issues, medical workers have seen firsthand the changes the pandemic brought about. In one chapter of this document we explore the experiences of medical workers during this pandemic, allowing their stories to be heard regarding the ways in which working during the pandemic has affected them and their family, and for student nurses, how this might affect their learning moving forward. We also explore the changes in care healthcare workers and specialists must provide and methods of alleviating the PPE shortage through an analysis of the theory and practice of 3D printing this precious equipment.

- The COVID-19 Crisis From the Standpoint of Healthcare Workers and Their Families- Jillian Spera
- The Impact of the COVID-19 Pandemic on Student Nurses - Olivia Madmaba
- Modifying Medicine: How the COVID-19 Pandemic has Altered Patient Care and Medical Worker Experience - Sarah Huber
- Lehr Und Kunst: A Theory & Practice Approach to 3D Printed Personal Protective Equipment - Hannah Gallagher

College Students

Student nurses are not the only college students whose lives have been drastically changed by the spread of COVID-19, however. For many full-time students their lives were uprooted when campuses shut down for the year. In this chapter, we begin with an investigation into the attitude of

these students towards their university's COVID-19 response, which revealed varying levels of satisfaction and trust with their school. Furthermore, we discern the different ways the shut down was affecting collegiate athletes, and examined the struggles of WPI students continuing their education from home and the flexibility that demands. In turn, many have looked to the internet, social media, and video games now more than ever to fill that void and reconnect with others. We therefore investigate the ways in which social media affects friendships during the time of the pandemic and look into the role that video games play in their lives.

- Student Attitudes Towards College and University COVID-19 Responses - Olivia Hauber
- The Effect of the Coronavirus Pandemic on Collegiate Athletes - Amanda Wetmore
- Documenting the difficulties that WPI students faced amidst the COVID-19 Crisis at home - Ardavasd Ardhaldjian
- Effect of social media and the internet on college-aged friendships during the pandemic - Connor Skinner
- The Role of Video Games in the COVID-19 Pandemic - Cameron Walsh

Adaptation to Work Life & Business Demands

The projects in this chapter examine how policies to contain the spread of the virus have played out in the working world. Two of the four projects detail how businesses are reacting and adapting to the current situation by trying to balance the safety of their customers, while keeping a company from bankruptcy.

The other two projects focus on how some American workers are reacting to the pandemic and are forced to work differently during the stay at home order.

- The Adjustment of Small Business Amidst the COVID-19 Pandemic - Erica Houghton
- Returning to Work: Challenges on the Production Lines - Adam Klosner
- Determining How COVID-19 has Affected Workers - Colin Gordon
- Special Educator Experiences and Adaptations During the COVID-19 Pandemic -Madeline Blake
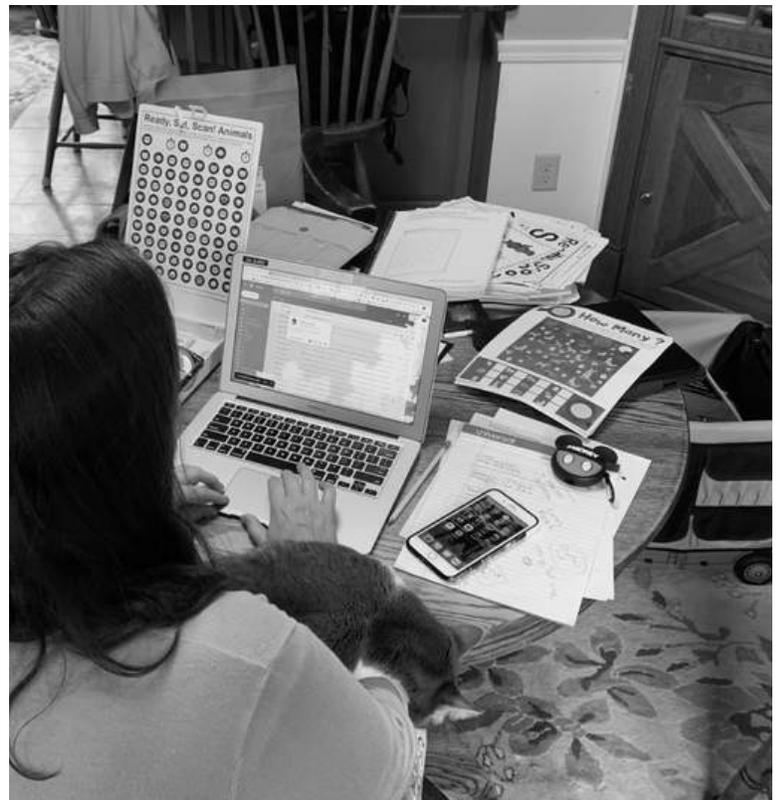
Nature & Outdoors

With people home from work and under increased stress, the natural world is playing an increasing role in people's lives. Now that social distancing has atrophied our social lives, the beauty and space of the outdoors has become more important to us than ever before. We asked those hikers who have been turned away from hiking the Appalachian trail, for instance, to reflect on the purpose that hiking serves in their lives and the sacrifices necessary for the journey to be possible in the midst of a pandemic. We were also drawn to understand the ways in which nature provides a source of inspiration to help us endure the COVID-19 crisis, keeping us peaceful and grounded, while further allowing individuals to reflect on the direct ways that nature has impacted them. We give them a platform for their stories to be heard.

- A Controversial Journey: The Impact of COVID-19 on Appalachian Trail Thru-Hikers - Emma Bennet
- Mindfulness Amidst the Madness: Finding Nature from Home - Hannah Schulz
- Peace, Mindfulness, and the Outdoors: Nature as a Refuge from the Stressors of the COVID-19 Pandemic - Mia Dibattista

Making Sense of the Pandemic

The Making Sense of the Pandemic subgroup has generated a broad spectrum of research based upon the drastic changes from COVID-19. This sub group consists of 8 students who generally focus on risk analysis and perspective. The projects that are more directed towards risk gives an understanding of how effective governments are utilizing their communication abilities daily to keep the public informed to weigh day to day risks. This includes government promotions of experimental drugs such as hydroxychloroquine. This sub group also focuses on the perspective of the public on how they are viewing COVID-19 from families, the elderly, to how individuals are coping with the pandemic through memes and storytelling.

- Perspectives on Federal Guidelines and New York State Mandates During the Pandemic - Noah Roberts
- Assessing the Efficacy of State Governors in Following Risk Communication Guidelines - Ryan Michaud
- The Dangers of Promoting Hydroxychloroquine - Samuel Furtado
- An Investigation of Panic Purchasing During the Pandemic - Connor Craigie
- One Family's Response to the COVID-19 Pandemic - Robert Peralta
- Separation From Older Loved Ones During the Pandemic - Louis Duh
- The Role of Memes as Coping Mechanisms for the COVID-19 Pandemic - Kyria Nelson
- Pandemic Perspectives: Healing Through Storytelling - Alia Brown

We are delighted to bring these diverse narratives into a collected volume that reflects our IQP term. It was supposed to be our opportunity to work in Greece, but instead we are part of the millions of Americans working from home, isolated from colleagues, distracted by family, and apart from our friends. The stories we tell portray how many Americans are feeling and adapting to this unprecedented moment. Here, we have captured the stories that helped us make sense of the pandemic.

CHALLENGES TO THE MEDICAL WORLD

IN THE WAKE OF A GLOBAL CRISIS

Introduction

Challenges Facing Healthcare
Workers In the Wake of a Global
Crisis

With the onset of the COVID-19 pandemic, life for medical workers has almost entirely turned on its head, seeing as the United States was largely unprepared for a health crisis of this size. Approximately 925,000 staffed hospital beds currently exist in the United States; however, less than ten percent of these beds are reserved for people who are critically ill ("Fast Facts", 2020). With these numbers in mind, an infection such as COVID-19 could easily overwhelm the United States' medical system, which is exactly what occurred as more and more individuals became hospitalized with the virus.

Long shifts. Overwhelmed wards. Limited protection. Uncertain outcomes. Exhaustion and isolation. Life or death. Healthcare personnel are facing brutal conditions in medical facilities during the pandemic. Hospitals across the country are struggling to battle the highly infectious virus due to massive shortages of critical medical supplies, especially personal protective equipment (PPE) (Mccammon, 2020). Moreover, healthcare workers on the frontlines worry for their own protection as they continue to work extended hours in worsening conditions. They are forced to make difficult decisions, such as designating the limited supplies of ventilators among suffering patients, knowing that the supply could entirely run out one day (Alltucker, 2020).

In this chapter, four research projects are presented. They focus on one broad theme: how medical workers have experienced the pandemic. Each project took a slightly different approach, and each contributor researched one specific aspect of the healthcare system during the COVID-19 pandemic to better understand what this global crisis has meant for those directly involved. Tackling issues with PPE shortages and understanding the experiences of medical specialists, nurses and their families, and nursing students are all topics that were explored over the course of the past seven weeks and are detailed in this chapter.
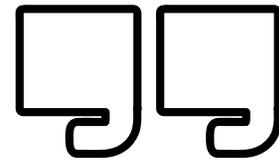
I SIGNED UP FOR MY JOB, BUT I DIDN'T EXACTLY SIGN UP FOR THIS

(Scaplen, 2020)

CHAPTER OUTLINE

THE COVID-19 CRISIS FROM THE STANDPOINT OF HEALTHCARE WORKERS AND THEIR FAMILIES

Jillian Spera

THE IMPACT OF THE COVID-19 PANDEMIC ON NURSING STUDENTS

Olivia Madamba

MODIFYING MEDICINE: HOW THE COVID-19 PANDEMIC HAS ALTERED PATIENT CARE AND MEDICAL WORKER EXPERIENCE

Sarah Huber

LEHR UND KUNST: A THEORY & PRACTICE APPROACH TO 3D PRINTED PERSONAL PROTECTIVE EQUIPMENT

Hannah Gallagher

Stock image, Canva.

The COVID-19 Crisis From the Standpoint of Healthcare Workers and Their Families

Jillian Spera

All healthcare workers require a certain amount of training to be proficient at performing their specific jobs. Surgeons and doctors require years of schooling and practice; nurses can get certifications; medical receptionists, medical administrative staff and more go through various training before starting their respective positions ("Why Did You Choose", 2020; Brooks, 2017). In addition, those who are training to become healthcare workers in 2020 will also undergo disaster or pandemic training ("Coronavirus: Nurses have Prepared," 2020; "Pandemic Influenza Preparedness," 2007; Maunder, et al., 2010).

With the current COVID-19 pandemic, healthcare workers have made it clear that they were never prepared for something as bad as the current health crisis ("Coronavirus: Nurses have Prepared," 2020). In nursing school, individuals are taught to prepare for the worst-case scenario, but it appears the current situation is worse than what was taught. Nurses, in particular, are extremely stressed and burnt out, working long hours and double shifts without a moment's rest ("Coronavirus: Nurses have Prepared," 2020).

They are also stressed in their own homes. While living by one's self can often be lonesome, at least the individual does not have to worry about getting friends or family members sick. If they do live with others however, they often have to self-isolate to protect the people closest to them. This is a period when healthcare workers want family members to talk to, or hug for emotional support, but they cannot as they worry about infecting them ("Coronavirus" Nurses have Prepared," 2020; "Follow a Nurse," 2020). Although the media can over exaggerate the responses to this COVID-19 pandemic, healthcare professionals nonetheless have reasons to be stressed ("Coronavirus: Nurses have Prepared," 2020; "Follow a Nurse," 2020; Jojola & Beese, 2020; Mattero, 2020).

This coronavirus is new and unlike previous strains. Not all of the symptoms are known, and there is currently no known cure (Pappas, 2020). There are new symptoms that seem to be appearing from nowhere that can lead to serious complications, such as strokes, acute kidney disease, heart issues, and neurological malfunction (Bernstein, Johnson, Kaplan & McGinley, 2020). New information can lead to a wide array of emotions in those that are working with COVID-19 personally, as no one knows exactly what to expect with this pandemic. It is an incredible feeling for nurses and other hospital staff when they get to see a COVID-19 patient go home. In fact, they often line the halls and cheer when patients are wheeled to their car before being discharged (Murrer, 2020). The medical workers care about their patients greatly and want to see them get better; this is their job and they love it. In a time of a pandemic, it is always a positive experience getting to see patients go home. They know that they helped that person recover and there is often no other feeling like it (Murrer, 2020). In contrast, if a patient does not make it, it can be

disheartening. Healthcare workers cannot save everyone, so unfortunately, there are moments of failure and sadness as well (Murrer, 2020; "Coronavirus: Nurses have Prepared," 2020).

Currently, there is a lack of personal protection equipment (PPE) that is used to protect healthcare workers from falling ill with the virus ("Coronavirus Disease 2019," 2020; "FAQ's on Shortages," 2020; Jacobs, Ritchel & Baker, 2020). There is also a shortage of medical equipment, such as ventilators, that are often used as a last resort to treat those severely infected by the virus ("Fast Facts," 2020; Halpern & Tan, 2020).

In addition to the risk of exposure and infection, there is an additional risk of being laid off or furloughed, as hospitals and other businesses that employ health care workers lose money from a declining number of procedures being carried out (Mattero, 2020; Laizure, 2020; Leonard, 2020). Unfortunately, no matter the case, there is always something that healthcare professionals have to worry about. It can range between being laid off to contracting a virus, but they are all valid reasons to experience worry and take precaution.

As expected, healthcare workers might have the toughest experience of all during the pandemic. They are often exhausted, both mentally and physically. In addition, they are lonely. They do not feel safe at work, therefore, in most cases they are separated from loved ones in fear of spreading the deadly virus (Mattero, 2020; "Follow a Nurse," 2020; Nierenberg, 2020). They want to go home, but most of all, they want to hear good news.

Although there are often stressors and hardships during a pandemic, there are also certain acts of kindness and community that can bring people together (Marks, 2020). Every night when the clock strikes a specific, but designated local time, people around the world may gather on their doorsteps, balconies, windows and more, to clap and cheer for healthcare workers (Hess, 2020; Marks, 2020). Healthcare workers sometimes risk their lives to do their job, but they do it because they want to help patients get better ("Follow a Nurse," 2020; 'Coronavirus: Nurses have Prepared," 2020; Thew, 2020). They are putting others' needs above their own to care for others and are regarded as heroes.

For this project, I have documented the reactions to this crisis from various healthcare workers' perspectives, as well as the people closest to them. All stories are important, and they tell different views of the pandemic, not just what we might see or hear from media sources. There are fears and stressors, but there are also triumphs and good days that bring light to a time of darkness.

Photo Credit: I. Laizure
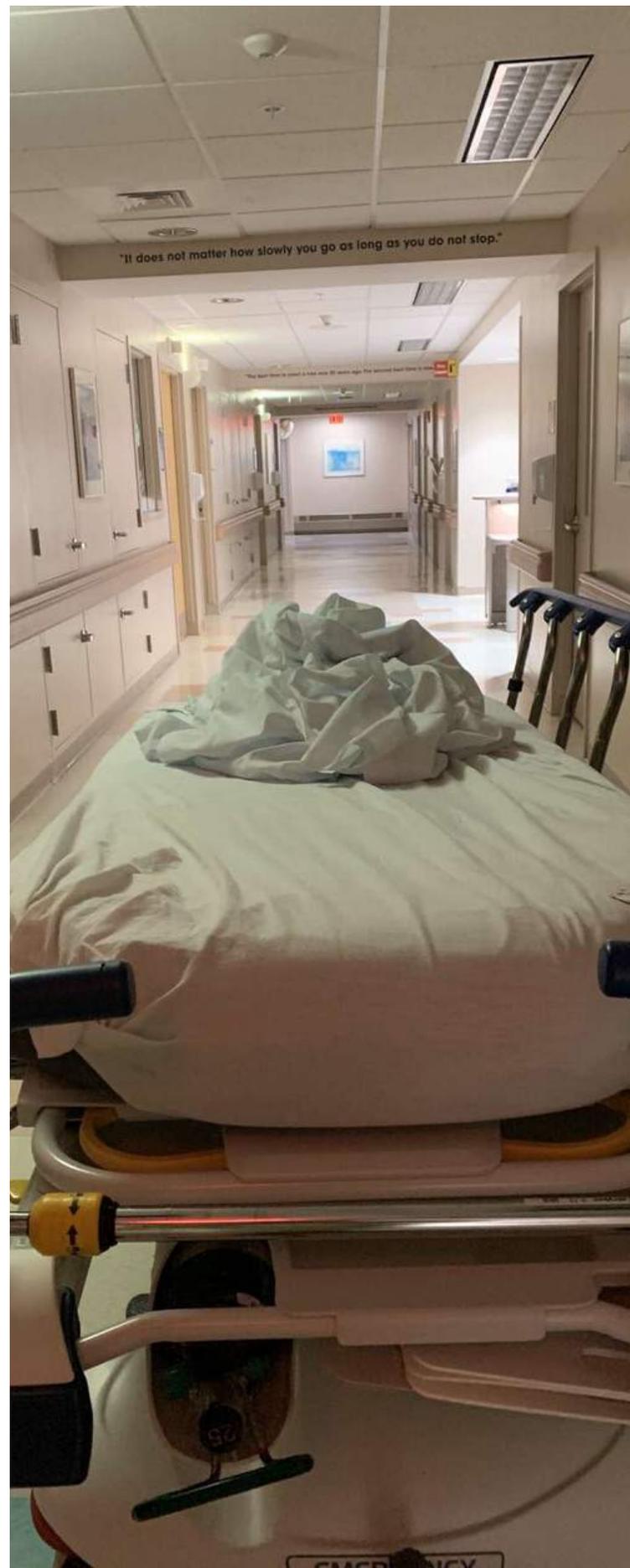
Methods

The goal of this project was to enable healthcare workers, as well as their friends and families, to share their stories about what they go through and how they reflect on their experience during the time of the coronavirus outbreak. Stories have healing power; they create meaning in our lives, and they allow us to tolerate some more difficult memories by speaking them aloud and sharing them with others (Miller, 2017). Encouraging healthcare workers and their families and friends to tell their stories can help them work through what they are experiencing. With this in mind, I conducted interviews with four healthcare workers and one of their family members. The following served as my main research questions:

1. How have typical duties of healthcare workers changed and how they are responding to them?
2. How have the lives changed for those living with a healthcare worker and what are they experiencing?

I wanted to better understand how healthcare workers and their close friends and family are responding to the pandemic from an emotional standpoint, and how their lives may have changed because of it.

These interviews were meant to allow healthcare employees and their families to tell their stories and explain how they were feeling. The interviewees were family members and friends of mine that either worked in the healthcare field, or family members of those that work in the healthcare field. I interviewed hospital receptionists, patient transporters, and family members of those that have similar jobs. All of the interviewees had been personally working with the COVID-19 crisis or were in direct contact with someone who was.

The interviews I conducted were generally around 45 minutes long. They were done over the phone or FaceTime and recorded with permission from the respondent. I transcribed the interviews using the program Otter.ai. and then edited the transcript. The interviews were semi-structured in nature to allow for deeper discussion and provide better insight. Semi-structured interviews contain both open-ended and closed-ended questions to get the optimal information from the interviewee while making it an experience that is not as formal. It allows the interviewee to talk about as many ideas as they want, but at the same time, the interviewer is allowed to probe to get the information they need that relates to the topic (Adams, 2015).

I created interview questions (found in Appendix A) that were used to initiate discussions as needed. However, I felt it was far more important to let these individuals talk on their own and share their stories, so I did not push them to answer any questions they were not comfortable with. Before beginning my interviews, I tested the interview questions on family members in order to understand if the questions were understandable.

I analyzed the data from the interviews and categorized them into common themes, commonly known as coding (Saldana, 2016). I separated the interviews into those that were conducted with a healthcare worker and those that were conducted with close family or friends of healthcare workers. They were then broken down further based on similarities between interviews and categorized results based on themes that emerged.

Findings

Before beginning the research and interviewing process, I intended to focus more on families of healthcare workers and how the COVID-19 pandemic was having an effect on them. I was able to interview some family members, but I mainly interviewed healthcare workers. Because of this, the findings lean somewhat heavily towards the perspective of healthcare workers, although the family members of healthcare workers often had similar perspectives. The following six themes emerged from my research. Overall, they accurately depict the experience of what healthcare workers and their families go through during such a crisis.

Figure 1. A memo about PPE displayed at a hospital one interviewee works at.

Changes in the Work Environment

According to healthcare professionals I spoke to, entire floors or wards of hospitals and other medical buildings were being converted into areas strictly for COVID positive patients. Moreover, the interviews stated that the other parts of the building are being cleaned thoroughly and constantly and only essential procedures are being carried out. Visitors are banned and there are no exceptions (I. Laizure). Essentially, everything has changed. The mother of a fellow Worcester Polytechnic Institute (WPI) student whom I interviewed works at Brigham and Women's Hospital in Boston, one of the cities heavily impacted by the virus. I. Chan stated that "they converted half the hospital to a COVID positive ward before things really got bad" (personal communication, April 19, 2020). Other hospitals in Massachusetts have had the same ideas. Both S. Adjei and K. Mattero both noted that there were either COVID positive only floors or wings in each of their respective workplaces. S. Adjei made an additional note that the hospital they worked at had converted some areas into COVID-only long before the virus hit badly in the area.

With the new changes to the hospital layout, transitions to other departments or certain training procedures were common. In fact, I. Chan's mother, a cardiovascular nurse by training, is now only treating COVID positive patients. Another interviewee noted that "[our workplace] has a thing called the labor pool, [where] they take everybody from anywhere and put them in random jobs that anybody could do. So, whether it's like cleaning or sitting watch, it's just so you can be pulled into any situation" (S. Adjei, personal communication April 23,

2020). S. Adjei did not seem to mind this and seemed to be more than happy to help. It is a tough time for most, but everyone is doing what they can to help.

Changes in the workplace, such as visiting policies, employee procedures and more were a commonality among interview participants. Most of those interviewed worked in hospitals or were in close contact with those that did. They all made note of new "No Visitors" policies put in place around the nation. In some cases, staff members have to be screened before starting shifts: "Everyone has to wear masks now and there are signs [all over the hospital] and you can't enter without one. After your shift ends you have to change clothes…. Staff members have temperatures taken and such before starting their shift" (I. Laizure, personal communication, April 17, 2020). An example of this type of signage can be seen in Figure 1. K. Tremblay seemed to have been most affected by this policy change: "with cancer care there, there's an element of it that is awful for the patient. Unfortunately, we cut off any visitors in our facility, so patients are not allowed [to bring someone with them] or [patients] have to come alone, which has been stressful and it's also very stressful for us to explain that to patients" (personal communication, April 29, 2020). Patients do not have the support system they once had during treatment and the fact that many are often alone and scared during essential medical procedures is hard for all parties involved.

Lack of, or Restrictions on Use of Personal Protection Equipment

Interviewees reported that N95 masks are one of the hardest items for healthcare workers to come across, especially since they are in extremely high demand. Most of the time, it was reported that healthcare workers are not given an N95 mask, but a surgical mask instead. However, the surgical mask does not fully protect from the virus. (I. Laizure, personal communication, April 17, 2020; K. Tremblay, April 19, 2020).

It was rather unsurprising to find that most healthcare workers that I interviewed expressed that they did not have access to the necessary protective equipment. Although they often had access to handmade or surgical masks, access to such protective equipment was severely limited. Working with some of the most vulnerable patients did not lead to exceptions of strict rules. Caretakers and nurses for cancer patients "[are] given one [surgical] mask a day that we're supposed to use unless it becomes soiled or wrecked" (K. Tremblay, personal communication, April 29, 2020). If they did have access to an N95 mask, it was stored in a labeled plastic bag and reused for weeks on end; basically, it was used until it was falling apart, as I. Laizure noted. Some nurses have resorted to bringing their own equipment to keep themselves safe: "All non-nursing staff does not have a proper mask… I've seen some nurses with respirator type masks, like gas masks, but those are mainly personal use," (I. Laizure, personal communication, April 17, 2020). Figure 2 shows I. Laizure wearing some protective gear they were given before starting their shift.

Hospitals and other healthcare sites now require that all personnel on the premises wear specific protective gear. In one hospital and veterans' center in Massachusetts, "everyone's required to wear a mask. It can either be a [hospital provided] mask or homemade mask. The rule about the homemade mask has just changed"

(S. Adjei, personal communication, April 23, 2020). In other hospitals and healthcare facilities, personal protective equipment is not provided to employees. To keep themselves safe as hospital receptionists that are dealing with some patients that are not proven to be COVID negative, they take their own measures: "I get dressed [to go to work] in work-only clothes, and there are certain procedures you have to follow [at work], but no protective equipment [is required] right now," (K. Mattero, personal communication, April 23, 2020). Based on the perspectives of healthcare workers, there was a lack of personal protective equipment that made treatment of patients more difficult than it would have been if healthcare professionals did have access to it.

Since she works with cancer patients, K. Tremblay has always had to wear a mask. She noted feeling unfazed by this change in procedure but was significantly more worried about other aspects of the COVID-19 pandemic. She reported not being as worried about her own health when compared to the health of her patients. Most people who are going through cancer treatment, or chemotherapy, have severely weakened immune systems. Fortunately, she does not work with COVID-19 positive patients, but there is always a risk. This risk is further amplified with the one mask a day policy. Not changing a mask when going from patient to patient could lead to germ transfer across the facility as germs picked up from previous patients have the potential to interact with another patient. The masks also lose their effectiveness the longer they are worn. If a patient going through chemotherapy becomes infected with COVID-19, it is not the best situation as many patients undergoing this treatment have little to no immune system (K. Tremblay, personal communication, April 29, 2020). If a single person that is a carrier for COVID-19 interacts with essential workers, it

could ultimately lead to the untimely death of many people who become infected. This is the main reason the virus is scaring healthcare workers. No one can pinpoint exactly who is asymptomatic and they want to protect those who are vulnerable at all costs (K. Tremblay, personal communication, April 29, 2020). Other participants noted feeling the same way. All those interviewed

Figure 2. I. Laizure dressed in PPE before beginning their shift.

were younger and considered to be lower risk for the virus, however, many of their patients are not.

Procedural Changes

Double shifts and extra work were also found to be common as more people are falling ill at this time. In the previous week, before I conducted the interviews, one such interviewee was notified that she worked in close contact to someone who was found to be an asymptomatic carrier of COVID 19. Although this individual was asymptomatic, they still had to be sent home to quarantine, along with the other members of the department. The carrier could eventually get all other members of the department sick and these needed staff members would have to quarantine at their houses answering calls. Patients can then be directed to a doctor or nurse that is on call if the patient has any pressing questions or concerns. If more people get sick doing their jobs, more people are off, and the remaining staff has to work more hours as they are greatly needed during this time. Most hospitals are already overwhelmed as the amount of staff cannot adequately keep up with the number of patients. When staff members are over-worked, they are more likely to fall ill. It is a viscous circle. In these hospitals, "morale and their work is going down because, you know, a lot of them are sick so everyone's taken double shifts, and it's a lot of extra work for them," (S. Adjei, April 23, 2020)

On the other hand, some hospitals were found to be furloughing workers, sometimes causing the workload to be even more demanding for the overwhelmed staff. Upon conducting my first interview, I was extremely surprised to learn that many employers were furloughing their employees. However, once I had the reasoning thoroughly explained, it made complete sense.

As someone who has seen the problem first hand by working with all different departments, practice supervisor K. Mattero stated "a good part of the hospital is without a job right now… it's kind of because there's not a lot of things happening outside of emergency care… elective surgeries or elective care, there's not a lot happening because there's a hold on it." Non-emergency surgeries are postponed to lower the risk of exposure to patients and staff as well as maintain the levels of PPE. "So, it's jeopardizing jobs. Pay staff that maintains the outpatient clinics are no longer at hospitals because of the pandemic going on and the need to cut staff due to funding is crucial" (personal communication, April 23, 2020). It should be noted that other interviewees shared similar perspectives.

Telemedicine has also become increasingly popular since the beginning of the shelter at home order. Some healthcare workers are able to work from their own homes. Others have to sit in an empty or near-empty building. Telehealth allows providers to meet virtually with their patients, but it is still radically different than seeing a doctor in their office. K. Mattero stated that although she does not do telehealth calls herself, she is more than happy to set an appointment up for any patient that would like one. It was a common theme in the interviews that those who worked in the healthcare field enjoyed helping patients and wanted to do anything they could to give patients a positive experience. S. Adjei works with veterans as an activities coordinator. She often sees patients or clients and holds wellness classes for them to attend, but, unfortunately, they were all cancelled or moved to online platforms because of the COVID-19 pandemic. She has

not seen any patients in person since the stay at home order was issued in Massachusetts. She said that "we went from [conducting] six or seven in-person [veteran's wellness] classes a week to maybe two virtual. Everything has to be done via video Connect (an app used to video chat with multiple individuals at once). And that's just hard because a lot of our veterans who [we work with] don't have internet; they're not tech savvy. So, participation had declined".

Triumphs and Other Positive Aspects of Life During a Pandemic

The pandemic is working to bring people together in unexpected ways. One patient transporter I interviewed is a young college student working in a hospital with senior nurses and other healthcare professionals. She noted that "everyone is going out of their way to talk to other staff members and check in on one another. Trauma unites people. I think everyone is feeling that way and it's nice to talk to them. I could never go up to people before. What am I supposed to ask: "How are your kids?" Now everyone is in the same situation," (I. Laizure, personal communication, April 17, 2020). Nonetheless, unfortunate circumstances are bringing people together in ways never expected.

Surprisingly, I also found that many healthcare workers had more free time on their hands due to the COVID-19 pandemic. Healthcare workers such as plastic surgeons, dentists, and other specialists do not have a lot to do at work because most elective or non-essential procedures and appointments have been cancelled due to the
pandemic. If there are no patients to treat, healthcare workers that have such jobs are then unable to work. Interviewees reported they were bringing coloring books to work, working from home due to the lack of people calling in for appointments, or being "bored of my job because

we can't leave the room," (S. Adjei, personal communication, 23 April, 2020). K. Mattero was able to spend more time with her young child because she was now working from home. I. Laizure, a college student, still has a lot of schoolwork to complete, but often found herself "[using the comedy on Tik Tok] as a coping mechanism... it's where the funny people are," (personal communication, April 17, 2020). These individuals still had jobs, but the lack of patients and personal interaction was allowing them to spend more time participating in activities that were not related to their jobs.

The majority of those that I interviewed were younger adults and had small children. Childcare facilities and schools were closed so there is no choice but to keep young children at home. They reported getting to spend more time with their children. As one nurse described it "but you know, it's funny, [work] has been stressful, but I have enjoyed being home with [my kids] so much. Like I realize how much you miss [if you're not there] when you're there with them every day. I'm like, oh my gosh, I would have missed that, so that part has been nice," (K. Tremblay, personal communication, April 29, 2020). If the parents are also home, valuable memories can be made despite what is happening in the outside world. Another interviewee had a young child she was able to spend more time with. She keeps her child busy by going to the nearby park daily, among other activities. Yet another interviewee was expecting her first child and found herself and her spouse had more time to prepare for the new arrival than they might have had if their jobs were different.

For many, it was found that the pandemic

created a sense of community awareness while working to bring such areas together. Interviewees noted incredible support from the community as well as specific individuals.

There were reports of masks being made by those staying at home and having them donated to nearby hospitals (K. Mattero, personal communication, April 23, 2020). In a similar fashion, K. Tremblay mentioned "the support from the community and other emergency health or just emergency services have been unbelievable and you know, like we've had pizza delivery, donut delivery. People in the community and Walmart have donated to our hospital, you know, the kindness from some of these people have been unbelievable. So, you

know, those are things that I have never seen or experienced in my work," (personal communication, April 29, 2020). Despite the pandemic, people are working together to get healthcare workers any assistance they need and let them know how grateful we all are for them.

If I were to go for a walk in my own community, I would see signs lining the street that I live on that are thanking healthcare workers for all they do. There are messages of hope in every house. I take my dog out for walks daily and almost every day there are new messages written in chalk saying thank you to healthcare workers, delivery persons, grocery store workers, and more. Many of them are written by the neighborhood kids, such as the one seen in Figure 3. One person who lives on my street appeared to have a birthday the other day. There were messages written in chalk wishing them a happy birthday and signs hung up for them in a neighbor's house so all could see (seen in Figure 4) Sometimes there are humorous signs placed in windows that I will notice. Even though we are unable to see each other, we can still communicate and show support. It is a very different experience, but one that will help bring people together, nonetheless.

Social Distancing
Seeing as most of the interviewees had personal experience in working with COVID positive patients, they were all strict followers of social distancing. All participants lived with others, and many of them had young children or older parents

Figure 3. A sign thanking postal workers located in my neighborhood

living in their homes. They were all very strict in the protective measures they took, but I. Chan had a different experience compared to the others. As mentioned, I. Chan's mother is a cardiovascular nurse at a hospital hotspot for the virus. She reported that "[my mother] sleeps in the basement and FaceTimes [members of the family] when she needs something. Everyone in the house takes turns cooking for her and she only comes out of the basement to go to her shift or shower," (I. Chan, April 19, 2020). This type of routine has been in place since the outbreak started. If I. Chan's mother did not take such measures, she would risk spreading it to other members of the household. The same was true for other households. K. Mattero lives with her very young child, and a parent over the age of 60. Upon entering the house, there is now an established rule where all family members take off most of the clothes they wore if they went out "to put in the laundry, and then [they will] just change immediately and shower," (K. Mattero, personal communication, April 23, 2020). Another nurse that did not work directly with COVID positive patients had an extremely similar mindset. This nurse also has young children in the household and worried about potentially giving the virus to them if she were to come in contact with the virus: "what I have been doing is leaving the hospital in normal clothing, which is not something I ever did before. Changing my scrubs at the hospital, coming home in regular clothing, taking that clothing off as soon as I get home, going to the shower before touching anybody, which is something that I didn't do before. But then you start thinking about all the other things like wearing a jacket, like if I wear that jacket with my scrubs, and I wear it with regular clothing," (K. Tremblay, personal communication, April 29, 2020). Measures that were once considered extreme are now the norm when it comes to preventing the spread of COVID-19 and protecting those close to us.

Figure 4. A sign for a neighbors Birthday!

those interviewed were also extremely mindful when going out in public. I found that those who had jobs in the healthcare field were generally the one that supplied the household with groceries or any other needs. No exact reason was given as to why this was the case, but it was heavily implied that healthcare workers were the family members that were the most worried, so they did not want other family members to go out in fear of catching the virus. One interviewee is currently expecting their first child and is

"I START BAWLING BEFORE AND AFTER EVERY SHIFT BECAUSE I'M SO STRESSED AND NERVOUS

- I. Laizure, 2020

rather worried by what they see when going out in public: "it's more serious than people are taking it, especially those who don't work in hospitals or aren't afraid to get sick. It's not really about the people who aren't afraid, it's more about the vulnerable population," (S. Adjei, personal communication, April 23, 2020).

Responses to the COVID-19 Pandemic

This response from one of the interviewees about how the pandemic has altered their life is not uncommon. Many fear for the safety of family members and others more than themselves. I. Chan's mother may have been exposed, seeing as she works with COVID positive patients, but she do not want her family

members to catch the virus after seeing what it does to patients. This household has started to limit the family members from even going outside. In addition, their town was recently designated a hotspot for the virus. K. Mattero and S. Adjei are siblings, but they have not seen each other in person in several months. The only interaction they have had is through Zoom or other apps and platforms. I. Laizure did not self-isolate from their family because they worked so infrequently, but they have not seen anyone besides members of the household in months. They are afraid of being an asymptomatic carrier and spreading the virus to others.the lack of patients and personal interaction was allowing them to spend more time participating in activities that were not related to their jobs.

There are definite risks with jobs in the healthcare field due to the COVID-19 pandemic, but most interviewees did not talk about going to work in a negative way. For S. Adjei, the risk level is manageable. She is a healthy, active, young adult and only lives with one other person who shares a similar lifestyle. Although there are COVID positive patients in the hospital, she does not interact with them. However, since they are in the building, all proper precautions are taken. Others were more fearful. K. Mattero lives with her mother, who is considered to be in the higher-risk group due to her age. Because of the risk, there were more negative connotations associated with work (K. Mattero, personal communication, April 23, 2020).

Unfortunately, the pandemic was a stressful time for many, especially those with jobs in

the healthcare field. I found that the healthcare workers I interviewed were worried n general. No one knew what to expect and the COVID-19 virus could not be stopped. The quote seen below is the reaction one nurse had to the virus. There were often reports of being worried about one's own health. However, the health of one's self was placed lower if there were other people living in the household with the healthcare worker (I. Chan, personal communication, April 19, 2020; K. Mattero, personal communication, April 23, 2020; K. Tremblay, personal communication, April 29, 2020). In other words, individuals tended to be more worried about transmitting the virus to family and friends rather than contracting it themselves. As seen in this example, the selflessness of healthcare workers is only emphasized more during a time of need.

Conclusion

The commonalities among the interview participants were unlike what I had expected my results to state, but they made sense once the interviews were complete, nonetheless. Overall, it was found that healthcare workers are taking the COVID-19 pandemic extremely seriously, but they are also fearful and stressed. I interviewed people from a wide range of possible careers in the field, so I expected some differentiation among responses, but all participants had the same general response. There are changes in the workplace, changes in daily life, changes in procedures and changes in attitude or mental state. The similarities and information from the interviews I conducted in this study supported the findings.

However, there were also various limitations to this study. I was only able to interview five individuals, four of whom were healthcare workers and one of which was a family member of a healthcare worker. Due to the extremely

"[WATCHING COVID-19 SPREAD THROUGHOUT THE WORLD] WAS LIKE WAITING ON A BEACH FOR A TSUNAMI TO HIT"

- K. Tremblay, 2020

limited sample size, it can be difficult to draw accurate conclusions from the data. Despite this, all those I interviewed had the same general response which does indicate that if more people were interviewed, it is highly likely they would have also had similar answers. There was also a limitation because many of the participants came from the same groups when based on age, life experience, and other factors. Three of the participants were females in their late 20's to early 30's who had young children. The other two participants were female college students. All participants were located in the same general area, except for one nurse who resides in Nova Scotia. Despite these factors, it could be concluded that healthcare workers and their families are all going through a period of extreme stress, but are also answering the call to help during the COVID-19 pandemic.

THE IMPACT OF THE COVID-19 PANDEMIC ON NURSING STUDENTS

By Olivia Madamba

The Importance of Early Experiences for Nursing Education

Starting a new job is always an exciting and busy time for young graduates and students. A wide range of emotions are felt when entering a new environment and assimilating into a new position, from nervous to happy to fearful to stressed (Hoeve et. al, 2018). Students are finally able to begin the careers that they have been working so hard to pursue and are able to determine if it is the right path for them professionally. The first couple of years in the workforce is commonly said to be important for setting the tone for the professional lives of novice employees across all fields (Benner, 1982). For healthcare workers specifically, gaining early experience in clinical environments is important for understanding the mechanisms of the medical field and interactions of both treating patients and working with a team of colleagues (Simmons, 2017).

Nurses are often considered to be the backbone of the American healthcare system. Their empathy and compassion are important aspects of patient care that cannot be achieved by medical techniques alone.

Stock image, Canva.
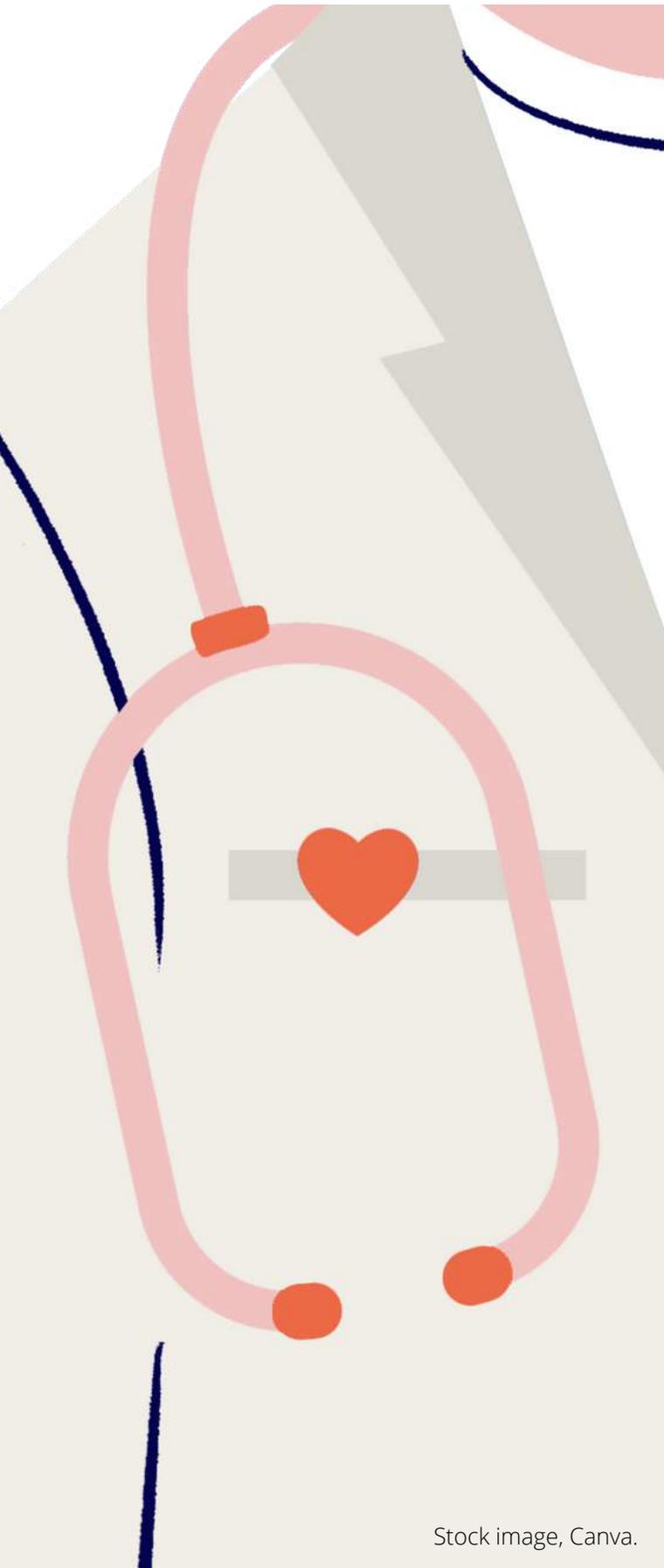
This is especially true during times of extreme hardship, like the world is currently facing with the COVID-19 pandemic. For many less-experienced nurses today, such as students and recent graduates, their first exposures and early memories of working in the field will be during this time of chaos. They have felt a calling to help save lives, and our country now needs their skills and diligence more than ever.

The first experiences that newly graduated nursing students encounter are transformative for their attitudes towards their work lives. The transition period from a novice to a professional staff nurse is crucial for learning and adapting to their professional identities, however, it can also be a time of emotional upheaval (Hoeve et al., 2018). Shifts are long and overwhelming, and they are faced with new challenges and stressors when applying their theoretical knowledge to practical use (Hussein et al., 2017).

There are several factors of the transition period that can help novice nurses successfully adopt their new responsibilities in a potentially chaotic environment. A study conducted at a University Medical Center in the Netherlands analyzed the content of weekly diary entries for 18 nurses and categorized their experiences into different themes to determine which were most impactful during their transition period from novice to professional staff nurses (Hoeve et al., 2018). Through documenting their experiences, the novice nurses expressed that the most important aspect of their new careers was feeling a sense of community within a safe work environment. The researchers classified this theme as relatedness: the ability to connect with others and find a sense of belonging. The relationships the nurses had with patients, supervisors, and colleagues had the most influence over their attitudes towards themselves and their jobs. Having an emotional

support system among their colleagues was found to be crucial for allowing them to cope with the stressors they are enduring (Hoeve et al., 2018). The feeling of relatedness is also important for quality patient care, so they feel genuinely cared for and can trust the nurses who are looking after them (Crary, 2016).

Competency and the ability to perform their duties successfully were other crucial themes that arose during the early experiences in the medical center (Hoeve et al., 2018). Novice nurses are often underprepared when entering the workforce and can make mistakes when practicing. Studies have shown the main challenges for new nurses are performing procedures accurately, communicating effectively with their colleagues, supervisors and patients, and efficient time-management of the shifts for their floor (Hezaveh et al., 2013). Unpreparedness and incompetency for novice nurses can lower self-confidence and affect one's attitude towards their suitability in the medical field. However, "practice makes perfect" and continuing professional development over time leads to stronger career satisfaction and a renewed sense of motivation (Hoeve et al., 2018). Although these themes were extracted from first-hand stories, they may not reflect what novice nurses are experiencing at every place and time. Different circumstances can put pressure on them in unplanned ways and can affect their perspectives on their clinical environments.

Nursing Students and COVID-19
For many nursing students today, their transition periods are going to be during a time of uncertainty and overwhelming workloads. The high demand for staff

members at hospitals and clinics during the COVID-19 pandemic has forced states and cities to make adaptations to the healthcare system to prepare for the growing influx of patients who test positive for the COVID-19 virus (Magsam, 2020). Some municipalities across the country have allowed medical and nursing students to enter the workforce early to help protect the public from this disease (Morgan, 2020). Students who have passed certain requirements without officially graduating from their nursing programs are granted eligibility to receive temporary registered nurse or licensed practical nurse licenses.

The nurses-in-training who are working at hospitals and clinics have assumed important positions needed to alleviate the pressure on these facilities (Morgan, 2020). Some nursing students are in charge of answering phone calls and screening patients before they meet with medical professionals, while others are responsible for organizing and inputting the results of COVID-19 tests in labs (Magsam, 2020).

Although there is a dire need for more healthcare workers, many medical professionals are hesitant to introduce nursing students to unsafe work environments that can threaten their safety, especially with insufficient personal protective equipment (PPE) and hygiene protocols (Morgan, 2020). Some universities are even telling students who are close to graduating to stay at home in order to minimize health risks for themselves and their communities, but there is significant backlash from students who feel their skills are being underutilized (DeRuy, 2020).

Currently, nursing students who are working at medical facilities during the pandemic have expressed positive and hopeful attitudes. One student working at a testing clinic said, "I haven't worked in a regular health care setting, let alone during a pandemic. Everyone from the physicians to the techs have been welcoming and supportive, though" (Magsam, 2020). Another student said "I chose this career because I love to help others and it's super rewarding. I want to go to work every day knowing that I love what I do and I'm helping people. [This] is definitely scary but I think it's what I signed up for" (Morgan, 2020). Many novice nurses are worried, but they are ready to use their skills and enter the workforce to help those in need fighting for their lives on the front-lines of the pandemic (Guerrero, 2020).

Drawing, Olivia Madamba

Methods

The goal of my project was to determine how the COVID-19 pandemic has impacted nursing students, and I gained a better understanding of how coronavirus has affected the lives of nursing students in different ways. I learned how their perspectives on their career paths have changed during this crisis due to heightened stress and pressure on healthcare workers. I also learned how the pandemic has affected them emotionally. To get a well-rounded view on these topics, I created the following questions that I wanted to answer throughout the interviews:

1. **What are the various responsibilities of nursing students during the pandemic?**
2. **What are their nursing classes like while social-distancing?**
3. **If they are currently working at a health care facility, what have they experienced and what are their opinions on their work environment?**
4. **What emotions are they feeling?**
5. **How have their perspectives on their future nursing careers possibly changed?**
6. **What motivates them/inspires them?**
7. **What advice do nursing students have for the general public (non-essential workers)?**

To learn the different circumstances of nursing students during the pandemic, I first reached out to potential participants using Facebook Messenger. I scheduled individual interviews with them over Zoom and Facetime, and asked them to provide me with contact information for their nursing friends or colleagues who may also be interested in participating in my study. I interviewed seven nursing students to learn about their experiences with coronavirus. I wanted to understand the different roles and responsibilities of each person and the emotions that they have felt during their daily routines.

I asked about both triumphs and hardships and how they may have affected their opinions on nursing. My interview questions are listed in Appendix A. Each interview was around 30 minutes long. I recorded each conversation with consent and transcribed using the app Otter.ai with additional editing for conciseness and clarity.

Drawing, Olivia Madamba
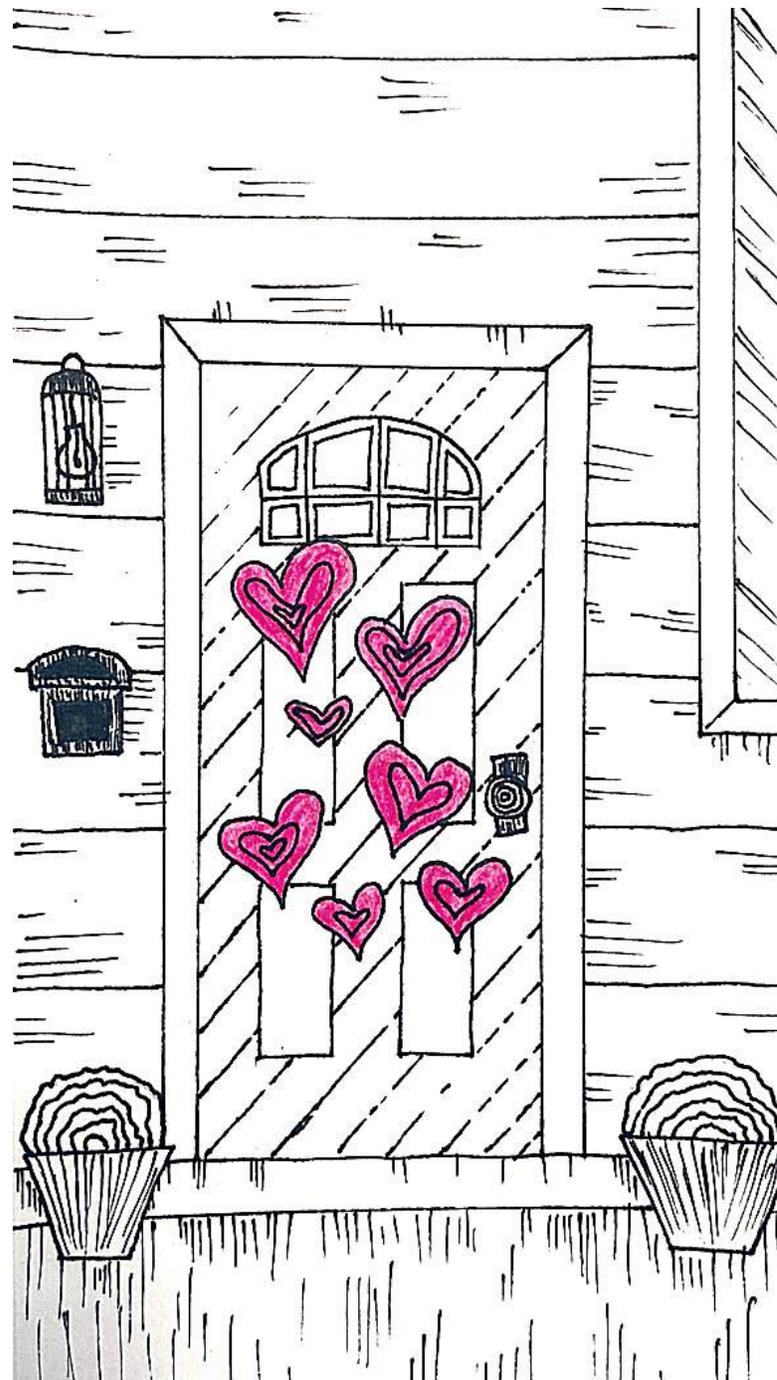
Findings

After conducting the semi-structured interviews, I analyzed the responses of the seven participants by categorizing them into common themes. The following sections are defined by themes that detail the different ways nursing students are experiencing the COVID-19 pandemic in their daily lives.

Effects on Education

> **"AS A NURSE, WE HAVE TO BE FLEXIBLE, EVERYTHING IS NOT ALWAYS GOING TO BE BY THE BOOK AND, YOU KNOW, YOU JUST HAVE TO BE READY TO CHANGE AND ADAPT. SO THIS [PANDEMIC] TEACHES US THAT AS WELL."**
>
> (Personal communication, Hasiuk 2020)

With the rise of digital learning due to social-distancing mandates, there is no doubt that the educational value of certain courses is different than what they would have been in person. This is especially apparent within nursing school programs, since a large part of the curriculum involves clinicals performed within a healthcare environment and hands-on practice. The clinicals cover a wide range of topics such as medical-surgical, labor and delivery, and geriatrics. They are normally taught by a clinical instructor to a small group of students assisting in a patient-care setting. According to the students I interviewed, clinicals allow them to get a wide range of first-hand experiences on the different concentrations within nursing that they may want to pursue upon graduating.

Since the concerns for the pandemic began to increase in the beginning of March, all in-person clinicals were cancelled and moved to online platforms. This has been very disappointing for most nursing students, and most of the people I talked to prefer clinical rotations to their lecture courses. One participant expressed her love for clinicals, and said that **"If we didn't have clinicals I don't know if I would still be in nursing school. Because lectures suck. It's just not fun. I'm not the type of person where you can sit and talk to me and I retain it. I need to do it, and clinical is that"** (Personal communication, Houle 2020).

Six of my participants were participating in remote clinicals during the pandemic, and some described them with strong, negative language, such as "They suck." and "They're horrible." Based on my interviews, I have learned that the clinicals are administered in various formats during the pandemic, ranging from digital simulations to book discussions. Multiple interviewees expressed concerns with the effectiveness of their hands-off learning. One nursing student said that her online simulation clinicals are extremely limited, because the questions you ask the pretend patient are provided in a list of options. The tasks you perform and comments to the patient are inflexible. She said she feels like she is gaining experience, but it is limited and not as beneficial to her learning as an in-person interaction. A small number of my participants thought their online clinicals were interesting and fun, and still provided them with the comprehensive training they need in certain subjects. Another student's clinicals have been converted to an "active learning template" that you fill out for a fake patient. She says

that it is terrible and **"It's pointless. It's busy work. I have an exam on Friday, and we have all this busy work to do before then. It's more important that I pass this exam than I do all this stuff"** (Personal communication, Jolivet 2020). Her clinicals are not only less effective, but they are inhibiting her productivity on other assignments.

Most of the students I interviewed mentioned how the transition of clinicals online is going to negatively affect the preparedness of nursing students in the long run. One participant, who currently works in a hospital, explained how her experienced nurse colleagues are saying that it will be very apparent who was in school during this time since they will not have the hands-on skills. The student said that **"certain things are so hard, like you can't learn how to put in an IV if you're not at the hospital...The people that graduate that are doing clinicals right now are gonna have so much less experience"** (Personal communication, Scaplen 2020). According to my interviews, the online clinicals and lectures are providing the necessary background information, but it is not the same quality of learning gained from working with actual patients. A junior nursing student told me that **"Nothing can really replace physically going into the hospital and putting on your scrubs and walking into a patient's room and introducing yourself,"** but he thinks he has enough prior training and experience to perform successfully on the job (Personal communication, Rainville 2020). Another student said that she suspects sophomore nursing students are going to be affected the most since they were supposed to start their clinicals around this time so they are not going to know the basics. However, juniors and seniors are mostly set since they have had good experience prior to the pandemic.

A Last Semester Lost

"OUR EDUCATION GOT CUT SHORT. EVEN THOUGH WE'RE ONLINE, WE DON'T HAVE THAT SAME EXPERIENCE OF GOING TO CLASS. WE DIDN'T KNOW OUR LAST CLASS, OR OUR LAST CLINICAL WAS GOING TO BE OUR LAST ONE."

(Personal communication, Hasiuk 2020)

There is no doubt that COVID-19 has disrupted the lives of many people, and has created widespread feelings of disappointment. The closing of schools across the country has been especially difficult for seniors whose college careers ended earlier than they expected. The quote above is from one of my participants who is a senior preparing to graduate from Elms College in Chicopee MA, and she expressed her sadness in losing her last semester. She explained how many of the milestones that graduating nurses at her school normally experience, such as her pinning ceremony, have been cancelled due to the pandemic. These are major events that all nursing majors look forward to, sometimes even more than graduation, so she feels rushed into the workforce without a proper end to her college years.

The student above also said that she and her fellow graduates are being encouraged to find jobs immediately even prior to taking the NCLEX, the competency exam needed for a nursing license. This is because the demand for healthcare workers is so high in

understaffed hospitals. However, this is not the case everywhere. One student nurse studying at the University of New England in Maine said his graduating friends are struggling to find jobs at hospitals since medical employers want to limit risk and do not want to waste time training new staff. They are able to find jobs in other clinical settings such as home care, but this can present personal challenges since they are not able to pursue what they really want to do. COVID-19 has closed off many opportunities, but the inherent drive to care for others in nursing students keeps pushing them to work towards protecting the health of our communities.

Experience in the Medical Field

All of the nursing students I spoke with have past experience within a clinical setting. Six out of seven of my participants have taken clinical rotations for school, while four have worked in healthcare outside of their nursing curriculum. Two were in the process of preparing to start new positions in the summer and fall. The different jobs held by the nursing students I interviewed are a Patient Care Assistant (PCA), Certified Nursing Assistant (CNA), and a Patient Care Technician (PCT). These positions require similar roles and responsibilities during their day-to-day work. The typical duties of a PCA, CNA, and PCT involve checking patients' vital signs, helping them eat, wash up and use the restroom, and answering their call bells to make sure they are comfortable. One of the main differences between these three positions and a registered nurse is that nurses are qualified to assess and use their skills to make judgments about the patients' health. Nurses are also responsible for administering medication to the patients and completing a doctor's orders while PCA's, CNA's, and PCT's do not have this responsibility.

Changing Roles in a Time of Crisis

As COVID-19 has progressed in New England, the responsibilities of the students working in healthcare have shifted to meet the new needs of their hospitals. One student working as a PCA described how she has new duties every day:

"WE'RE DOING A LOT MORE BECAUSE THE NURSES ARE SO [OVER EXTENDED]. YESTERDAY, I WAS IN THE FRONT OF THE BUILDING JUST GIVING OUT MASKS BECAUSE THEY HAD NOBODY TO DO IT. SO, THEY PULLED ME IN."

(Personal communication, Jolivet 2020)

She also explained how she is being asked to complete tasks that nurses are supposed to handle, such as assessing blood sugar levels and giving medication to patients, which she was taught not to do since she is not yet qualified. This can be harmful to proper patient care if someone makes an incorrect judgment without the necessary skills, however hospitals are taking risks during this desperate time.

Experience With COVID-19

Everyone in the world is experiencing this pandemic in a personal way. This is also true for nursing students. All of the people I interviewed are in different circumstances and have different relationships with this unyielding virus. Most of my participants were currently working at a healthcare facility or preparing to in the upcoming months, but others were not, so they could avoid exposure and risk.

Hospital Environment

Life as we knew it quickly faded away in March of 2020 as the coronavirus pandemic began to worsen on the East Coast. Hospitals needed to react quickly in order to prepare for an influx of patients and maintain the safety of their staff members by changing the dynamics of patient care. Four of my participants, three PCA's and one PCT, have experienced working directly with COVID patients in a hospital environment and recounted their perspectives during their long, stressful shifts. One PCA working on a cardiac floor of a hospital in Springfield, MA described how she witnessed the abrupt changes to her work environment:

"I went in one day and I found out that my entire floor was changed to a positive unit, all positive confirmed positive people. They totally converted the floor. They took all those cardiac patients out, and brought them to a different part of the hospital and brought all those positive COVID patients onto my floor because we have the single bedrooms." (Personal communication, O'Sullivan 2020)

The response to allocate the proper rooms for COVID patients had to be quick, and the staff needed to adapt with little warning from administration. The PCT who was working in a progressive care unit (PCU) in Lowell, MA when the pandemic was beginning to worsen said that she was not supposed to have COVID patients on her floor because they were being taken into intensive care. However, half of her floor was then converted to the ICU and all patients that she was working with have tested positive. She said that "**For the first week or so the techs weren't allowed to go in. So we were just helping people and handing [the nurses] what they needed while they were in the rooms.**

Then it started getting really busy, so now my whole floor is COVID patients. There weren't enough nurses and some of the nurses are getting sick and everything. So we all have to go in now. The first time I went in it was really scary. I mean, it's always really scary, but yeah" (Personal communication, Scaplen 2020). The novel virus has put pressure on the healthcare system and forced many workers into positions they have never before anticipated.

With restrictions on visitors, hospitals have been described as "ghost zones" since they are so empty, and one PCA I spoke to said **"if there is a visitor, the person's either dying or having a baby. So you're always like, 'Why are you here? What the heck?'"** (Personal communication, Jolivet 2020). All four participants who had worked with COVID patients said that they had sufficient PPE, some even getting a new N95 mask for every shift. They wear gowns, masks, goggles, face shields, and gloves. They also now need to take a lot more precautions during their daily routines when caring for patients. The same PCA above said that **"My vitals used to take me like, on a good day, 30 minutes. They take me like an hour and a half now because I have to go in each room, wash my hands, put on gloves, do all the stuff, take off my gloves, wash my hands. It's just a process now. Then I have to wipe down the machine between everyone, which are all things that we should have been doing before, but now that it's the health crisis, we're all like, 'Oh, we have to do all of this.' Everything just takes monumentally longer"** (Personal communication, Jolivet 2020). The frontline workers have to be diligent that they are putting on and taking off PPE correctly, and a lot more careful when washing their hands

and sanitizing their stations and equipment to prevent further spread of disease.

Patient Interactions

First-hand experience working in patient care is one of the most important factors for career development within nursing. Working in healthcare with the presence of COVID-19 can prepare nurses to face any challenge that comes their way, although the four nurses whom I interviewed have encountered many difficult and stressful situations as of late. There is a recognizable sense of paranoia among hospital patients, and many are calling the PCA's less frequently to have less contact with others. Some are even so uncomfortable and miserable that they are asking their nurses to let them die. However, others want more attention from staff. One nursing student shared her experience working with a woman who had tested positive for coronavirus:

"I had to go into one patient's room 13 times in my eight-hour shift. You're really not supposed to do that. But she kept calling and crying and saying she needed stuff so then we would go in there. Finally, at the end of the night, my supervisor was like 'You need to tell her no.' I went in there, and said, 'Do you know what disease you have? You know how contagious it is?' And she was like, "Yes, I do." I said, 'Do you want me to bring this home to my family? Why do you have me keep coming in here?' And she was just like, 'You have an answer for everything, don't you?' and she was really mean. I don't know, there are different sides of it. Some people just get it and don't care. And so it's frustrating. You want to help people, but at the same time, it's stressful." (Personal communication, Scaplen 2020)

Minimizing exposure and risk is crucial for fighting this virus, but oftentimes non-COVID patients refuse to wear masks in hospitals despite orders from the workers. These types of people baffle and upset some of the students I spoke to, because they are just trying to help and protect their communities.

Moments of Hope in a Time of Crisis

Despite the shroud of fear and uncertainty among hospitals, feelings of hope remain to remind us that there is an end in sight. Recently, hospitals have been playing songs over their intercom systems when a COVID-19 patient has been discharged to celebrate their triumphant recovery. This is something that used to only be done when babies are born, so it is inspiring to see how traditions are being adapted to celebrate life in new ways. At the hospital in Springfield, they call this "Code Rocky" because they play the theme song from the movie "Rocky" to symbolize the patient's strength and victory. One of my interviewees even gets notifications on her phone when she is not working and said that she feels empowered and motivated within her support system of colleagues.

Preparedness

"ACADEMICALLY PREPARED, YES. EMOTIONALLY, THAT WAS A WHOLE DIFFERENT THING."
(Personal communication, O'Sullivan 2020)

When asking my participants if they feel prepared to work during a global pandemic, I received a range of responses presenting

different attitudes and opinions. Most explained how they feel confident and prepared academically due to schoolwork and past experience in healthcare environments, especially from clinical rotations. Multiple nursing students said that their familiarity in a patient care setting has prepared them the most for their careers because they have learned the different dynamics of a hospital floor and how to interact with patients and colleagues. One student also said that learning from the nurses in her cohort has provided her with additional skills that have prepared her to work in the wake of COVID-19.

There were some cases where the participants felt underprepared to work during this pandemic, leading to added stress. One PCA explained how she and her coworkers were never trained on PPE, and at the moment when I spoke to her, they were being trained on the job. However, some instructions were unclear and there was confusion on what equipment to keep and what to throw away since there were many different types. While all of my participants felt as they have the physical skills to work in a healthcare environment during this difficult time, some felt emotionally underprepared especially when working with patients in such critical care. The student working as a PCT stated that she wished she knew what it was like to be in a room by herself with a patient, especially those who are in more agony than others. Working in this environment has at times been stressful and heartbreaking, yet the bravery and willingness to care that these nursing students possess has allowed them to persevere in the career path that has called them. The senior nursing student preparing to graduate, whom I interviewed, expressed her feelings towards officially entering the workforce during a time of such uncertainty:

"Entering the workforce as a new grad already is kind of nerve wracking. You're entering the real world. You have to take care of these patients. You're accountable for them, for yourself, for your practice. Now with this new pandemic going on, it's an added stressor, and nobody really knows what's happening. So like, all the nurses are dealing with this anxiety and then us being new on top of it. It's definitely scary." (Personal communication, Hasiuk 2020)

She told me how she hopes that there will be support systems and residency programs established to help new graduates to prepare for this transition, so they will be able to not only take care of others, but also of themselves.

Emotions

The coronavirus pandemic has been an emotionally challenging time for most, especially those working in healthcare. The following word cloud contains the different emotions of the students whom I interviewed, both staying at home or working at a healthcare facility. It is understandable why many of my participants have negative feelings during this health crisis, but there are undertones of positivity and hope to remind us that there is an end in sight for the COVID-19 pandemic.
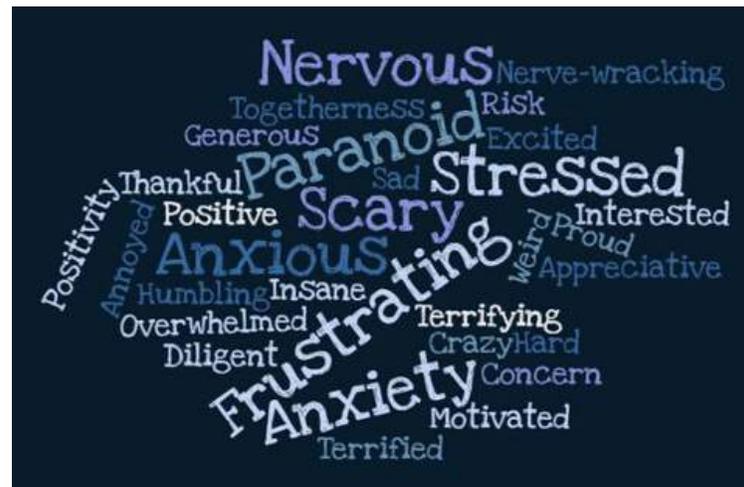
Perspective on Nursing

"I LOVE NURSING. I LOVE BEING ABLE TO CARE FOR PEOPLE AT THEIR LOWEST AND SEE THEM GO FROM THEIR LOWEST TO GETTING BETTER. I THINK IT'S REALLY NEEDED RIGHT NOW. I THINK NURSES AND OUR SENSE OF POSITIVITY [IS NEEDED] RIGHT NOW TOO, ESPECIALLY FOR PATIENTS WHO CAN'T SEE THEIR FAMILY OR DON'T KNOW WHAT'S GOING ON. I THINK [THE PANDEMIC] HAS KIND OF AFFIRMED WHAT I WANT TO DO."

(Personal communication, Houle 2020)

All of the students whom I interviewed showed me their passion for patient care and commitment to nursing, expressing their thoughts on how this career path is meant for them. Every participant told me that their perspective on nursing throughout the COVID-19 pandemic has only changed in positive ways; the support, bravery, persistence, and strength of their experienced nursing colleagues has kept them motivated and inspired as novice healthcare workers. The student from UNE working as a CNA said that he feels very lucky to still have one year left in college and the ability to learn more and gain more experience before looking for a full-time position. Two of my participants said that the pandemic has given them new insights on the role of nurses, and they have realized how vital they are in patient care and how important it is to be adaptable and flexible when encountering any new challenge.

Advice and Looking Forward

The final question I asked my participants when the interviews were coming to an end was, "What advice do you have for the general public (non-essential workers) for what we can do to help during this pandemic?" The following quotes are excerpts from my conversations with nursing students, and describe what they recommend we do to support others, stay safe, and remain positive during this chapter of disarray we are all living through together.

"Don't go out and don't expose. It's not just protecting yourself; it's protecting other people."
(Personal communication, O'Sullivan, 2020)

"You can help donate things or make cards to residents at nursing homes, because right now they're alone and they're scared, and they can't have any visitors."
(Personal communication, Hasiuk, 2020)

"Stay calm, and make sure you're reading the right things to be educated because I think a lot of times people see things that are incorrect and then spread it, and that's how misinformation is spread."
(Personal communication, Houle, 2020)

"Listen to people who know what they're talking about. I understand that people have their own beliefs, and that those kind of can cloud people's judgments. But like, if the [officials] are saying, don't leave your house and only leave your house for essential stuff and not to go in groups larger than five, six people, then listen to them."
(Personal communication, Rainville, 2020)

"Gratitude is important. You could keep a gratitude journal. If you just focus on what you have, it helps you stay in the present moment and just, you know, help us realize how lucky we are to be here, and not take life for granted. It's nice to look back on what you're grateful for and thankful for and try to find what you appreciate every day, because that helps [manage] anxiety a lot"
(Personal communication, Hasiuk, 2020)

"Stay home. I see people out in parks together with people doing all this stuff. I'm like, just go home. It's just frustrating. People just need to listen. They're like, 'Oh, well, it's not affecting me.' Well then, I think you should have to sign a waiver that you're not going to go to the hospital."
(Personal communication, Jolivet, 2020)

Final Thoughts

Even in times of immense stress and uncertainty, nursing students are committed to their calling to care for others and remain strong and positive in the face of risk. Their ability to focus on their studies while serving as front-line healthcare workers is inspiring. Although the online learning experience poses different challenges for those studying healthcare (which typically requires in-person clinical training), living through or working during this pandemic allows for the growth of new skill sets that can further strengthen nursing education such as communication and critical-thinking.

There are multiple limitations to consider for my research, mostly arising from the sample of participants whom I interviewed. I only spoke to nursing students from two states, primarily Massachusetts, so their experiences may not reflect those who are studying in different circumstances around the country. I also generally interviewed students who were currently in their junior year of undergraduate studies, so I did not fully capture the experiences of student nurses in different grades or in graduate programs with more varied levels of experience. Another limitation surrounds the type of healthcare facilities where the students are employed, since my participants working during the pandemic were all currently located at hospitals as opposed to other clinical settings such as nursing homes or urgent care facilities.

The COVID-19 pandemic has been a difficult time for most, but there is a "light at the end of the tunnel." By being adaptable, following safety guidelines, and supporting healthcare workers in any ways we can, awaiting the conclusion of the pandemic will be more bearable, and the ultimate reopening of our communities will be much more rewarding knowing that our personal efforts to socially-distance and remain safe helped reunite us all once again.

Modifying Medicine: How the COVID-19 Pandemic has Altered Patient Care and Medical Worker Experience

Sarah Huber

Though most healthcare is currently focused on critically ill COVID-19 patients, others also require ongoing medical care, regardless of the state of the world. As such, the pandemic has affected all those employed in medical professions either directly or indirectly, as safety protocols and patient needs are changing in the wake of this global crisis. Whereas critical care specialists and medical workers in intensive care settings are being challenged with a rising number of Americans becoming hospitalized for COVID-19, medical professionals in other specialty areas are also being asked to adapt to a wide variety of changes to their practice that have occurred as a consequence of the pandemic. Their work routines have been greatly affected, as the stress and uncertainty that accompany the pandemic are felt by all. As they are faced with a need to continue working at this time, new considerations are becoming apparent each day, such as how to ensure their patients are getting the care they still need and how to be proactive in ensuring they will continue to receive that care if the pandemic

continues to worsen. On a more extreme level, organizations such as the American College of Surgeons (ACS) have even stated that "it will be necessary to deploy surgeons to work outside of their usual specialty in order to maximize the effectiveness of available clinicians [to treat COVID-19 patients]" (ACS, 2020a, para. 1). Thus, adapting to an ever-changing global crisis has become a necessary responsibility for all medical workers during this time to ensure adequate healthcare for all those with and without COVID-19.

Critical-care specialists are the doctors who typically work in intensive care units (ICUs) along with critical-care nurses, technicians, and other staff to treat critically ill patients. As people are becoming hospitalized for serious cases of COVID-19, critical care staff directly take care of these patients. As the pandemic continues to progress, however, non-critical care specialists, such as cardiologists, orthopedic doctors, and family medicine physicians are continuing to treat their patients, and although perhaps not treating critically ill COVID-19 patients, they are still facing a special set of challenges that have arisen as a result of the pandemic. For example, Dr. Weber, President of the American Association of Endocrinologists, recently told *The New York Times* that she has been stocking up on extra supplies of medications in case any of her patients need to self-isolate (Goldberg, 2020). Another endocrinologist in Atlanta also told *The New York Times* that he has been facing an increasing number of questions about COVID-19 from his diabetic patients, who are at an increased risk for getting coronavirus (Goldberg, 2020).

Although these physicians have taken new

precautions and are making accommodations at their own discretion, healthcare professionals in America have received some guidance when deciding how to best ensure proper patient care during the pandemic. In fact, organizations like the Centers for Disease Control and Prevention (CDC) and the ACS have been extremely proactive in issuing regular recommendations and establishing new protocols for medical workers during the COVID-19 pandemic.

National Pandemic Protocols for Medical Workers

In response to national protocols, daily routines for all medical professionals have been slightly reprioritized. For example, the daily workflow in medical offices must adapt to promote social distancing due to CDC recommendations. Moreover, additional protocols have been established by the CDC and other large medical organizations with seemingly one collective goal: to effectively treat all of those with COVID-19 and prevent any others from contracting the virus, while also ensuring that all are receiving the appropriate healthcare they need (CDC). These protocols include efforts to reduce viral transmission in medical facilities by means of minimizing elective surgeries and integrating medical specialists into the "frontlines" of COVID-19 treatment.

Medical staff are urged by the CDC to make several logistical changes to prevent viral transmission in medical facilities. This includes asking sick employees to stay home, conducting a routine inventory of PPE such as N95 masks and face shields, and using proper PPE at all times. Additionally, the CDC recommends screening patients for symptoms of coronavirus before entering the facility and implementing telemedicine and

self-assessment tools to limit the number of patients physically entering into the facilities on a given day (CDC, 2020). This recommendation was created for all medical facilities, whether small offices or large hospitals, and is thus necessary for medical workers of all specialties to adhere to in order to ensure both patient and staff safety.

Decreasing Elective Surgeries

All medical personnel are also being asked to adjust their schedules and postpone non-emergent diagnostics and procedures until the threat of coronavirus is more contained. As such, non-critical care medical workers are being faced with drastic changes to their surgery schedules such as postponing elective surgeries, including "hip replacements, hernia repair, [and] some plastic or reconstructive procedures'' (ACS, 2020c, para. 2). In the statement issued on the 31st of March 2020, the ACS urged specialists to cancel elective surgeries if at all possible so that the short supply of PPE could be rationed for staff in critical care settings who are working with COVID-19 patients. This was also recommended in order to save ventilators for COVID-19 patients in intensive care units and because healthcare workers and patients might have undiagnosed COVID-19 at the time of surgery (ACS, 2020d). If either the patient or any medical personnel working with the patient during the procedure did have undiagnosed COVID-19 at the time, this could lead to asymptomatic spread of the virus, putting all those in contact at risk. Although this recommendation largely leaves the decision for postponement or cancelation up to the surgeons who would be performing the surgery, the ACS also established a database of guidelines to help determine which surgeries should be postponed (ACS, 2020d).

Integration of Specialists into Critical Care Units

When the ACS stated that it will be "necessary to deploy surgeons out of specialty" during the pandemic, it was recommended that non-critical care specialists transition into new teams designed to treat COVID-19 patients. This would integrate healthcare staff at all levels into a team with a leader such as a critical care surgeon, anesthesiologist, or resident with critical care experience (ACS, 2020a). This transition involves training specialists who may not have prior experience working in emergent care or working on the hospital floor, which would be required when treating hospitalized COVID-19 patients. To aid this change of practice, they would be partnered with staff who have more experience in this field, since it is possible that specialists might feel unprepared to work in an inpatient setting without additional training (Cram, et.al, 2020).

The Society for Critical Care Medicine (SCCM) also provided another model for proposed integration with their tiered staffing model, which was issued for hospitals that are currently opening new intensive care units to account for the growing number of patients in the United States being hospitalized for COVID-19. In this similar model, specialists would again be integrated into new teams, being transitioned out of their specialty and into critical care settings to take care of COVID-19 patients under the advice of high-level medical staff with critical care experience. Thus, both the ACS and the SCCM have given medical providers several strategies for optimizing the number of physicians caring for COVID-19 patients through these two integration models.

Potential Difficulties that May Arise from New Protocols

With the recommendations and new protocols that healthcare workers are being urged to adhere to during the pandemic, it is easy to imagine how these changes may be accompanied by new challenges. For example, many medical offices are now incorporating telemedicine into their practices via CDC recommendations to reduce viral transmission in health facilities. Telemedicine is being implemented in order to "mitigate and prevent overcrowding in emergency departments, urgent care clinics, and primary care clinics while providing the reassurance and guidance that patients are seeking" (Rockwell & Gilroy, 2020, para. 3). Although established with great intentions, challenges are already becoming apparent with this change. *The Wall Street Journal* explained that telemedicine is "testing its ability to keep up with [a] soaring demand and forcing innovation on the fly," as more and more individuals are enrolling in telehealth portals and overloading the system (Olson, 2020, para. 1). In addition to logistical challenges, many difficult decisions are being imposed on clinicians during telehealth consultations, such as when faced with the decision of which patients seem healthy enough to stay home and self-isolate, and which require immediate attention, although the CDC has issued a pamphlet to assist in making these decisions (CDC, 2020).

Additionally, challenges are also likely when clinicians are faced with potentially having to integrate into another area of work, such as is described by the ACS and SCCM models for integrating available professionals into treating COVID-19 patients at the "frontlines." There can be a degree of apprehension from medical workers when they are asked to forgo their specialty area during this transition (Cram, et.al, 2020). This fear can come from the fact that once trained in a specialty, clinicians may feel unprepared to then work in this new area of medicine, as their previous training and experience may not be similar to emergency or critical care. As our healthcare system has become more and more specialized, many clinicians are left unprepared to treat large numbers of patients in a "generalist" practitioner role (Cram, et. al, 2020).

My Approach

Learning about these pandemic protocols (methods for reducing viral transmission, such as using telemedicine; canceling elective surgeries; and integrating specialists out of specialty to work at the frontlines) left me with the question of whether or not these recommendations are being utilized in my "extended community" (i.e. in the health offices of friends, family, and friends of family who are medical workers). The goal of this project then became to gain an understanding of any other unique protocols that may have been put into place for specialists in my extended community, and what this meant for the way that their roles and responsibilities might have changed at work during the pandemic. Most importantly, I was interested in learning about what these changes meant for the experience of these healthcare professionals during the pandemic, and what stories they could share with me about this. I wanted to uncover if any changes to protocols, and the experiences that accompanied them, were shared among medical workers in different specialties (cardiology, family medicine, etc.) or were largely distinct for those working in different fields.

To complete this objective, I conducted ten semi-structured interviews to collect personal stories from medical workers regarding their experiences during the pandemic. I conducted these interviews with volunteers who fit the following criteria: 1) are a healthcare professional (i.e. a doctor, physician's assistant, nurse, technician, etc.) and 2) are employed in a specialty area other than critical care or emergency, to ensure that all those whom I interviewed were not those whose duties would normally require them to work with critically ill COVID-19 patients. I clearly stated these criteria when I sent out the request for interviews. By dispersing this request through a public post on my Facebook page and asking people who saw it to share it further with members of their own community, I was able to obtain a fairly diverse sample of responses from different healthcare workers in varying specialties, such as cardiology, pharmacy, and family medicine. I also posted the interview request in each of the Worcester Polytechnic Institute class Facebook pages and asked anyone if they, or anyone they knew fit these criteria, and if so, if they would be willing to participate in an interview. I conducted these interviews partially over Zoom, a video conference application, and partially over the phone, dependent participant preference and internet quality. With permission from the participant, I recorded these interviews, so I could accurately transcribe their responses for later thematic analysis. The full interview protocol can be found in Appendix A.

I used a website called Otter.ai to upload the mp.4 files of the recorded interviews, which automatically transcribes audio content. I determined what commonalities existed within the experiences expressed by each individual by grouping the transcripts based

on medical specialty. The groups of specialties I included were "cardiology," "family medicine/general practice," "pharmacy," "gastroenterology," "maternity," and "orthopedics." Following this process, I assigned key phrases to each participant's transcript to represent the themes in their responses, using a method known as thematic coding (Beebe, 2014). I let the codes emerge from the responses that I obtained, which is a specific method of coding known as using emergent categories (Taylor-Powell & Renner, 2003). I then determined if the coded experiences represented common themes between medical professionals working in different specialties, or if the experiences seemed to differ based on specialty.

Throughout this seven-week experience, I was able to interview ten individuals of varying levels of medical work and employed in a variety of specialties. A summary of these demographics can be seen in Figure 1.
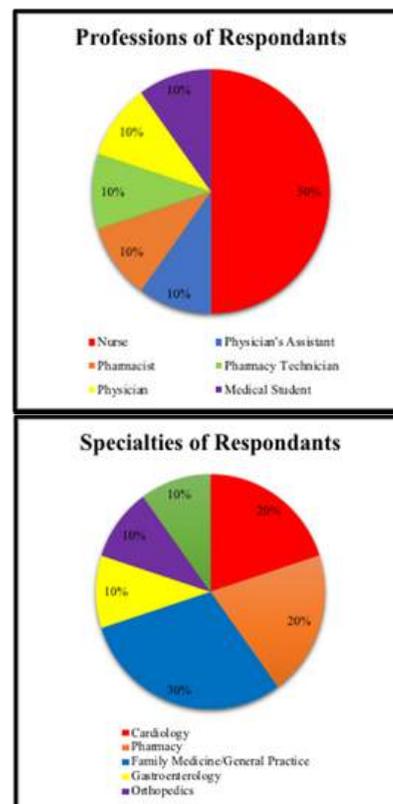

Figure 1. Demographics of participants in study.

Findings and Discussion

When I began this research, I initially intended to see what similarities and differences existed between medical offices of different specialties in terms of any new pandemic protocols. However, almost immediately, this project seemed to organically move into a somewhat different direction. In addition to gathering information about how healthcare workers were adhering to and adopting new protocols during the pandemic, respondents also seemed eager to share personal anecdotes about their experience and feelings during this time, including what difficulties lie in the wake of ever-changing protocols and responsibilities.

I ultimately found several commonalities through these individuals' experiences such as cancelations of appointments and procedures, transitions into telemedicine, shortened staff hours, changes to patient needs or behaviors, new struggles due to changing roles, and new protocols being made for in-office visits, such as mask-wearing, virus-screening, etc. For example, almost every individual shared that they had either switched to the use of telemedicine or had to postpone a lot of office visits in order to minimize the number of patients entering healthcare facilities. Several less common themes emerged from the responses as well, such as the experience of extended staff hours and the transition into working at the "frontlines" (in critical care or emergency medicine with COVID-19 patients).

New Protocols for Office Visits

The first finding from this study was that, unsurprisingly, a vast majority of the healthcare workers I interviewed indicated that changes to protocols were made to their practices. The changes included screening patients for symptoms of COVID-19

before they entered the facility, requiring all personnel to be in PPE, and sectioning off the facility into areas for patients with respiratory symptoms and those without. For example, one participant described that **patients can only come into the facility if they have zero respiratory symptoms** (Anonymous Family Nurse, personal communication, April 17, 2020), giving an example of what a screening protocol looks like. Ultimately, this new protocol is aimed at determining if a patient has any symptoms of COVID-19 before they are allowed into the facility. Additionally, another participant described how this screening process works in the following way: **"we have a system where…if you have to be seen in person, you have to have a telemedicine phone or virtual visit beforehand […] [then answer] screening questions to determine if they need to be seen at the respiratory clinics"** (Anonymous Physician's Assistant, personal communication, April 18, 2020). Moreover, many participants described upping the amount of PPE that staff and patients are required to wear during medical visits even if patients pass the screening process and are allowed to enter the facility. According to one respondent, **all staff members in her place of work are required to wear a surgical mask, shield, and gloves, and patients are required to wear a mask when they enter the building as well** (S. Erb, personal communication, April 22, 2020). I found that the creation of new protocols was consistent across all medical specialities and was reported by individuals at all levels of healthcare work. This is also reflected in the background literature.

In addition to these common protocols, such as glove- and mask-wearing and screening patients for respiratory symptoms, I found that several other very interesting protocols were established.

For example, a maternity nurse described that the hospital she works at has a **negative pressure room kept clean and on standby in case a COVID-19 positive mother comes in needing a c-section, so it can be done without exposing others to the airborne illness** (J. Sullivan, personal communication, April 24, 2020). Additionally, a gastroenterology nurse described how doctors at her facility have set up a **"tiering" system for procedures so that schedulers could more easily begin to schedule appointments based on the immediate risk to the patient** (S. Erb, personal communication, April 22, 2020). This protocol makes it easier for schedulers to understand when it would be necessary for patients to come in for a procedure even if the risk of contracting COVID-19 is still present. I found the creation of this protocol especially interesting, as it seems to show a large degree of collaboration between staff of all levels in the medical facility.

Telemedicine

Of all the medical workers I interviewed, almost half expressed that their office had transitioned into using telemedicine for office visits during this time. Of those who indicated they have started using telemedicine, the majority were employed in family medicine or general practice specialties. This finding can suggest that the nature of this specialty might make it more feasible to transition into conducting appointments remotely. This concept is supported by one respondent in the family medicine category, who indicated that some telemedicine appointments were for physical issues, where the **patient would be able to send a photograph of the issue to their doctor through the "portal"** (Anonymous Family Nurse, personal communication, April 17, 2020). Because family medicine and general practice often

deal with injuries and sick visits and rely heavily on patients describing symptoms to physicians, this can be done in a fairly similar manner during a remote telehealth appointment. However, this may not be as easy for other specialties, such as maternity, since an obstetrician cannot physically deliver a baby over the phone. In fact, this very concept was described by a maternity nurse, who stated that **"we can't really cancel any of our surgeries because babies have to be delivered"** (J. Sullivan, personal communication, April 24, 2020), suggesting why the speciality of maternity did not indicate a transition into telehealth and why this pattern might have emerged from the responses for the use of telehealth in family medicine/general practice more than any other specialty.

Cancelation of Appointments and Procedures

Of those interviewed, almost everyone indicated that their office had experienced a reduction in appointments and procedures. This finding was consistent across all medical specialties except for maternity and pharmacy. This finding is unsurprising, as again, although a pandemic is progressing, mothers still need to deliver their babies in a safe environment and people need to continue picking up their prescription medications from the pharmacy. For the other specialties, however, I expected that there would be a decrease in procedures and diagnostics, as my background research indicated that healthcare workers are being urged to cancel nonessential procedures during this time. According to one respondent, the decision to reduce in-person visits is somewhat influenced by not wanting to be the reason that a patient may contract COVID-19. They described that **although sometimes it is a clear decision where a patient very obviously needs to go to the**

emergency room for an issue like a heart attack, other times it is hard to determine if an individual should come into a health clinic or can be given advice over the phone. They described that this decision is driven by guilt and not wanting to infect a patient with COVID-19 as a result of going into the hospital or a health office. (Anonymous Physician's Assistant, personal communication, April 18, 2020). This response is consistent with the background research, which recommends limiting nonessential procedures in part because it is unknown if the staff or patient may have undiagnosed COVID-19 during a procedure and asking a patient to enter a health office increases their risk for exposure.

Shortened Staff Hours

Another somewhat surprising finding that emerged from the interview responses was a common theme of healthcare workers being furloughed or experiencing reductions in their work hours. During my background research, I read a couple stories from news sources describing how healthcare workers have been transitioning into emergency or critical care settings to treat COVID-19 patients. Although three interviewees did describe a transition into critical care, it was far less common than the reduction of business hours. In fact, half of the respondents indicated that they had experienced decreased work. This reduction was experienced across a few different specialties; however, it was mainly experienced by nurses over any other level of healthcare profession. A summary of these findings can be seen in Figure 2.

This was surprising, as I expected, again based on my background research, that more nurses would be asked to help treat hospitalized COVID-19 patients. However, I found that many have been asked to reduce

their work time. As one nurse put it, **staffing was actually cut in half** at their office (Anonymous Family Nurse, personal communication, April 17, 2020). It is likely that this finding is due to the specialties of the nurses whom I interviewed, who work in fields other than critical care or emergency. Since a lot of them work in offices rather than hospitals, or work with patient's whose procedures can be considered nonessential or elective, this might explain why they reported experiencing decreased hours, whereas the background research indicated extended hours for nurses treating COVID-19 patients during this time.
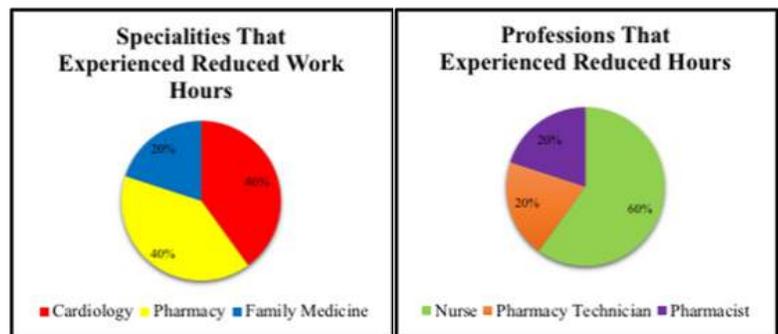

Figure 2. Demographics of respondents who indicated they have experienced decreased work hours.

Changes in Patient Needs, Questions, and Behaviors

Very unsurprisingly, many individuals also reflected on changes to the concerns, questions, and needs of their patients in response to the pandemic. In fact, over half of the participants indicated that they noticed changes in patient behaviors since the pandemic started. For example, one participant indicated that **"…all that people wanted to talk about was COVID"** (A. Bennett, personal communication, April 14, 2020). Another participant hinted at the fact that in the wake of a pandemic, some patients may be more concerned with minor health issues. He stated, **"…a lot of people**

come in with more than just simply a sore throat. They come in with a sore throat and a worry that maybe this [is] coronavirus" (Dr. D. Cyran, personal communication, April 16, 2020).

On the other hand, another participant noted that some patients are becoming more hesitant to enter a medical facility and will avoid going in to seek treatment out of fear of contracting the coronavirus. This was described as **"a huge pushback from patients [not] wanting to get medical care if they don't have to, or if they think they don't have to"** (Anonymous Family Nurse, personal communication, April 17, 2020).

Above all else, these changes in patient concerns and behaviors have largely been attributed to the pandemic, and this appears to be a common experience between medical workers across different specialties. It is unsurprising that the specialty that noted the greatest number of changes to their patients' behaviors during this pandemic is within the family medicine/general practice category, as people often will contact this type of medical worker primarily for most medical concerns or questions. Overall, it seems highly likely that individuals would contact their primary care physician first when concerned about the pandemic. This would then explain why this specialty in particular noted changes in their patients' needs or questions during this time.

Personal Challenges Due to the Pandemic

The strongest point of similarity between the experiences relayed by each participant is that every respondent indicated that they are dealing with some sort of personal difficulty during this time. Regardless of the level of medical work or specialty of the respondent, each one shared at least one thing about working during this time that makes it difficult. For example, some shared that the need for social distancing makes it difficult to treat patients. As one nurse put it, **"I'm kind of like a hugger … and that's been really hard for me … before we had to close down the program, you know, I give patients hugs…"** (A. Bennett, personal communication, April 14, 2020). Another nurse described this same struggle by saying, **"it's hard for nurses to … not have that personal connection with their patients. With all of these physical barriers, PPE barriers, it's hard to get that across. So, we're trying to brainstorm ways that we can still keep it personal"** (S. Erb, personal communication, April 22, 2020).

In addition to this lack of interpersonal contact some described as difficult, other respondents also shared their experiences with difficulties arising within the logistics of telemedicine. This proved to be common, because a lot of participants indicated that the transition into telemedicine was never prepared for prior to the pandemic. As one respondent put it, utilizing telemedicine can be **"very haphazard and disjointed"** (Dr. D. Cyran, personal communication, April 16, 2020).

Additionally, something that I found interesting was that some professionals explained how continuing to work during this time can make it difficult to differentiate between work life and family life. One nurse described the feeling in the following way: **"… when I'm working … nothing has changed for me, I then have like a harsh reality on my days off that … I can't just like go outside and see my friends … so, when I'm not at work, I'm like, okay, this is real… so, it almost seems like it's like a false luxury to be able to go to work still"** (J. Sullivan, personal communication, April 24, 2020).

Spotlight: Medical Student Experience

I was able to interview with a third-year medical student and learning from his experience during this time was especially interesting. He described how he would be doing rotations in the hospital if it were not for the pandemic, so his schooling is being slightly delayed. He mentioned that one of his biggest challenges during this time is the uncertainty of when he and his peers would be able to complete their required clinical hours and if they will then be able to complete their "away rotations," which are clinical rotations in other hospitals and programs outside of where medical students attend school. He described this challenge in the following way: **"a lot of people's away rotations are a huge part of their application and a source of letters of recommendation. So, for very specifically for third year med students across the country, it is a crazy amount of uncertainty regarding what's going to happen"** (D. Hartnett, personal communication, April 24, 2020). Although this is an entirely unique challenge from those described by the other healthcare professionals who are already employed, this finding is consistent with a lot of other responses, which indicated that a large source of challenges right now is the uncertainty and the constant changes that are being thrown at healthcare workers during the pandemic. A lot of respondents indicated that keeping up with the constantly changing protocols and procedures can be chaotic.

Other Findings

In addition to these commonalities, I found that two other themes emerged from the interviews but were not as prevalent as I expected they would be from my background research. Of those interviewed, only three participants expressed that they or someone they worked with had been transitioned into working at the "frontlines" during the pandemic. This included a nurse who expressed she transitioned briefly into emergency care, another who started doing swab-testing for COVID-19, and one who mentioned some of her coworkers traveled to New York to work with coronavirus patients in that high-risk area. Other than these three individuals, the others expressed that they were remaining in their current specialty with modifications being made to that practice.

Another interesting finding is that one physician compared his COVID-19 experience back to his time as an intern during the AIDS epidemic in the 1980s. He said, **"people are coming in in droves with the illness, and I've seen it in a hospital. I've seen a whole stack of people lined up on ventilators … and [this is] reminiscent of those times…"** (Dr. D. Cyran, personal communication, April 16, 2020). He noted that this experience with COVID-19 has also been vastly different from his time working during the AIDS epidemic, however. He stated that **"it's different in a way that it seems to be permeating through our society … pretty rapidly"** (Dr. D. Cyran, personal communication, April 16, 2020). I found it interesting that although he compared working in the medical field during the AIDS epidemic to the current times, he also said that the COVID-19 pandemic is entirely different, which overall suggests that the similarities that emerged from the interviews might be the result of this truly novel time for healthcare.

Conclusion

Overall, a lot of the experiences that were shared with me seemed to be common between medical workers who are working during the pandemic, regardless of their profession or specialty. I did find some differences within the responses based on specialty, such as differences in switching to telemedicine by different specialties, but overall, the commonalities I found in the responses were much more profound. This is supported by the similarities found within the new protocols that were described, such as screening patients for respiratory symptoms, the common experience of shortened hours at work, changes to patient concerns, and new difficulties that have emerged during the pandemic.

The largest limitation of this study is the size of the sample. I was able to have ten, fairly in-depth interviews with different healthcare workers, but for better results, this number should be increased to increase representation of different specialties and to include additional participants at each level of medical work and specialty. This increased number would add a layer of consistency before I can confidently make the claim that all healthcare workers are having shared experiences during this pandemic. However, regardless of this limitation, I can still infer that commonalities do exist between medical workers during the pandemic, such as experiencing the pressure of needing to adapt their practice to adhere to national guidelines, and to address new patient concerns and questions regarding the pandemic. Overall, we can infer that this is a difficult time for those being tasked with continuing to treat their patients in a safe and effective way due to how novel this virus and pandemic truly are. These healthcare workers deserve an incredible amount of gratitude and appreciation for continuing to tackle these challenges and keeping us safe in a time where safety seems to be everyone's main concern.

Lehr Und Kunst: A Theory & Practice Approach to 3D Printed Personal Protective Equipment

Hannah Gallagher

The United States has reached nearly 1 million cases of COVID-19 in the span of three months (Montanaro, 2020). Individuals seeking treatment have flooded hospitals, creating a severe and widespread shortage of needed medical supplies and personal protective equipment (PPE), including gloves, surgical masks, respirators, goggles, face shields, gowns, and aprons, for both patients and healthcare personnel (Alvarez, 2020; Mccammon, 2020; Thieklings, 2020). To help alleviate these shortages, major companies, universities, and even hobbyists are utilizing 3D printing to create PPE for healthcare workers (Kleinman, 2020; Bonessi, 2020). In this project, I explored the shortages of PPE and implemented 3D printing to supply needed face shields and ear guards to medical facilities (i.e., medical clinics for the homeless in Worcester, Massachusetts General Hospital, etc.) throughout New England.

Hospital Conditions Throughout COVID-19

The PPE shortages during the COVID-19 pandemic are posing a tremendous challenge to the United States healthcare system (CDCa, 2020). On February 25th, the Health and Human Services (HHS) secretary, Alex M. Azar, testified before the United States Senate, stating that the National Strategic Stockpile needed more masks, ventilators and suits to prepare for the pandemic. He added that there were currently 30 million N95 respirators stockpiled, but it was predicted that they would need at least 300 million for healthcare workers (Sandhu-Longoria, 2020). The World Health Organization (WHO) released a statement early March that warned individuals of the severe disruption to the global supply of PPE– caused by high demand, hoarding, panic buying, and misuse– was putting lives at risk from the coronavirus and other infectious diseases. The WHO also stated that industry and governments should increase manufacturing by 40 percent to meet the rise in global demand (2020).

To help alleviate the shortages, the federal government passed the Defense Production Act on March 27th, 2020. By invoking it, President Donald Trump can compel American companies to suspend their regular production schedules and manufacture particular materials needed in a time of crisis. Therefore, the Trump administration can work with companies to ramp up the production of protective gear needed by healthcare professionals (Dzhanova, 2020).

However, few companies have been targeted since the bill has been passed. President Trump has relied on the volunteerism of the private sector to obtain additional PPE such as virus test kits and hospital equipment (Kannao-Youngs & Swanson, 2020; Lee & Haberkorn, 2020). According to *The Los Angeles Times*, "the administration has not been so decisive" in enforcing companies to create needed hospital supplies (Lee & Haberkorn, 2020). With the lack of enforcement as well as disorganization, and with the stockpile critically low, states began to frantically compete with one another to obtain PPE and testing materials.

The governor of New York, Andrew Cuomo, stated in one of his briefings that "it was like competing on eBay with 49 other states and the Federal Emergency Management Agency (FEMA). Throughout the United States, the shortage of PPE was witnessed in states such as New York, New Jersey, Louisiana, Massachusetts, and Michigan, where the virus had exploded early on (Mccammon, 2020). Hospitals within these states experienced a massive influx of patients, leading to excessive overcrowding and a lack of supplies (Mccammon, 2020; CDCb, 2020; Thieklings, 2020). These shortages left the healthcare workers dangerously ill-equipped to care for patients that were suffering from COVID-19 (WHO, 2020).

In hospitals where PPE supplies were low or even non-existent, individuals used to take out containers, home-sewn masks, trash bags, shower caps, and various other solutions to protect themselves from infection (Alvarez, 2020; Mccammon, 2020). Healthcare facilities throughout the United States began to ration their PPE; many limited healthcare workers to one set of gloves, one gown, and one N95 mask per day (Campanile & Bernadette, 2020). Additionally, the CDC developed strategies to optimize the supply of PPE, which included information on how to disinfect an N95 mask, a spreadsheet that tracks supplies and guidelines hospitals should follow to reduce the use of P.P.E. (i.e., cancel non-urgent procedures) (CDCb, 2020).

Personal Protective Equipment

The Occupational Safety and Health Administration, or OSHA, defines PPE as equipment worn to minimize exposure to a variety of hazards (OSHA, 2004). The PPE required for healthcare personnel is used to avoid contact with infectious agents, or body fluid, by creating a barrier between the worker and the infected individual (CDCc, 2020). To help achieve this purpose, the equipment must offer body, hand, face, and respiratory protection (CDCa, 2004). PPE is especially necessary for healthcare workers who are working during the COVID-19 pandemic to ensure both themselves and their patients are adequately protected (CDCc, 2020).

The PPE required for healthcare workers during the COVID-19 pandemic consists of gloves for hand protection; aprons or gowns for body protection; face shields, goggles and masks for face protection, and an air-purifying respirator for respiratory protection (i.e., N-95 mask, N-99, etc.) (CDCa 2004; CDCb 2018; CDCc 2020). An example of standard PPE worn by medical professionals during COVID-19 can be seen in Figure 1.
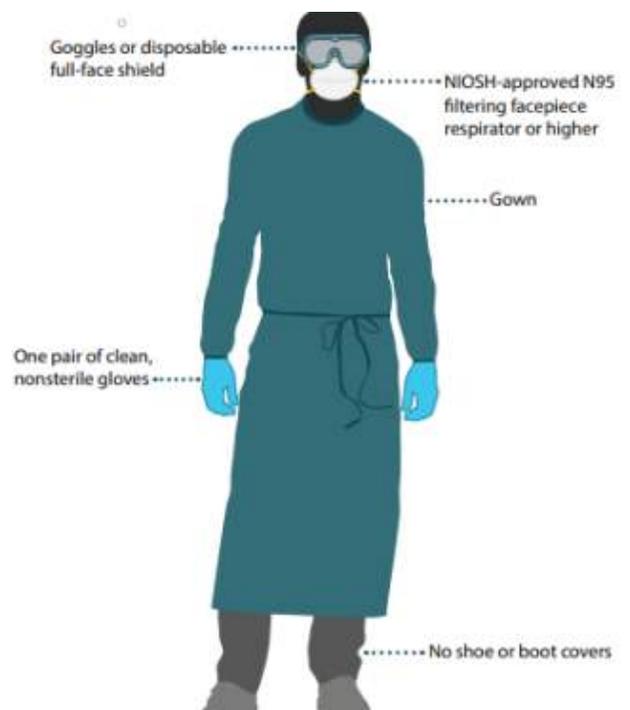

Figure 1: Poster for Healthcare Professionals on Preferred PPE during COVID-19. From CDC, 2020, http://www.cdc.gov. Copyright 2020.

In Table 1 (on the next page), the PPE required by healthcare personnel by the CDC for the COVID-19 pandemic is described in detail. Each individual item is crucial to protect medical professionals during the pandemic and ensure they are able to continue caring for those in need (CDCc, 2020).

Table 1. Personal Protective Equipment During COVID-19 (CDCa, 2020)

	Purpose
Hand Protection	
Gloves	Used to protect the hands. It is recommended that the gloves are of single use and nonsterile (materials include latex, nitrile or vinyl)
Body Protection	
Apron	Protect skin and/or clothing. Covers the torso, not as protective as a gown, used in less invasive situations (materials include cotton, or spun synthetic material)
Gown	Generally preferred PPE, cover the torso, fit comfortably over the body, and have long sleeves and fit snugly around wrist (materials include cotton, or spun synthetic material)
Face Protection	
Face Shield	Protects face, nose, mouth and eyes (should cover forehead and extend below chin and wrap around side of face)
Mask	Protects nose and mouth should fully cover nose and mouth and prevent fluid penetration
Goggles	Protect eyes, should fit sung over and around eyes
Respiratory Protection	
Filtering Facepiece Respirators	Protection from inhalation of infectious aerosols; entire respirator is discarded when it becomes unsuitable for further use due to the excessive resistance, sorbent exhaustion or physical damage (examples: N-95, N-99, N-100)
Reusable or Elastomeric Respirators	Protection from inhalation of infectious aerosols; The facepiece is cleaned and reused but the filter cartridges are discarded and replaced when they become unsuitable for further use
Powered Air Purifying Respirators	Protection from inhalation of infectious aerosols; Battery-powered blower moves the air through the filters

Using Additive Manufacturing to Produce PPE

Universities, major corporations, and hobbyists are responding to the shortages of PPE by making it themselves through 3D printing technology (Kleinman, 2020). Additive manufacturing (AM), also called 3D printing, is a technique for fabricating a wide range of structures and complex geometries from three-dimensional digital models (Ventola, 2014; Ngo et al., 2015). The process consists of printing successive layers of material that are formed on top of one another (Ngo et al., 2015). The main material used for 3D printers are thermoplastics (i.e., PLA, ABS, etc.). PLA (polylactic acid), the material used within the scope of this project, is a popular 3D printing material because it has a low melting point, is relatively easy to use for beginners and is also environmentally friendly ("What is PLA," 2019). An example of a 3D printer can be viewed in Figure 2.

Using 3D printing can provide numerous benefits for both individual and business use. These benefits include faster production, accessibility, tangible designs, cost-effectiveness, risk reduction, and less waste production (Ventola, 2014; Ngo et al., 2015). The industry of 3D printing is growing in both commercial and consumer uses (Ventola, 2014; Bonessi, 2020). Medical applications for 3D printing have rapidly expanded, leading to an emergence of companies such as Helisys, Ultimateker, and Organovo, which utilize 3D printing for commercial medical applications (Ngo, Kashani, Imbalzano, Nguyen & Hui, 2015).

Figure 2. Example of 3D Printer from Canva. May 3rd, 2020.

The excessive growth of 3D printing is reiterated when looking at the coronavirus pandemic. To fill the shortage of PPE, builders, designers, and engineers have united across the world to 3D print PPE for hospital staff on the frontlines of the COVID-19 pandemic (Bonessi, 2020). Prusa and Stratays, both 3D printing technology companies, have shared free downloads of face shield designs for individuals to use. Hobbyists around the world have utilized these designs to create PPE for healthcare facilities in need (Bonessi, 2020). Although individuals who possess 3D printers are mainly creating face shields (Figure 3), designs are also available to produce N-95 masks (Figure 4), and PPE accessories such as ear guards which help to relieve the pressure of a mask on a healthcare workers ears) (Figure 5) (Kleinman, 2020).

Figure 4. Example of 3D Printed N-95 Mask from GrabCAD. May 4th, 2020.
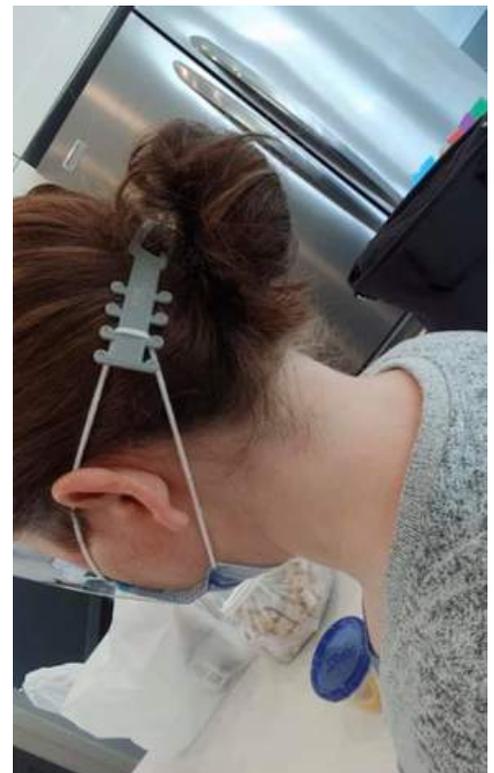
Figure 5. Example of Ear Guards from GrabCAD. May 4th, 2020.

Figure 3. Example of 3D Printed Face Shields from GrabCAD. May 4th, 2020.

This Project

The goal of this project was to help combat the lack of PPE supplies in medical
facilities by understanding and developing personal protective equipment
through 3D printing. The scope of this project involves three critical
objectives:

1.) Understanding the lack of PPE and its effect on healthcare workers
2.) Producing PPE for medical professionals
3.) Assessing the functionality and effectiveness of the 3D printed PPE

Understanding the Lack of PPE in Medical Facilities

The first objective, understanding the lack of PPE in medical facilities, was critical to assess because it provided real-time information about the lack of PPE for healthcare personnel. Additionally, this objective helped me locate specific medical facilities that needed PPE. To obtain this information, I conducted semi-structured interviews, exchanged emails, and carried out phone calls with seven healthcare workers (i.e., doctor, nurse, technician, etc.) who were working during the COVID-19 pandemic and needed PPE. I established these criteria to assure that the information obtained was an accurate measurement of the current PPE situation in medical facilities. The information I gathered through this objective helped me understand what equipment would be useful to produce and provided a basic framework of production (i.e., what design healthcare professionals preferred and quantities).

Additionally, I wanted to understand their perspectives as a healthcare worker during the pandemic and specifically their experience with PPE. The interview protocol can be found in Appendix A: Healthcare Workers Initial Interview Questions.

Producing Personal Protective Equipment

The second objective was to produce PPE for healthcare workers. To do so, I gained information about 3D printing, production, and design of the PPE, from 3 semi-structured interviews. These interviews were conducted with individuals who had experience with 3D printing (i.e., a Worcester Polytechnic Institute (WPI) professor or faculty member, WPI
graduates, etc.). Additionally, in these interviews, I asked experts several questions about 3D printing to receive their advice and compare our production processes. The interview protocol can be found in Appendix A: Engineers and 3D Printing Experts Interview Questions.

Beyond the interviews, I consulted several online platforms regarding 3D printing information. These platforms described in Appendix G, are responsible for the design download, file transfer, and 3D printer settings. Additionally, I used these platforms (i.e., GrabCad and Thingiverse) as an open forum to provide and understand the real-time information necessary for production. Engineers or design experts commented on the face shields and ear guard designs that users uploaded. Their feedback was helpful because it gave opinions on the ear guards and face shields such as the usefulness of the design, advice on functionality, and how to achieve a quality print. Additionally, users would upload updated designs after receiving feedback from the online forum. Over time the designs users produced became more efficient and created a better-quality product.

Production & Delivery Logistics

After obtaining information about the proper designs for ear guards and face shields, I began the process of production. More information about how I decided on the design of each product is included in the findings and discussion section. To configure the face shields, additional materials were needed including, elastics, transparency sheets and a 3-hole punch. Once I printed the headband was 3D printed, I then used a 3-hole punch to create holes so that the transparency sheet could easily attach to the headband. An elastic was then placed on the back of the headband to ensure it was stationary on the user's head. The final face shield product is shown in Figure 6.

The ear guards (Figure 7) were easier to produce because they required no configuration and used less material. The logistics for both of these products (i.e. supplies, time, cost etc.) can be reviewed in Appendix B, C and D.

Figure 6. Example of 3D Printed Face Shield [Own Print]

Figure 7. Example of 3D Printed Ear Guards [Own Print]

The completed products were donated to several places throughout New England, including medical clinics for the homeless, dentist offices, hospitals, and various other medical facilities. I posted on Facebook and Instagram to locate clients in need of face shields or ear guards. The individuals who I donated products to are detailed in Appendix E and includes the name, location, item, and quantity of each donation. All products donated were cleaned with Windex and Lysol prior to delivery to avoid the spread of COVID-19. The products were sent through the mail or dropped off at a specified location, depending on what the healthcare worker preferred.

Assessing the Functionality and Effectiveness of the 3D Printed PPE

The final objective was to assess the functionality of the ear guards and face shields that I donated and understand how my efforts helped healthcare workers. I interviewed through Zoom the healthcare workers that tested the 3D printed PPE that I created. I used the feedback in the interviews to update designs of ear guards or face shields, touch base on how the healthcare workers were doing (i.e., hospital conditions, PPE situations), and to ask if they needed me to create any more supplies. These interviews were semi-structured and involved the participants previously interviewed in objective 1. The protocol can be reviewed in Appendix A: Healthcare Workers Follow Up Interviews.

These interviews were useful because participants were able to tell real stories of how they used my products. Healthcare workers, for example, provided a reflection of specified accounts on how my efforts of creating PPE have helped them remain safe. These interviews also allowed me to understand if PPE was still limited and what situations they have encountered throughout the pandemic. At the end of the interview, I asked the interviewee if they needed any additional face shields or ear guards since we last discussed it.

Findings and Discussion

There were three main areas that I was looking to understand when conducting my project: the best method or technique(s) for 3D printing PPE, the effectiveness of the 3D printed PPE, and the PPE conditions within medical facilities from a healthcare worker's perspective. Due to the complexity of my project, which involved interviewing or discussing with both healthcare workers and engineers, the findings are a collective representation of my experience of creating 3D printed PPE during the COVID-19 pandemic.

Healthcare Worker Perspectives

By creating PPE for individuals, I was provided with insight into how the pandemic has affected healthcare workers throughout the United States. From medical clinics for the homeless to massive facilities such as Massachusetts General Hospital, there was a wide range of healthcare worker's perspectives. In total, I interviewed seven healthcare workers and had follow-up interviews with five. The healthcare workers I interviewed consisted of Massachusetts General Hospital nurses (pediatrics and cardiovascular), UMASS Memorial doctors who had set up a medical clinic for the homeless, dental technicians, and physician's assistants. My findings included information about PPE in various medical facilities (Personal Protective Equipment), the usefulness of my 3D printed PPE (Usefulness of PPE), and the impact that volunteerism has on healthcare workers (Impact of Volunteering).

Personal Protection Equipment Shortage

Of all the seven healthcare workers I interviewed, all had expressed that their healthcare facilities had a shortage of PPE. According to one respondent, a majority of hospitals suffered a lack of PPE, however, because hospitals are bigger institutions and receive money from the government, they were able to obtain supplies easier than smaller medical facilities. Several of the respondents expressed that smaller hospitals or healthcare facilities not directly related to COVID-19 (dentists, local doctors' offices, etc.) were unable to locate PPE because priority went to the hospitals. Those that work at Massachusetts General Hospital expressed that their floors had been rationing supplies since the start of the pandemic. One nurse said, "Our hospital is definitely limited in the amount of equipment, but every day, each employee gets one set of PPE, like we each get gloves, an N-95 mask, a gown and glasses" (Mary Aliberti, M.G.H. Nurse, personal communication, April 17, 2020). This finding was consistent with the idea of hospitals rationing supplies, as discussed in the background. However, it was interesting and surprising to see that the lack of PPE was much more common in smaller medical facilities.

Several of the individuals I interviewed were volunteers who work at a medical clinic for the homeless in Worcester, Massachusetts. Erik Garcia, a doctor at UMASS Memorial in Worcester, MA, created the clinic in March as a way to help reduce the spread of COVID-19 in the homeless community in Worcester. According to one respondent, they have been accepting PPE donations from individuals throughout Massachusetts

They said, "We run into every obstacle you can imagine. For example, the National Guard came today to help with patients. Now we have to make sure we have sets of PPE for them so that they don't get infected" (Dr. Erik Garcia, personal communication, April 28, 2020). The medical clinic for the homeless in Worcester, involved a lot more than acquiring PPE. In addition to dealing with COVID-19 in the homeless community, they also had to get beds, showers, robes, and cigarettes. "We had to make sure they [the homeless infected with COVID-19] had a place to stay. If not, they would just leave and spread the virus more. That's why we had to buy the cigarettes, to keep them inside!" (Dr. Erik Garcia, volunteer at Worcester medical clinic for the homeless, personal communication, April 28, 2020). This finding showed that lower-level medical institutions, especially homeless clinics, were facing a multitude of issues beyond just the lack of PPE.

Usefulness of PPE

The follow up to the initial interviews was conducted roughly two weeks after I had donated the PPE to the healthcare workers. Of the seven people I interviewed initially, five of them had a follow-up interview. These individuals consisted of two volunteers from the Worcester medical clinic, two nurses at Massachusetts General Hospital and a physician assistant. All of the individuals I interviewed had found that the 3D printed PPE was helpful to their role as a healthcare worker.

The ear guards were the PPE items I had the highest demand for, mainly because so many healthcare workers were experiencing stress on their ears due to excessively wearing masks. One respondent explained how she had a deaf coworker, and her surgical mask would always get caught in her hearing aid. They said, "The ear guard was super useful, especially for my coworker; it took off the pressure from her hearing aid. Like before, her ears were all red and constantly hurting her, but now that she has the ear guard, it's gotten a lot better" (Anonymous healthcare worker, personal communication, April 28, 2020). This provided a real scenario in which the ear guard proved useful. It validates that the ear guards I created functioned properly and helped to relieve stress on healthcare workers' ears. A majority of the individuals whom I donated the ear guards to were female. I also received several thank you notes and messages through social media expressing gratitude from healthcare workers for my efforts. One message, in particular, the respondent wrote, "I'm so grateful for your donation. The ear guards have really made my job a lot easier, and my coworkers love them too!" (Anonymous healthcare worker, personal communication, May 4, 2020).

In addition to the ear guards, I donated face shields to a medical clinic for the homeless in Worcester, Massachusetts, a property manager who provided housing for healthcare workers (she distributed them to various nurses), and Compass Medical in Rhode Island. The face shields took roughly three hours to 3D print, so the number I could donate to healthcare workers was limited.

Of these three individuals, all respondents expressed that the face shields were a great design and had improved their working conditions. According to one respondent, "....the face shields were great, we kept using them until the transparency sheets got too dirty to see through. We used them several times and just made sure to thoroughly clean them" (Dr. Erik Garcia, volunteer at Worcester medical clinic for the homeless, personal communication, April 28, 2020). The other individual expressed how the face shields were useful from a medical perspective. They said, "They act as a barrier against any droplets. They really are just like an extra layer of protection, but they are so helpful" (Emily Crisfulla, personal communication, April 30, 2020). These two respondents demonstrated that the face shields were capable of being reused and provided proper protection, the two functionalities I desired when creating them.

Impact of Volunteering

Through all the conversations I had with healthcare workers, each one of them described the emotional impact that volunteers have had on their experience. In one particular instance, I traveled to a medical clinic for the homeless in Worcester, Massachusetts, to drop off face shields and ear guards. This clinic, led by Erik Garcia and Adam Smith, was set up to help the homeless community during the COVID-19 pandemic. This experience was by far the most impactful, as it was my biggest donation, and it was to individuals who were volunteering their time. When I arrived at the clinic, all of the healthcare workers came outside to greet me and test out my products. I spent the first five minutes explaining how to configure the face shields. After some basic instruction, each volunteer at the clinic tried on the face shields. It was such a fulfilling experience watching these healthcare workers get excited about my products, especially with how intrigued they were with the 3D printing. One respondent expressed how she had never seen anything 3D printed before. As seen in Figures 8 and 9, we took several pictures together to document the moment.

Throughout the past seven weeks, I have continued to donate PPE to the shelter and maintained contact with several of the volunteers. Although a difficult task to achieve, creating PPE for this facility meant the most to me because these people, just like myself, were volunteering their time to combat COVID-19.

Figure 8. Volunteers at the clinic for the Homeless Wearing the 3D Printed Face Shields in Worcester, MA. April 11th, 2020


Figure 9. The Volunteers & Me Wearing the 3D Printed Face Shields in Worcester, MA. April 11th, 2020.

Engineering Findings

On a more technical note, I was also provided with the best techniques and designs to create both face shields and ear guards. I interviewed three individuals who were experienced with 3D printing and was in contact with roughly ten design experts through online forums. The design of the face shields and ear guards, as described in the methods, were acquired from online resources and interviews with three 3D printing experts. The interviews consisted of a faculty member at WPI who worked in the prototyping lab in Foisie and two WPI graduates.

Design Face Shields and Ear Guards

The interviews helped to provide basic information about the design and aspects of face shields and ear guards. One respondent provided insight on how the designs of face shields differ. They said, "It all depends on what the individual you are donating to wants. For example, the hospital we are working with has to follow strict regulations. This meant that we had to provide face shields that had heavy coverage, this design [DtM design] resembles more of a visor" (Mitra Anand, 3D printing expert at WPI, personal communication, April 23, 2020). This response allowed me to understand that hospitals have relatively strict regulations that they have to follow regarding PPE. However, for the medical clinic for the homeless, although they valued protection, they also needed the materials fast. As a result, I would send the healthcare workers who I donated face shields to, two designs: option one offered more coverage but would take longer to print, and option two offered less coverage but was faster to print. All of the respondents expressed that option two would be sufficient and expressed their need for the materials sooner rather than later.
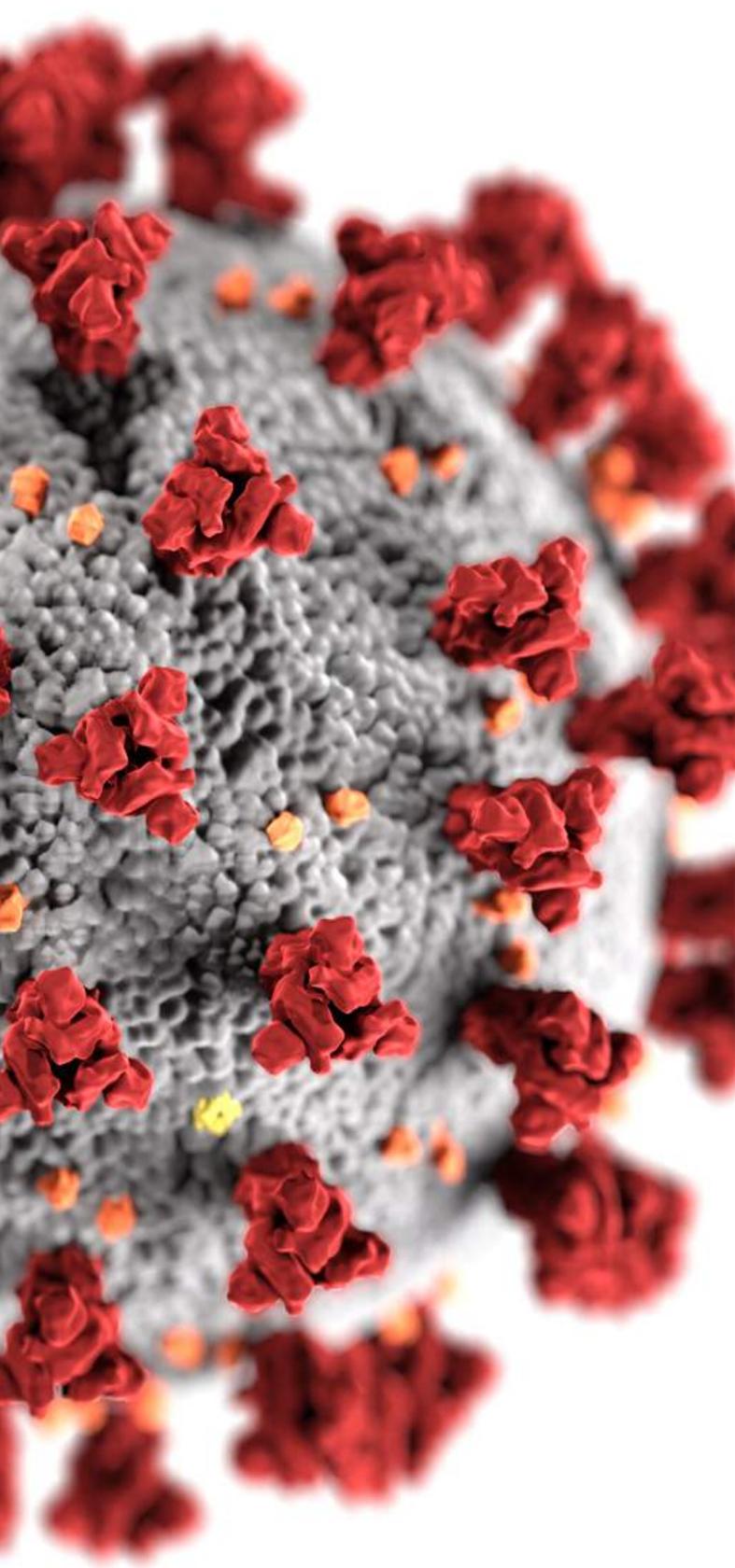
To detail the design process more, there were three main designs that I tested out: Stratays, DtM, and Prusa. As seen in Table 2, these designs, although they shared the same common goal, varied in size, quality, coverage, and various other aspects.

Based on my testing, I found that the best design to use was the Stratasys (Figure 8) compared to the Prusa (Figure 9) and the DtM design (Figure 10). Therefore, a majority of the face shields I produced were the Stratasys design because they had a fast printing time, did not use an excessive amount of material (PLA), and had the highest overall quality. The Prusa design did have a faster printing time by just a few minutes; however, as you can see from Figure 10, there was not as much protection. I felt it was necessary to spend a few more minutes printing a better-quality face shield rather than one that could have exposed the healthcare worker to infectious agents. Though had I been donating to a hospital that had stricter regulations, I would have moved forward with the DtM design because it complies with hospital regulations.
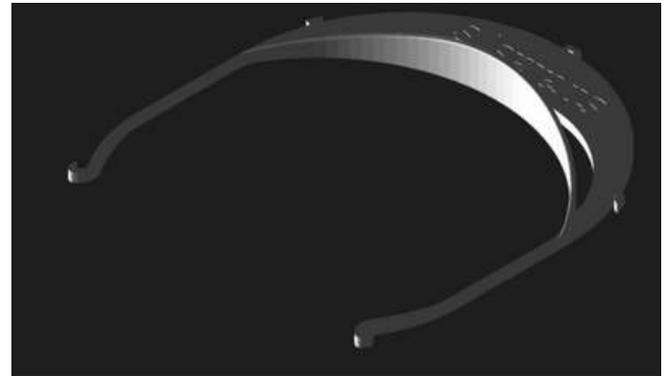
Figure 10. Example of Stratasys Design from GrabCAD. May 6th, 2020.
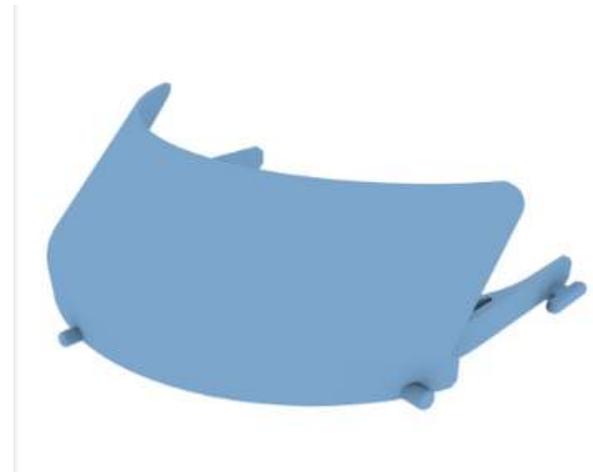
Figure 11 . Example of DtM Design from GrabCAD. May 6th, 2020

Design	Time	Amount of Material
Stratasys	2 hours 26 minutes	26 grams
Prusa	1 hour 58 minutes	21 grams
DtM	3 hours 51 minutes	59 grams

Table 2: Face Shield Design Breakdown
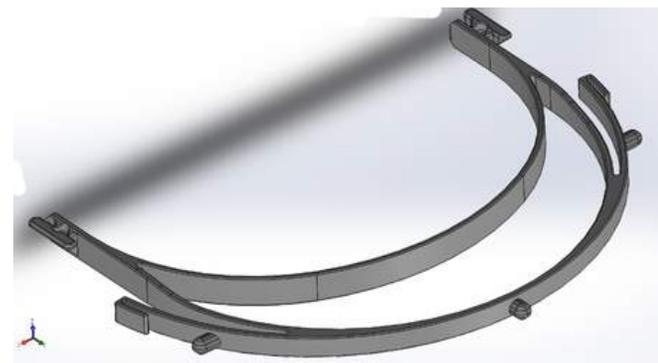
Figure 12. DtM Face Shield Design from GrabCAD. May 11th, 2020.

3D Printing Experience

The overall experience of 3D printing PPE was definitely a difficult process; however, over time, the production of the equipment became easier. The process itself is quite technical, and acquiring a 3D printer was not easy due to a massive delay in Amazon delivery due to COVID-19. However, after checking order services for several days, I was finally able to order an Ender 3 3D Printer and receive it within a reasonable timeframe. As seen in Figures 11 and 12, the setup of the printer involved a multitude of small parts making for a tedious process. I used a YouTube video for reference, and the printer took around 3 hours to set up.

When 3D printing face shields and ear guards, I learned that there are various settings you can manipulate to increase production. Initially, I was struggling to print face shields fast enough for the medical clinic in Worcester, Massachusetts. In one interview with a WPI graduate, they explained, "If you change the speed of the nozzle and increase the layer height production will go a lot faster." I also stayed up to date with online forums to discuss with people who had been printing PPE with the same printer I had. From this information, I was able to obtain exact specifications on what values (i.e., speeds, temperature, etc.) to change. After learning this information, I was able to print PPE at a much faster rate by changing the settings detailed in Appendix F.

Figure 13: 3D Printer Disassembled taken in Raynham, MA. April 6th, 2020
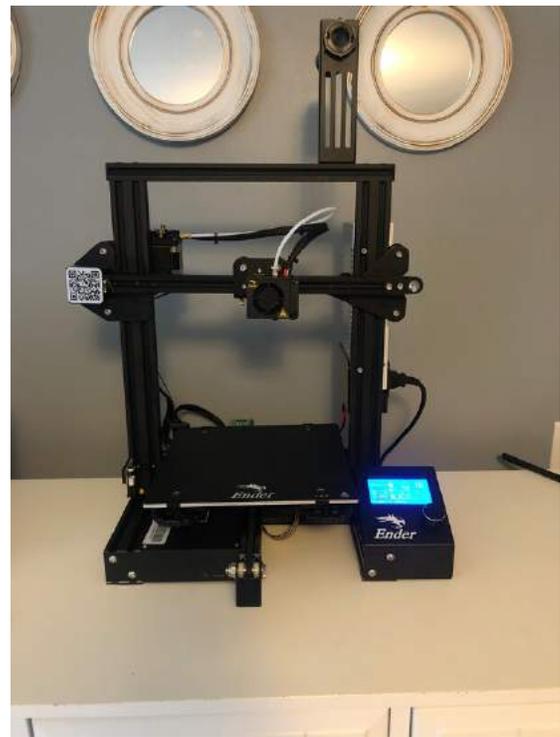
Figure 14: 3D Printer Assembled taken in Raynham, MA. April 6th, 2020.

Conclusion

Over the course of the past seven weeks, I have been able to work as a dedicated activist for the COVID-19 pandemic. During the early stages of the pandemic, I continuously felt helpless as I watched the number of cases increase drastically, especially in early March 2020. This project, however, gave me a sense of hope. Through talking with various healthcare workers, I learned that the PPE across medical facilities was in low supply, especially for smaller medical centers and volunteer clinics. Moreover, I learned the true impact the virus had on these healthcare workers through conducting semi-structured interviews with a heavy focus on emotional feelings during the pandemic. After discussing with engineers and 3D printing experts, I was able to actually create PPE (face shields and ear guards) for first responders. I learned from follow up interviews with healthcare workers of real situations in which the PPE I donated had helped them remain protected during their job. In total, I created over 200 ear guards and 35 face shields for healthcare workers, and I am continuing production throughout the summer of 2020. Altogether, I was able to successfully develop PPE for healthcare workers throughout New England and had the opportunity to meet some heroic individuals along the way.

THE COLLEGE EXPERIENCE

CHAPTER OUTLINE
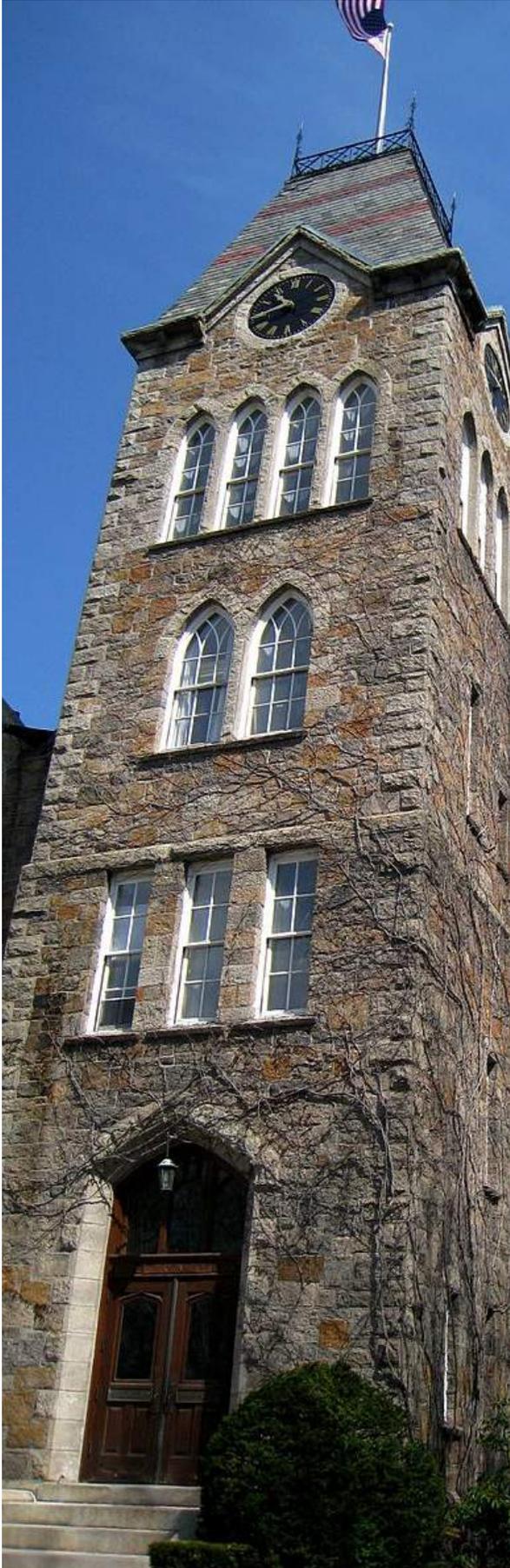
Student Attitudes Towards College and University COVID-19 Responses

By: Olivia Hauber

Colleges and universities have had to respond to pandemics similar to COVID-19 in the past. The H1N1 pandemic of 2009 caused many schools to create response plans for public health crises. While colleges and universities were able to remain open, precautions were put in place to allow sick students to be isolated in order to slow the spread of H1N1 across campuses (Center for Infectious Disease Research and Policy at the University of Minnesota, 2012; Schnirring, 2010). These precautions, however, were deemed not enough for the COVID-19 pandemic. As the coronavirus spread from country to country, colleges and universities started to take notice. In the United States, many schools began taking action in February by prohibiting school-sponsored travel and canceling study abroad programs in infected countries (Centers for Disease Control and Prevention [CDC], 2020; Moody, 2020). As the pandemic progressed and eventually entered the United States, it was clear that more action had to be taken. In early March, colleges and universities across the country began closing their campuses and transitioning to remote learning (IHE Staff, 2020; Poliakoff, 2020). This caused many college students to have their lives uprooted, having to leave their beloved schools and return home with little notice. Their college experience ended for an unknown period of time. Understandably, this left many students

disappointed, angered, and confused (Bentley, 2020; Weber, 2020).

The goal of this project was to explore the attitudes held by students towards their school's decisions in response to COVID-19 throughout the pandemic. While students may have had strong emotions towards the changes that had been made as a result of COVID-19, I wanted to explore how these emotions affected their opinions of their school's response and how much responsibility the students placed on the school. While it was ultimately the school's decision to respond to the pandemic, many outside factors played into this decision. As such, I wanted to explore if the initial attitudes students held towards their school's decision had changed as outside factors became clearer and more influential as the pandemic worsened.

Crisis Responsibility, Trust, and Emotion's Role in the Formation of Student Attitudes Towards College and University Crisis Responses

Student attitudes towards their school's decision making are formed by many factors. Three of these factors include how the students view the school's responsibility during a crisis, the emotions experienced by the students during a crisis, and the established trust, or lack thereof, between the students and the school's administration. These three factors interconnect and influence each other, affecting the overall student attitudes.

Crisis Responsibility

Crisis responsibility explains how much the public believes an organization is responsible for a crisis (Bellisario, n.d.). In the context of the COVID-19 pandemic, crisis responsibility would explain how much the students believe their school's administration is responsible for the pandemic's effect on their school and the decisions that were made as a result. During such crises, the level of responsibility students place on their school can help indicate the attitudes students will form regarding their school's response (Coombs, 2007a; Coombs, 2007b; Kim & Niederdeppe, 2013). Students who place a higher level of responsibility on their school are more likely to believe their school could have done more in terms of response to the crisis, which can ultimately lead to students developing a more critical attitude towards their school's response (Coombs, 2007a).

Emotions

The emotions students feel throughout a crisis can help form their attitudes towards their school's response, affecting the level of responsibility students' places on their school. Emotions can influence the response individuals have and the actions they then take (Kim & Cameron, 2011; Kim & Niederdeppe, 2013). Unsurprisingly, negative emotions (fear, anxiety, anger, etc.) can overshadow other emotions during crises, particularly those with high-uncertainty (Pang et al., 2009). Negative emotions are often associated with a lower perceived reputation

of an organization that someone deems responsible, which can lead to a desire to take action against this organization (Choi & Lin, 2009; Gault & Sabini, 2000; Kim & Niederdeppe, 2013). Students reacting negatively to their school's response to a crisis could allow their emotions about the crisis itself to lead to negative emotions towards the school and its response. This can then cause students to place a higher level of responsibility on the school, which, in turn, can result in students becoming more critical of their school's response.

While negative emotions can become overwhelming, positive emotions (sympathy, surprise, supported, etc.) can still be experienced throughout a crisis. These positive emotions can increase the likelihood of a student seeking out information about the crisis and their school's response to it (Dillard & Peck, 2001). Students who actively seek out information on their school's response are more likely to have consistent attitudes throughout the crisis and will tend to be more supportive of their school if it took action to contain it (Griffin et al., 1999; Kim & Niederdeppe, 2013).

Trust

Crisis responsibility can also be lowered when there is established trust between the student and their school (Kim & Niederdeppe, 2013). When a school has established trust with its students, it can more effectively communicate risk to the students and the students are more likely to believe the decisions made by their school are in the students' best interest (Alpaslan et al., 2009; Kim & Niederdeppe, 2013; Kim & Yang, 2009; Mishra, 1996; Phelps & Durfrene, 1989). Established trust between the students and the school can also encourage students to actively seek information about their school's

response, once again leaving students better informed and less likely to place high levels of responsibility on the school (Kim & Niederdeppe, 2013; McGuire, 1974; Mishra, 1996). A positive correlation has also been found between the established trust students had with their school and positive emotions during the H1N1 pandemic (Kim & Niederdeppe, 2013). This indicated that students who had established trust with their school would be more likely to experience positive emotions during a crisis and be supportive of their school's response to the crisis.

Students Reaction to College and University Responses in Previous Pandemics

The influence of crisis responsibility, emotions, and trust on student attitudes during health crises has been seen before throughout the 2009 H1N1 pandemic. During the H1N1 pandemic, a study was performed at Clemson University to help identify student attitudes towards the pandemic and their expected behaviors as a result. The study found that female students were more likely to be concerned about the virus than males, making them more likely to seek out information from the university regarding the virus and their response to it (Darby et al., 2010). This indicated that female students would be more supportive of the actions taken by the university (Griffin et al., 1999; Kim & Niederdeppe, 2013). A further study of university responses to the H1N1 pandemic found that students could become an invaluable resource when making decisions regarding the virus. When the students were included in decisions and asked to help the school with its response, universities found that their response messaging was more effective and that the trust between the

students and the school's administration was strengthened (Center for Infectious Disease Research and Policy at the University of Minnesota, 2012). In contrast, another case study performed to gauge college student attitudes towards the H1N1 virus found that many students thought their school promoted prevention messaging, as well as their response to the virus, too heavily and found that the messaging created fear and panic. This led to students listening to their school's messaging less and becoming more critical of their school's response (Koskan et al., 2012). In order to lower crisis responsibility and improve student attitudes, colleges and universities need to find a balance in both the tone and the pacing of their messaging to students. The schools also need to include students in their decisions to ensure that student emotions are taken into account and the trust between the students and the school is preserved and strengthened.

The Approach

The goal of this project was to gain insight into student attitudes towards their college or university's response to the COVID-19 throughout the pandemic. To provide context

for these attitudes, I researched the details of the decisions made by various colleges and universities. To guide my research, I identified the following objectives:

1. Explore student attitudes towards their school's response throughout the COVID-19 pandemic.
2. Determine the responses of colleges and universities to the COVID-19 pandemic.

Exploring Student Attitudes Towards Their School's Response Throughout the COVID-19 Pandemic

I interviewed six students from four colleges and universities in order to gain insight into their attitudes towards their school's COVID-19 response. I contacted students that I personally know who are currently attending a college or university that was affected by COVID-19, and those who volunteered were interviewed. I conducted these interviews on Zoom and, with permission, the interviews were recorded. Each student also provided permission for their name and quotes from their interview to be used in this report as well as audio clips from their interview and pictures they provided to be used in the report and complementary videos. The interviews were semi-structured with the

intent of gaining in-depth information on the student's attitudes and experiences with their school's response towards the pandemic. The interview protocol can be found in Appendix A. I transcribed the recorded interviews and keywords or phrases were assigned to the responses given by the student in a process known as thematic coding.

Determining the Responses of Colleges and Universities to the COVID-19 Pandemic

To provide context to the student responses, I researched the different decisions made by their colleges and universities regarding the COVID-19 pandemic. This was done by looking at the statements made by the different schools, as well as news stories that have covered these school's decisions. The statements made by the schools were collected from each school's COVID-19 response web pages and some of the emails sent to students. I also looked at what outside factors the schools had to consider when making their decision, such as the statements and decisions made by government officials and how other schools in the area had decided to respond to the pandemic. I researched this information for all four of the schools attended by students who were interviewed. The results gathered in both Objective 1 and Objective 2 are discussed in the next section.

Findings and Discussion

College and University Responses to the COVID-19 Pandemic

Using the approach discussed above, I interviewed six students from four colleges and universities: Bryant University, Manhattan College, Syracuse University, and

	Date of Initial Response	Date Remote Learning Began	Reimbursements Provided	Transition Time	Pass/Fail Grading Option	Communication Frequency
Bryant University	3/10/2020	3/17/2020	Housing and Dining	Spring Break + 1 Day	Can choose the pass/fail option until 5/20/2020	Weekly
Manhattan College	3/9/2020	3/11/2020	Room and Board	2 Days	Can choose the pass/fail option until 6/15/2020	Weekly
Syracuse University	3/10/2020	3/23/2020	Housing and Dining	Spring Break	Can choose the pass/fail option until 4/10/2020	Every couple of days
WPI	3/11/2020	3/25/2020	Housing, Dining, and Student Life Fee	Spring Break + 1.5 Weeks	Can choose the pass/fail option until 5/21/2020	When there are new updates

Worcester Polytechnic Institute (WPI). Each school had similar general responses to COVID-19 where in-person classes were transitioned to remote learning and students were asked to leave the campus. Each student I interviewed supported this decision because they believed this was ultimately the right one, although it was not an outcome they would have wanted. However, more minor decisions the colleges and universities made, such as the transition time provided to students, the adoption of a pass/fail grading system, and the communication the schools' had with their students, had varying responses that resulted in differing opinions from the students. The students experienced different losses due to the transition to online learning and emotions towards the virus and their school's response. There were also different levels of established trust between the students and their schools, with distrust in school administration negatively affecting student attitudes towards their school's COVID-19 response.

Similarities Between College and University Decisions

Through researching the four college and university's responses to the COVID-19 pandemic, I compiled a summary of each school's response from their COVID-19 response web pages, as seen in Table 1. A detailed timeline of each school's response can be found in Appendix B. Each schools' general response of transitioning to remote learning was very similar and, as seen in Table 1, came within days of each other. The schools initially announced that they would be conducting remote learning until the end of March or early April "out of an abundance of caution," leaving the option open to return to campus for the last month of the academic year (O'Donnell et al., 2020). Eventually, however, each school announced they would be implementing remote learning for the remainder of the academic year once it became clear that it would not be safe to conduct classes in-person or have students travel back to campus. Despite students being devastated by this response, as it meant they would have to leave their beloved campus and lose opportunities they had been looking forward to all year, they believed their school made the right decision in this regard, saying that, "while it's not the decision I would have preferred … it's pretty much the only decision [the school] could have made" (C. Bruneau, personal communication, April 13, 2020). Four of the students expected this response since their schools had already ended or canceled study abroad programs, other schools in the area had begun to transition to remote learning, and their states' governors had begun to give

guidance to the schools and restrict non-essential businesses. Since the decision to transition to remote learning was expected by students, the immediate shock was lessened and they supported the decision, understanding why it had to be made. The students did appreciate that the schools initially stated they were going remote only until the end of March or early April as they felt it left the option open for students to potentially return to campus and "gave us a lot of hope" that students may have been able to be with their friends again and the events they were looking forward to may have still happened (C. Lussier, personal communication, April 22, 2020).

Each college and university also made similar decisions regarding the reimbursements provided to students. Students who lived on-campus were provided with prorated reimbursements for their housing and meal plans since students were, with very few exceptions, not allowed to live in their provided housing. In addition to this, WPI also reimbursed their student life fee for the last term of the academic year since events the fee covered, such as Big Show or Quad Fest, were not able to be held. While the students appreciated these reimbursements, a few of the students expressed that if the school lowered their tuition during the time of remote learning, they would have had "a more positive feeling towards everything moving online" (C. Lussier, personal communication, April 22, 2020). These students argued that typical online courses have cheaper tuition than traditional in-person courses, making them believe that they were "paying way too much to go to online school," especially since the same resources, such as having open office hours with professors or access to drop-in tutoring centers, were not available to them (A.

Borders, personal communication, April 22, 2020). One student also expressed that expecting students to pay full tuition in the uncertain time was unfair since "a lot of us cannot go to [our] jobs right now, so trying to figure out how we're going to make that next tuition payment is a little scary" (C. Lussier, April 22, 2020).

Differences Between College and University Decisions

The differences in the responses by the schools came from the more minor decisions they made. Each school provided students with a different amount of transition time, ranging from two days to over two weeks. Manhattan College provided two days of transition time, which was the least of the four schools. While no rationale was given as to why they decided to provide this short amount of time, it could be because the school is located in New York City, where over 1,000 cases of COVID-19 were confirmed the week Manhattan College transitioned to remote learning (Elflein, 2020). Both Bryant University and Syracuse University used their spring break as transition time in order to provide little disruption to the semester-long classes students were taking. WPI provided the longest transition time at 2 ½ weeks, with one of the weeks being the school's spring break. Since WPI runs on a quarter system, students had not yet started classes, allowing the school to provide more transition time without disruption. Regardless of the amount of transition time provided, the students expressed that it was not enough time for both students and professors to be able to understand how remote learning would work and to learn to effectively use remote learning platforms, such as Zoom or Blackboard Collaborate. Some students believed that the professors needed more

time because they were "still very confused on how … Blackboard Collaborate worked" when remote classes began (T. Liimatainen, personal communication, April 21, 2020). Some students also indicated that they wished professors were given more guidance from the school's administration since it seemed that "each faculty member [decided] what to do," meaning that some utilized live lectures while others posted videos of PowerPoint slides (E. Campbell, personal communication, April 14, 2020). This led to students having to learn in different ways for each course, making an already confusing adjustment and semester even more difficult. Other students argued that the transition time provided by the school was "more for the teachers" and that students did not have access to the remote learning platforms before online classes began, so they could not prepare properly for online learning by exploring these new platforms and understanding the new direction of their courses ahead of time (E. Benichou, personal communication, April 21, 2020). The stress and confusion of trying to understand a completely new way of learning were added to the already stressful and confusing time of the pandemic.

Another decision that differed between schools was the decision to give students the option of choosing a pass/fail grading system as opposed to traditional letter grades. Three of the schools gave students the option to adopt this grading system even after their grades were released. Syracuse University, however, decided to only provide this option until early April, which forced students to decide if they wanted to use this grading option after only two weeks of remote learning. The university decided to provide this limited window of time since students are provided with a pass/fail grading option

at the beginning of every semester, so students were already able to choose this option before the transition to remote learning was announced. One student from Syracuse University expressed that he was mad about the pass/fail thing" because his grades had declined since the pass/fail deadline passed due to the struggles of learning remotely, saying that if the deadline were extended he "would think way more highly of Syracuse University" and their COVID-19 response (T. Liimatainen, personal communication, April 21, 2020). In contrast, Bryant University initially did not offer any pass/fail grading option when they transitioned to remote learning. However, after listening to student feedback, they decided to implement this grading option due to international students having to learn in different time zones, some students not having a reliable connection to the internet, and some students not having a dedicated quiet place to study. This change in Bryant University's decision made one student's "reaction to everything just a little bit better" (C. Lussier, personal communication, April 22, 2020).

The process of moving students out of on-campus residential halls was another aspect where the school's responses differed. Bryant University, Manhattan College, and Syracuse University allowed students to return to campus to retrieve their belongings from on-campus housing when remote learning was first announced. In addition, they created a process for students who were not able to return to campus to either move out at a later date or have their belongings shipped to them. WPI, however, had not provided a plan for students living in residence halls to be able to return to gather their belongings. They offered students an option to have their items shipped to them, but students would

have to pay for this service. Both students from WPI were very frustrated by this lack of consideration. Residential halls remained open for three days after the school's transition to remote learning was announced, but since students had already returned home for spring break, many could not return to campus to retrieve their belongings. One student decided to drive 11 hours during his spring break to gather everything of value in his room before he no longer had access to the building. The other WPI student was not able to return to the campus and all of his belongings, including materials he needed for classes, were still in his dorm room. Both students expressed that WPI's lack of preparation in this regard negatively affected their attitude towards the school's response and their attitude would likely have improved if a move-out plan was put in place.

Another aspect that differed between schools was the frequency of their communication with students. Syracuse University provided updates to students on an almost-daily basis, while Bryant University and Manhattan College decided to send updates to students weekly, and WPI communicated with students only when new updates are available. The students from Manhattan College and WPI, while finding the updates useful, did not find that the communication from their school affected their attitude towards their school's response. The students from Syracuse University, however, agreed that the frequent communication from their school was too much, calling the updates "annoying" (T. Liimatainen, personal communication, April 21, 2020). They also claimed that the updates rarely provided new information and the information it did provide "[wasn't] really helpful," leading to the students paying less attention to the school's communication as the pandemic continued (A. Borders,

personal communication, April 22, 2020). The student from Bryant University, however, found the communication from her school to be both helpful and uplifting. In his updates, the president of Bryant University, Ronald Machtley, shared his personal thoughts of exploring the empty campus and interacting with students who were not able to return home, all while providing the students with updates. These personal remarks allowed students to feel that the school was "trying everything that they physically [could] to … keep the Bryant community alive" (C. Lussier, personal communication, April 22, 2020).

A Sense of Loss

Before the COVID-19 pandemic had affected college life, the students I interviewed were involved with a variety of student organizations, clubs, professional societies, and part-time jobs, allowing the students to interact and socialize throughout their week. Each school was gearing up for an end of year concert featuring outside artists, which was often referred to as "the big event of the year" (T. Liimatainen, personal communication, April 21, 2020). Many of the students also had exciting opportunities in the coming weeks. Elias Benichou, a student from Manhattan College, was completing research with a professor while Trevor Liimatainen of Syracuse University was

preparing to give a presentation in front of a local high school. Christina Lussier, who attends Bryant University, was invited to perform at a Red Sox game with her pep band and Alexis Borders from Syracuse University was preparing to be interviewed for her senior year internship. However, when their schools transitioned to remote learning, meetings stopped, the concerts were canceled, and part-time jobs and opportunities either ended or were changed. The students demonstrated this loss and their disappointment by listing the opportunities and events they were looking forward to and repeating "so [that] was canceled" (C. Lussier, personal communication, April 22, 2020) or "I'm supposed to be [doing this] but now I'm not" (T. Liimatainen, personal communication, April 21, 2020).

In addition to losing out on their typical campus life, the students I interviewed also indicated a loss of traditional education. When asked what he missed the most about being on campus, Trevor expressed that, in addition to missing the social interactions with his friends, he "[missed] learning … I actually miss getting educated and not sitting in front of a screen" (T. Liimatainen, personal communication, April 21, 2020). Christina also explained that "being a visual learner and physically seeing it happen in front of you

and then being able to do it is a lot different from seeing the professor's mouse kind of draw out the things on a whiteboard," which made learning remotely much more difficult for her (C. Lussier, personal communication, April 22, 2020). These students expressed that they felt they were learning less than they normally would in a traditional setting, despite many of them being assigned more work by professors than what was originally laid out in their syllabus.

The Impact on Student Attitudes Due to a Lack of Established Trust

Established trust, or rather a lack thereof, did seem to have a large impact on some students' attitudes towards their college or university's response to the COVID-19 pandemic. Christina and Elias, along with Connor Bruneau, a student from WPI, did not express either established trust or distrust with their schools or their administration. Christina and Elias are both transfer students, with this being their first full year at these schools, meaning that there has been less time for trust or distrust to be established. These three students did have a better attitude towards their schools' responses when compared to the other students, indicating that students who did not have established distrust would be more likely to have a better attitude towards their school's COVID-19 response. Ethan Campbell from WPI did express mild distrust stemming from previous decisions the school had made, saying that students were not always

kept in mind during previous decision-making processes. He also described some of the school's previous decisions as "incompetent" (E., Campbell, personal communication, April 14, 2020). He was, however, optimistic that WPI would keep student safety in mind when responding to the COVID-19 pandemic and maintained the opinion that his school did make good decisions throughout the pandemic (E. Campbell, personal communication, April 14, 2020). Both students from Syracuse University expressed distrust with the school's administration, claiming that the school had "expressed they [care more] about their money than anything," even student safety (T. Liimatainen, personal communication, April 21, 2020). This stemmed from students believing that their chancellor, Kent Syverud, was "hired to fix the budget" (A. Borders, personal communication, April 22, 2020). In addition, beginning in November 2019, students at Syracuse University had been protesting against the administration due to several bias-related incidents. This led to students being "very against administration before [the pandemic] happened," with them even calling for several administrators to resign (A. Borders, personal communication, April 22, 2020). This distrust with the Syracuse University administration, combined with students believing the school cared more about money than their safety, adversely affected both students' attitudes towards their school's response. This resulted in the students claiming that the school's decisions were made from a "business
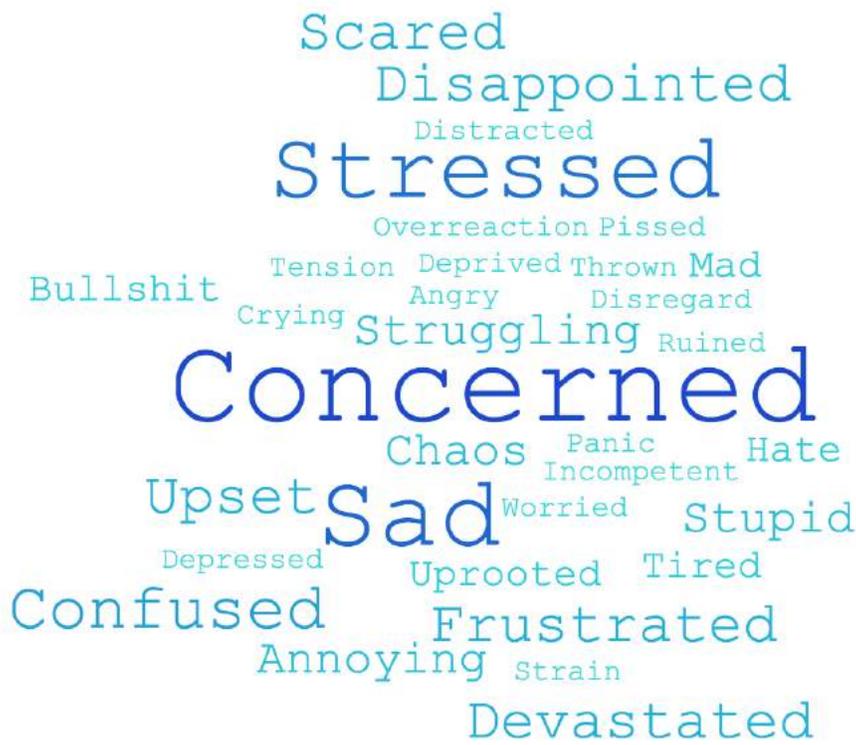
Figure 1: Negative Emotions Experienced by Students

mindset" and that students "knew that they were going to put the business first rather than our safety" (A. Borders, personal communication, April 22, 2020).

Emotions

Negative Emotions' Effect on Student Attitudes

The students expressed many emotions throughout their interviews, surrounding both the pandemic itself and their school's response. The vast majority of the emotions expressed by the students were negative. These negative emotions can be seen in Figure 1, where emotions that were expressed at a higher frequency are larger and in a darker color. While many of these emotions were expressed when the students were discussing their sense of loss, some used emotions like "concerned" and "stressed" to describe their attitude towards their school's response. Alexis explained that professors were informed of Syracuse University's decisions at the same time as

students, which limited their ability to answer student's questions. This, in turn, increased the stress and concern of students as they were not able to get answers or reassurance. She explained that if professors were given information ahead of students, she would have felt less stressed and would have likely had a better opinion of the school's response. Christina expressed concern surrounding her ability to achieve her typical high grades with remote learning before Bryant University announced they would be introducing the pass/fail grading option. When this was announced, however, the negative emotions she had been feeling were replaced with more positive emotions like "reassured" and "hope."

Positive Emotions' Effect on Student Attitudes

Some of the students did express positive emotions regarding their school's response and their messaging. The students found the updates and communication from their school to be sympathetic, especially towards the beginning of the pandemic. However, as the pandemic continued and more updates were provided, three of the schools had transitioned away from sympathetic responses to make their communications more "to the point" (T. Liimatainen, personal communication, April 21, 2020). While the male students interviewed did not mind this transition, the female students appreciated the sympathetic approach more. Christina from Bryant University, the only school to still utilize sympathy in its messaging, found that the positive and sympathetic messaging from her school helped uplift her opinion of the school's response. Alexis missed the

sympathetic responses she used to get, feeling that the rationales given became more "basic" and "confusing" without it.

Many of the students also used humor and optimism to express their feelings about both the pandemic and their school's responses. Ethan joked that he felt better about WPI's decision to transition to remote learning when he realized he "would not have had enough meals [on his meal plan] to last the entire term back on campus," saying that when he realized this, he was "quite happy about … how this all turned out" (E. Campbell, personal communication, April 14, 2020). Connor joked that he was not too concerned about COVID-19 "out of general apathy" (C. Bruneau, personal communication, April 13, 2020). Students who expressed their feelings through humor tended to have a slightly better attitude towards their school's response when compared to the other students.

Crisis Responsibility

Overall, the level of responsibility placed on the four colleges and universities by the students for the decisions made as a result of the COVID-19 pandemic was fairly low for their overall decision to transition to remote learning. The students saw this decision as "being largely out of [the school's] hands (C. Bruneau, personal communication, April 13, 2020) due to the aggressive nature of the coronavirus and because the schools had to make decisions "based off what the [governors] were shutting down" (A. Borders, personal communication, April 22, 2020). Each student expressed that, while they would have preferred to remain on-campus and experience their last part of the academic year in-person, they understood why remote learning was the best, and only, decision colleges and universities could make

at the time.

Students did place blame on their schools, however, for the more minor decisions that were made, such as pass/fail grading deadlines or move-out processes. The students felt that the schools should have had time to make these decisions and communicate them to students during the transition time provided and in the following weeks. These decisions were seen largely negatively by the students because they felt that it showed that their school did not care about its students. Trevor, along with fellow students, even asked Syracuse University's administration if their pass/fail deadline could be extended, but no changes were made. Many of the students expressed that if their schools had changed their decisions to reflect students' voices, it would have shown that they truly cared about their students and their opinions, leading to much more positive attitudes towards the school's response. Bryant University was an example of this. When the school listened to student opinions on providing a pass/fail grading option and changed their decision, Christina's attitude towards the school's response improved, making her opinions of the school's response the most positive of the students I interviewed.

Student Attitudes

Overall, the student's attitudes were neutral to slightly negative towards their school's response to the pandemic, except for Alexis, who's opinion was very negative. Her very negative opinion was due to an established distrust with the school's administration combined with Syracuse University's constant and blunt communication of their decisions. Trevor also had a negative opinion of Syracuse University's response, also due to an established distrust with the school along

with the school's earlier deadline for choosing the pass/fail grading option. Both Connor and Ethan expressed that they wished WPI's residential services had provided a plan for students who lived on-campus to come and gather their belongings. This lack of consideration caused these students to have a slightly negative attitude towards their school's response. Elias also had a slightly negative attitude towards Manhattan College's response. While he did wish the school provided more than two days for students to transition to remote learning, he did acknowledge that the school did have to react faster than others due to it being in New York City, which was quickly becoming a hotspot of the pandemic at the time. These students did not have any major changes in their attitudes as the pandemic progressed. As stated above, Christina did have a change in attitude when Bryant University changed its decision and allowed the pass/fail grading option. While her opinions of the school's response were the most positive, it was still slightly negative to neutral due to the school denying a tuition reduction for remote learning.

Limitations

There were obvious limitations to this project. I was only able to interview a small group of students from a small selection of colleges and universities. As such, while these are the opinions and experiences of these students and there are similar themes between them, they do not represent the attitudes of all students at their respective colleges/universities or all college students. I would have liked to interview more students at the colleges and universities discussed in this project as there were already slight variations in the attitudes students held towards their school and what decisions they did or did not agree with. I also would have liked to interview students from a greater variety of colleges and universities in order to gain insight into their opinions of their school's response to the COVID-19 pandemic to see how it differed or supported the attitudes held by the students I already interviewed.

Conclusion

Overall, the biggest impact on students' attitudes towards their school's COVID-19 response came from the more minor decisions the schools made, especially the established distrust between the students and the school's administration. This led to students who had a lack of trust placing more responsibility on their school for its response to the pandemic. The students' attitudes were consistent throughout the pandemic with many of the students explaining that they would have likely had a better opinion of

their school's decisions if student voices were taken into account. When this did happen at Bryant University, the student's attitude did indeed improve. While the students focused on the more minor decisions that they disagreed with, each student was supportive of their school's overall response to the COVID-19 pandemic. This came from the students' understanding of the pandemic and the outside factors the schools had to consider, such as the responses from their state's governor. Thus, the students believed that transitioning to remote learning was the best decision that could have been made and that student safety was at the forefront of this decision.

The Effect of the Coronavirus Pandemic on Collegiate Athletes

By Amanda Wetmore

There are more than 460,000 athletes in the National Collegiate Athletics Association participating in sports every year ("Student-Athletes"). That means when the NCAA cancelled the end of the winter sport season, the entire spring sport season, and any related sporting events, 460,000 student-athletes were affected ("Coronavirus (COVID-19)"). Hundreds of thousands of athletes had their passion, their motivation, and their identity taken away.

The goal of this project was to document the collegiate student-athlete's experience during the COVID-19 pandemic. I determined the emotional impact the pandemic had on student-athletes and how they were coping with their inability to participate in athletics. In order to accomplish my goal, I spoke with college athletes and coaches to learn about the role athletics plays in their lives, their feelings about the canceled seasons, and their lives during the pandemic.

All images were provided courtesy of the participants

NCAA Cancellations

On March 12, 2020 the NCAA released a statement regarding the status of college athletics during the coronavirus pandemic. The organization declared, "All remaining winter and spring NCAA championships and related events, including the Division I men's and women's basketball tournaments, have been canceled." The organization then explained that it understood how disappointing the announcement was for everyone, but that its decision was "based on the current understanding of how COVID-19 is progressing in the United States" ("Coronavirus (COVID-19)", par. 2). This meant that the Division I basketball March Madness tournament was canceled along with the sports programs of every college and university. This news was devastating to student-athletes across the country because an essential part of their life was taken away.

Loss of Identity

When college students play a sport long enough to compete at the collegiate level, that sport becomes part of them. Being a student-athlete informs their sense of self — their identity. "For the student-athlete, love in their sport comes from devoting their life to their athletic career. Their sport can become their tool for success, their escape from the real world, and in some cases, even their sole identity" (Marizu, 2012, p. 1). Because some athletes identify as just that – an athlete – it can be a shock when that identity is taken away (Stark, 2018). It can be such a struggle that there are programs such as Moving On! dedicated to helping athletes transition out of their athletic careers. An NCAA article about this program explained the identity crisis that Moving On! co-developer Erin Refisteck faced at the end of her sports career (Stark, 2018).

"But when that identity she had clung to — the one that had been the source of great confidence and validation from age 12 through college — vanished with the end of her athletics career, Reifsteck found herself filled with questions and lacking motivation outside the structure that college sports demanded" (Stark, 2018, par.13). Similarly, during the pandemic student-athletes were removed from their normal life as athletes to become remote students. The NCAA Student Athlete Advisory Committee released a letter to student-athletes regarding this difficult time. In the letter it wrote, "Now is the time to tap into the grit we have all developed through our athletics experience and to realize our identity is greater than our sport. Sports are what we do, but they are not who we are" ("An Open Letter," 2020, par.5).

Importance of Team

Becoming a student-athlete provides undergraduates with a support system that may be crucial to their success in college. The pandemic has taken this support system away from student-athletes as they are forced to stay home and off campus. Being part of a team is an essential aspect of the student-athlete experience. In a study discussing the lessons that can be learned from the athletic community, Wolf-Wendel et al. (2001) observed that, "In athletics, students from a vast array of backgrounds integrate into a coherent whole, where factors such as race, socioeconomic status, and even gender (in the case of mixed gender track and field teams) assume much less meaning than what individuals can contribute to the team" (p. 369). A sports team is a community of people who may only have one similarity between them, yet they accept their differences and value people based on what they can bring to the team (Wolf-Wendel et al., 2001).

Research in the Handbook of Sport Psychology explained that, "some overachieving teams frequently are characterized by a togetherness that overshadows any individual performer" (Feltz & Lirgg, 2001, p. 351). The success of a team can be dependent on the relationships formed between teammates and the confidence they have in each other (Feltz & Lirgg, 2001). In her autobiography, basketball player Britany Griner (2014) explained the importance of team chemistry and bonding. After her college basketball team lost in the Final Four, she recounted, "we knew as players we needed to get closer on the court. We needed better chemistry. So we decided to spend more time bonding that summer" (p.188).

Because having chemistry during competition is so important, teammates are forced to create bonds with each other that grow through shared experiences. The inability to spend time together as a team and build bonds among teammates can result in unsuccessful seasons and a poor team dynamic. Many athletes rely on these unique relationships with their teammates for support to succeed in athletics, school, and life.

Emotional Connection

As legendary basketball player Bob Cousy once said, "Sports creates a bond between contemporaries that lasts a lifetime. It also gives your life structure, discipline and a genuine, sincere, pure fulfillment that few other areas of endeavor provide" (Cronin, 2014, p. 4). Cousy highlights the sense of fulfillment that sports can provide above other aspects of life. Sports can give an athlete's life meaning and purpose, which is why athletes develop a deep, emotional connection to their sport. When people are passionate about something and are used to having it in their everyday routine, it can be a shock when it is suddenly taken away. That is what athletes are experiencing now during the pandemic. It can be compared to the emotional impact of losing a loved one on top of the stress of student-athletes having to create a new schedule for their lives at home (Gibson, 2020).The activity that made their life meaningful and motivated them has been removed from their routine, and athletes everywhere are learning how to cope with those feelings and changes both mentally and physically.

My Approach

The goal of this project was to document the collegiate student athlete's experience during the pandemic. I developed the following research questions to accomplish my goal:

1. What are athletes feeling and experiencing during the COVID-19 pandemic since the cancellation announcements?
2. How are student-athletes coping during the pandemic?

To answer these research questions, I utilized semi-structured interviews with athletes and coaches whose seasons were affected by the NCAA cancellations. The semi-structured interview was the best method to conduct this research because it allowed me to ask open-ended questions and follow-up questions in order to have in-depth conversations. I explored the following themes during my interviews with athletes and coaches:

- The athletes' dedication to the sport
- The role athletics plays in their life (importance to them, enjoyment, etc)
- The progression of their feelings from the time seasons were canceled to now
- The strategies athletes are using to stay connected to their sport

During the interviews, I also asked the interviewee to send me a picture of them playing or coaching their sport in order to have a picture to pair with their stories. The interview protocols, which include a full set of interview questions, for the athlete and coach interviews can be found in Appendices A and B, respectively.

To analyze the information collected from the interviews, I recorded and transcribed each interview and looked for common themes among the athletes' and coaches' responses. Finding the commonalities allowed me to write general responses to my research questions to represent the sample size as a whole. In addition, I focused on the parts of each athlete's story that made it unique in order to highlight their personal experiences. The collection of athletes' pictures paired with quotes from their interviews were used to create a photo gallery.

The Athlete's Experience

Their History

A college athlete's career begins long before they arrive on campus freshman year. Most of the athletes I talked to started playing their sport at a very young age. Not only did they start the sport they are currently playing very early, but they started in multiple sports and grew up being multi-sport athletes. **Caraline Wood**, for example, has been playing softball since she was six years old but also played volleyball and basketball growing up. This means then, that these college athletes have been athletes for almost their entire lives. As **Sara Siteman** explained it, "I don't know life without sports."

Why They Enjoy Sports

Why do athletes continue to play for so long? Many athletes described themselves as competitive and explained that they enjoy competing. **Aaron Wheeler**, for example, described the competition as his favorite part of basketball. Track athletes such as **Sydney Packard** and **Johann Bradley** enjoy not only competing against other athletes but competing against themselves as well. Being able to see their times and heights improve provides them with a sense of self-satisfaction knowing that their hard work has paid off. Winning as a team produces a similar feeling. Caraline explained that her favorite part of competing and winning is knowing that you and your teammates have put in the work and it paid off.

"I don't know life without sports."
- Sara Siteman
UMass Lowell Softball

For Sara, it was the relationships she was building over the past 15-16 years with teammates and coaches that kept her in the athletic community. She described her teammates as her best friends. Multiple athletes concurred, expressing that the team environment has been a key component as to why they enjoy their sports enough to continue playing into college. Coach **Whitney Goldstein** of WPI softball explained that when she was a player teammates for her were everything. She further explained that it was important to have people around her in college that valued the same things and pushed her to be better. Aaron Wheeler emphasized the relationships he has gained from team sports. He explained, "I've created great bonds that will last for a really long time. So that's one thing it's like you gain brothers through your sport and through your time." Coach **Danielle Henderson** of Umass Lowell softball and Coach Goldstein are proof of the lifelong support that sports provide. I was unaware of their friendship and their history as college teammates until Coach Henderson mentioned that she knew the WPI softball coach during her interview. After talking with both of them it was clear they have maintained a friendship since they finished their college careers over 10 years ago and continue to support each other.

"I was really shy so having athletics helped me become really close with a lot of friends and also helped me develop more self confidence."
- Sydney Packard
WPI Cross Country, Track & Field

What They Lost
When the cancellations were announced athletes across the country had so much taken from them. Sydney and Johann were about to compete in the indoor track national championship going into their events ranked first and tenth, respectively. They also had their outdoor track season taken away.

Aaron's team was looking forward to making a run in the Division I men's basketball tournament. Sara lost almost her entire season and **David Larson** had his senior season taken away. After suffering an injury in her sophomore year, Caraline was supposed to be playing her final season of WPI softball as a fifth-year and was one home run away from breaking the WPI softball all-time home run record.

"I've always loved softball. I love it on the tough days and I love it on the good days. Softball will always make me happy."
- Caraline Wood
WPI Softball

How They Reacted

Coach Whitney and Coach Henderson had very similar experiences breaking the news to their team. Coach Whitney explained, "It was one of the hardest things that I had to do as a coach to look my players in the eye, particularly the seniors, and be like 'I'm so sorry we're not going to be having a season at this point.'" While Coach Henderson shared a strikingly similar account of the experience revealing, "It was probably the hardest thing I had to do as a coach because I put myself in all of the senior's shoes and it's like I couldn't imagine if this happened to me and there was not a dry eye in the room." From the athletes' end, hearing this news resulted in a flood of emotions. Every athlete I spoke with was travelling for a tournament or games when the news broke. Baseball and softball teams were on their spring break trips while basketball and indoor track teams were about to start their championship tournaments.

Caraline was in the dugout before the start of a game in California when she found out. She immediately started crying. Sydney described her state of disbelief, sharing a story from when she was at the national tournament in North Carolina and was watching as another team received the news, "I think because we weren't really processing that it was happening to us too we were like, 'oh no they look so sad like I feel bad for them,' and then we were like wait that's also us." Some of the athletes described their team bus rides back to their schools as quiet and solemn as teammates thought about the reality of what was happening.

"I'm lucky enough to have a really supportive family and they are able to give me everything that I need to train. Not being able to do my sport at all would be – I don't know what I would do."
- Johann Bradley
WPI Track and Field
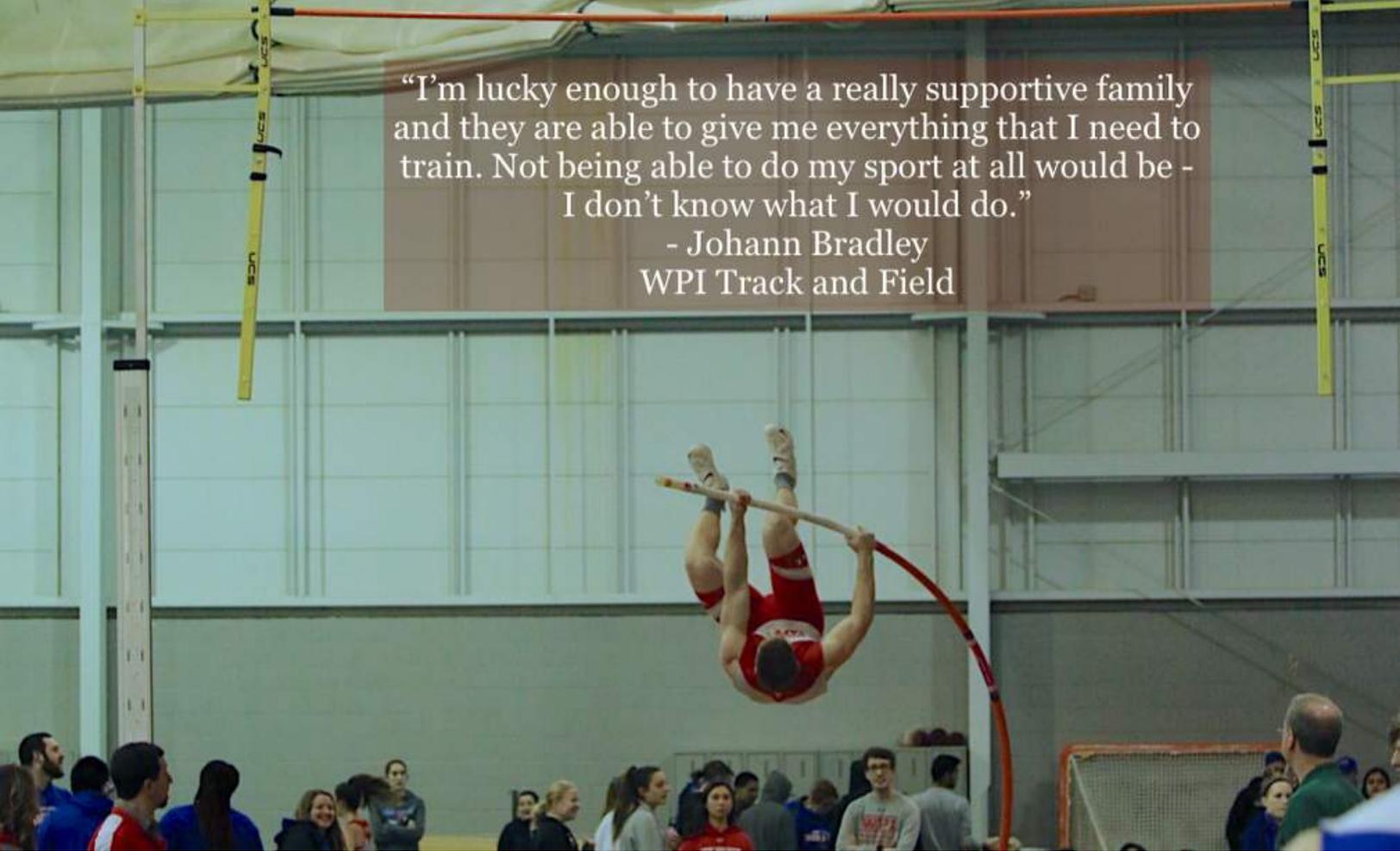
In the beginning, many of the athletes did not understand how the pandemic could be serious enough to cancel entire seasons and championships because those things are so important to so many people. David questioned if the coronavirus was really important enough to cancel an entire baseball season and explained how much work he put into the off season to prepare for his senior season. Aaron thought they were just going to be postponed. He explained that he only brought enough clothes home for a week or two because he thought they were going back. Not understanding the severity of the situation caused the athletes to feel frustrated and confused. The word cloud to the right contains the emotions the athletes and coaches expressed when they received the news about the cancellations.

Many of the athletes described, in addition to their personal feelings, how upsetting it was to see how the seniors on their team reacted and the sadness they felt for athletes who will not be able to return to their teams next year. Sara emotionally explained, "even though everybody was upset and pretty much my whole entire team was crying it was a different level of hurt for my seniors."

Struggles During the Pandemic

Now that athletes are off-campus, there are many struggles they are facing. Many of the athletes described their sport as an outlet. Multiple athletes explained how important it is to them to play a sport in college because it allows them to focus their energy on something other than academics. Sara explained the frustration she has been feeling since being home because she spends all of her time on homework and studying without a break. Other athletes felt that not only is it an escape from academics, but from life in general. Sports are something they rely on to escape reality when things may not be going well. Aaron explained, "once you get on the court you just forget about everything. It's kind of like a sanctuary just to be yourself and escape reality."

Athletes who will not be returning to college athletics next year are struggling with the fact that they did not get closure. Caraline explained that she played her last game without even knowing it was her last game and many of the athletes used the same phrase to describe the seniors on their teams. She was also on the other side of the country when that game was played, so her friends and family were not able to see her play her last college game. David described having his senior season taken away as devastating, explaining that he put in the work the whole year to be ready for his senior season. Caraline and David have already accepted full time jobs post-graduation and are not confident they will be able to figure out the logistics of using their extra year of eligibility.

Other athletes with another year of eligibility are also struggling with the decision of whether to use it or not. Sara explained her frustration stating, "it was never supposed to be a decision of whether I was going to play softball or start my life."

Athletes may also be struggling with losing part of their identity during this complicated time. Coach Henderson explained that, "everyone identifies with their sport so when this all ended, we kind of lost our identity." She identifies herself as a softball coach just like an athlete would identify with their sport. She was once a competitive athlete herself, so she understands how it feels to be an athlete and then to all of a sudden not be an athlete. Having that experience is helping her guide her players through this weird time. She is doing her best to help them understand that their identity as an athlete is separate from their identity as a person.

Many of the athletes and coaches are missing their team. As discussed previously, the athletes consider their teammates their best friends. They spend countless hours with their teammates in and out of season. Johann, who is still able to train at home, explained that his team and the team atmosphere are what he is missing most about not being on campus. Student-athletes made a huge transition to living back at home and moving to online learning. This was a tough transition to go through without their team. However, even though they are not physically with their teammates, they are continuing to support and communicate with each other as much as possible.

"Once you get on the court you just forget about everything. It's kind of like a sanctuary just to be yourself and get away from reality."
-Aaron Wheeler
Purdue Men's Basketball

Coping Strategies

The athletes and coaches are finding ways to cope with this transition. The most common theme among the athletes and coaches was the shift in how they thought about the cancellations from the time they first found out to now. They understand now that they were not the only people affected. Their team, their school, and their sport were not the only things caught in the crossfire of the coronavirus pandemic. Once they came to that rationale, it became easier to deal with and provided a sense of solidarity. It is understood now that the pandemic is bigger than them. Understanding the gravity of the situation and realizing they are not the only ones affected has allowed many of the athletes to come to terms with the cancellations. Initially, many of the athletes did not believe the situation was serious enough to cancel their seasons. However, after having a few weeks to reflect, they understand that it was the right thing to do for the health of everyone in and outside of the athletic community.

Staying connected with their team and sport is something that every athlete is doing during the pandemic. Teams are having weekly Zoom meetings to keep each other updated on how they are doing. Coaches are also finding ways to make the team meetings meaningful by showing motivational videos, bringing on guest speakers, presentations, and trivia games. The coaches explained that not only is it nice for the players to see their teammates, but the meetings are something that is scheduled and provides structure to their routine as well. Athletes are staying connected to their sport by doing their best to stay active with limited workout equipment.

They work with whatever equipment is available to them whether it's going to the park to play basketball or hitting off a tee in their backyard.
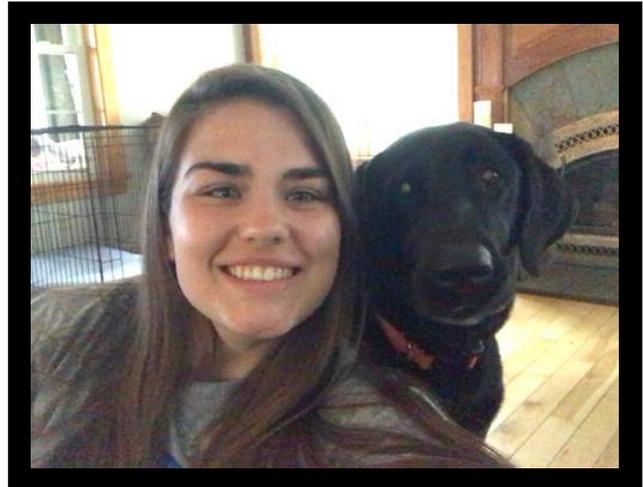
Lastly, athletes are coping by finding the silver linings of the pandemic. They are able to spend more time with their families and are enjoying the extra time with their pets. Some athletes explained that their bonds with family members have grown since they have been home. This growth can be attributed to spending more time together, but also understanding each other's lives more. Sara explained that now her parents can see how much time and effort she puts into school and they can understand a part of her life that they did not fully understand before. Some athletes have enjoyed being able to put their time and effort into their other hobbies like cooking and building computers. Sydney has been using this time to appreciate running for running without the pressure of structured training and remembering how fun it is for her. Overall, they are grateful for their health and understand their situations could be much worse. Not being able to play a sport for a few months is much less significant than losing a loved one or losing your job.

What they learned

"You really need to play every game and every inning and every pitch like it could be your last…even though that won't be the last game I play it will still be the last game I got to play with some of my best friends and I don't feel like I appreciated it enough." This statement from Sara did not stand alone among the interviews. **Play every game like it's your last.** The athletes and coaches were hesitant to use the "cliché," but it is truly the best way to explain what they have learned from this experience. You really never know when something you care about could be taken away and you need to appreciate every moment.

The Motivation

Being an athlete for my entire life and a member of the WPI women's volleyball team, I understand the dedication and hard work that goes into being a college athlete. When I learned of the cancellations, I felt immediate sadness, knowing that athletes had spent their entire lives working to play at the college level. I know first-hand how important sports can be to athletes, which is why I wanted to complete this project. I am so grateful to have had the opportunity to speak to these athletes. They taught me to appreciate all of the things in life that make me happy and to never take being an athlete for granted.

"I have a lot of great memories from sports that I cherish and that I'll take with me for as long as I live."
- David Larson
WPI Baseball

Documenting the Experience of WPI Students at Home Amidst the Coronavirus Crisis

By: Ardavasd Ardhaldjian

In fall of 2019 there is estimated to have been over 14 million undergraduate students in America (Undergraduate enrollment, 2019). When the COVID-19 pandemic started in early 2020, educational institutions were forced to take precautions and every student was affected. Universities across the globe closed down campuses and moved classes online. In addition, many institutions closed dormitories and "urged students to go home" (Redden, 2020). For many students, this meant living at homes with their parents.

The aim of this research was to document the experiences that Worcester Polytechnic Institute students living at home were facing during the COVID-19 pandemic. Through interviews with WPI students living at home, in this project I explored experiences associated with maintaining a social life while following "physical distancing" guidelines set by the CDC (Social Distancing, 2020); some of the challenges associated with transitioning to online classes while isolating with a family were investigated; as well as the silver linings students identified as a result of this historic event.

Universities' and Students' Response to the COVID-19 Pandemic

When COVID-19 started to spread on a global scale, WPI officials began providing updates on how the school would respond to the situation. One of the first major announcements made by the school was that all international travel programs would be cancelled (Leshin, 2020). Following that announcement, on March 18, 2020 Laurie Leshin, the president of WPI, sent an email to the university community stating that "all courses" would be completed remotely for the entirety of D term and the rest of the spring semester (Leshin, 2020). This decision was not made haphazardly as it was made after a two-week delay had been placed on the start of D term to give the school additional time to assess the correct response. WPI was not the only school to make this decision. In a study named "Responding to the COVID-19 Crisis: A survey of college and University Presidents", 98% of the 164 respondents answered that they had moved the majority of all-in person classes online, therefore this decision was an expected way forward for WPI. As of March 18, many WPI students were still at home and were told not to come back to campus because they would not have access to their residential halls. For those still on campus, WPI asked them to leave unless it was absolutely necessary for them to stay.

Moving Home

Students living on campus had to move home because they were prohibited to stay by school administration. On top of that many students that lived in apartments around campus also made the decision to move back home. Dolenga, a senior at Michigan State, who should have been living in his off-

campus apartment explained that since his on-campus job was put on hold and common areas around campus were closed, there was no reason to stay. With nowhere else to turn he had to bite the bullet of paying his apartment rent while living at home with his family (Jesse, 2020)

This put unnecessary economic strain on Dolenga on top of challenges related to the coronavirus he was already facing. On the flipside, some students like Hannah Fox decided against moving back home. Hannah opted to isolate with her friends around campus because her mental health was better there than at her parents' home (Jesse, 2020). While Hannah and Dolenga do not represent the entirety of college students that lived in apartments they do highlight the split between students that stayed around campus and ones that went home.
During the COVID-19 Pandemic, no matter the previous living situation or school year, there were millions of students across America that needed to jump into living at home while transitioning to online learning, physically isolating, and navigating the challenges of the coronavirus (Levin, 2020). Documenting these challenges will be important to learn from our responses to the COVID-19 Pandemic.

Initial Perspectives

On April 3rd, 2020 Business Insider posted a video compilation where a group of college students talked about how the COVID-19 crisis "Derailed their lives" (Imam, 2020). This was early on in the pandemic and the stories highlighted some of the initial emotions students were feeling. Almost all of them were "shocked" and "afraid" when the pandemic hit. Some were worried about how the transition to online classes would affect their ability to maintain high academic standing. Many of them felt lost and needed someone to talk to because "everything they knew was ripped away from them in a set of emails". One senior was supposed to study abroad for her final semester. Not only were her travel plans cancelled but she was not able to walk across the stage or commencement because that was canalled as well. These were just the tip of the iceberg for the challenges that students across the country faced during this pandemic.

Social Life and Studying at Home

There are numerous articles written about the importance of having a social life at college. One reason is that developing a healthy social network at college helps freshmen relieve some of the difficulties of adjusting to a new learning environment and learning to manage their own lives (Heibutzki, 2019). This could include anything from completing tasks as small as doing laundry for the first time to learning to respect a roommate's space. A social life can also make studying easier. While studying with friends, students can help each other learn and pass on techniques (Unigo, 2015). A big part of the WPI teaching system is team-based projects, which in normal circumstances would create this level of social interaction.

Additionally, group projects in non-pandemic circumstances enable students to connect with others in the classroom, which leads to enhanced comprehension and retention "activating prior knowledge, making connections and consolidating new ideas" (Hurst, 2013). Without that level of physical communication, students may have difficulties in classes and feel isolated with regards to their schoolwork. In an article published by The Harvard Crimson one student said that residential systems provide a framework for people to connect (Isselbacher, 2020). With dormitories closed and the CDC's "Physical Distancing" guidelines asking people to isolate, it is interesting to see how some students maintained social interactions during this time. In an article published by The Chronicle, Sklyer Graham found that some students created new Instagram accounts to document and share their quarantine experience through photographs and others posted on Facebook groups to discuss their challenges. Therefore, some of the conventional modes of communication were still being used, however Brad Klontz, an associate professor at Creighton University in Nebraska found some novel ways in which some students stayed connected. He uncovered that some students hosted "Netflix Parties" where they could have a movie together, virtually, and chat. Klontz also found that some students used the QuarentineChat mobile app that was developed "to combat loneliness amongst individuals that are self-isolating or are quarantining amid the coronavirus outbreak" (Digital, 2020). Clearly there are several ways for students to maintain social interactions during isolation; however there remains the difficulty of adapting to online education.

Transitioning Online Education

Online learning has been around for about a couple decades now. The first fully online university programs began in 1998 (Ferrer, 2020). Since then many more have been developed and given people the opportunity to learn from wherever they desire. Like many systems of education, online learning is not perfect and comes with challenges of its own.

Transitioning from a traditional classroom face to face environment that many people are used to, to laptop screens is not an easy task. This is known as the "adaptability struggle" (Kumar, 2020). An article by eLearning says that our natural resistance to change will make the transition take time, but the ability to trust that the change can be adopted into our lives can help us overcome that (Kumar, 2020). For example, completing group projects online may take time for students to become accustomed to, but being able to trust that group members will complete tasks and trust that professors will be accommodating is essential for adopting this change.

Technical limitations can also become a factor when learning from home. When students are at school, universities provide adequate technical resources and support to complete assignments (Dynarski. 2018). However, when a student is away from campus, they do not have full access to those resources. This could include not having access to a computer that can run the software needed to complete homework or not having enough bandwidth on the internet to keep up with course work (Kumar, 2020) Aware of the difficulties of online learning, many universities are taking action to find out how to help their students.

The American University of Armenia (AUA) had some noteworthy findings from a survey administered to its undergraduate and graduate students (around 900 participants) documenting challenges they are facing with online learning. Forty-eight percent of undergraduate students reported that "online workload is heavier than their onsite-learning workload" (AUA, 2020). When presenting the disadvantages of online coursework Montgomery college reported that everyday tasks like communicating with instructors become more time consuming because of the barriers of communication. Additionally, reading lecture materials can take more time than listening to an instructor (Montgomery, 2020)

With challenges of online learning and pandemic circumstances in mind many universities have expanded pass/fail options for students that felt they needed it. Some universities, like the Massachusetts Institute of Technology did not even give students the option to receive a letter grade (Burke, 2020). The reason was to relieve students of the stress related to grades and allow graders to focus on growth. WPI has in specific offered the option of pass/fall for all classes including IQPs, MQPs and Humanities Seminars

Learning from home and the effect on families

While being in the same home environment all day has its own challenges, many people reported that being around their family added an additional layer of difficulty. In the same AUA survey mentioned above, 62% of undergraduate respondents said that there was a higher probability of distraction when working from home. Many of them added that distractions were related to family members (AUA, 2020). "After living so long without your parents, you can't do it again. It drives you crazy," said a Senior at the University of Alabama. (Singh, 2020).

Families are moving around furniture in their homes to accommodate their unexpected college guests. Some parents say they are "trying to carve out designated workspaces for their children and themselves" to create a sense of normalcy when working at home but worry that with everyone using the internet at the same time that they will max out the bandwidth on their Wi-Fi (Singh, 2020).

On a positive note, students living at home have been able to spend more time with their families that they otherwise would not have been able to. Study Finds published an article late in April titled "Quarantine Quality Time: 4 in 5 Parents Say Coronavirus Lockdown Has Brought Family Closer Together". The article was written to bolster to another article that found that many families were spending more time together playing board games, making puzzles and in some cases forming household book clubs (Roshgadol, 2020). In response to the COVID-19 UNICEF posted a bullet list of suggestions on how to organize time at home during quarantine. The list included planning daily family activities together because it could help achieve a stable routine at home (UNICEF, 2020)

There are hundreds of WPI students across the country that had to cope with the experience of living at home in isolation with their families while studying full time. The challenges, experiences and silver linings of their situation are from the topic of this project.

My Method

The goal of this project was to document and analyze the experiences of WPI undergraduates who lived on or around campus before the coronavirus pandemic but now live at home in semi-isolation. In order to document these experiences, I used a two-step process. In the first step, I gave my participants a photo elicitation exercise to complete which would help me visualize the pandemic as they are experiencing. For the second part, I conducted a 30-minute semi-structured interview with my participants to draw out their experiences.

I found these students through my various connections on campus and contacted them via text to ask if they would want to participate in my research. If they did, I sent them in depth instruction through email. The sample includes students that pre-pandemic lived in campus dormitories, in on campus apartments, in apartments around campus and in fraternity housing.

Photographs

In my first method I asked a group of 7 students to take me on a visual tour of the pandemic as they were experiencing it. I asked each of them via email to take 5 photographs that told the story of how this pandemic altered their way of living. The photographs were time stamped, including location markers and a short caption attached to them so I could gain a preliminary understanding of the meaning the photograph had to them. The first reason behind photo elicitation was to compile and organize the photographs into a gallery that would tell a story of undergraduate life. The second intention with these photographs was to supplement the interviews later in my project by giving me the ability to personalize each interview. The photo submissions allowed me to dig deeper into topics that interviewees felt were significant to them during the COVID-19 pandemic.

Interviews

My second method of gathering qualitative data was through a set of semi-structured Interviews (Appendix A) of the same WPI students that created the photographs. The Interviews were conducted over Zoom while using the built-in Zoom recording software. They were transcribed and coded immediately following each Interview. Core topics that I explored in these Interviews were:
● Changes in Social Life
● Difficulties of online learning
● Transitioning to living at home
● Silver Linings during the pandemic

Apart from these topics. I also dug deeper into topics that the Interviewee felt were important to them during the COVID-19 pandemic.

The Student Experience

Below I discuss the several themes that emerged from my interviews. Students found differences in how they completed schoolwork; how their modes of connection changed with people they were not quarantined with; how their Relationship with their family grew stronger; most importantly they noticed the silver linings that emerged from the COVID-19 Pandemic.

Workspace

I asked participants to take me on a visual tour of their world. From their photographs, I noticed common themes. For example, all of them included a photograph of their workspace, noted as an area where they spend most of their time. One interviewee, Robert Starr said he sat at his desk from 10am to 5pm every day during quarantine doing homework, watching movies and procrastinating.

Procrastination for many of them meant scrolling through Instagram, getting stuck in a cycle of watching YouTube or watching TikTok videos. What is interesting however, is that it was not just one person that used their workspace for activities other than schoolwork. Many of my interviewees noted that they would watch movies and even socialize virtually with friends from that same exact spot.Even though almost all the interviewees had set a dedicated workspace for themselves, over time some of these spaces started to shift away from being "associated with productive work" Those who set their workspaces in a place outside of their bedroom and had clearly defined areas seemed to be more productive with their schoolwork. Alexandra Heline explained that it would help her to move "back and forth every so often" between workspaces to overcome the "monotony" of being home.

Alexandra Workspace 1

Alexandra Workspace 2

he areas differed in setting and style. One was more relaxing and fun(Workspace 1), the other had a serious tone to it (Workspace 2). She compared it to having multiple places to study on campus: sometimes she would study at the library, sometimes at the Foisie Innovation studio and sometimes in a common area around campus. The change in environment every so often would keep her on track. Phillip Rago said that everyone in his family took a different room as a workspace so not to bother each other: "My dad takes the dining room table and my mom she's been sewing a lot, she's making a lot of masks so she's been doing that in the guest room, my sister studies in her room, my cousin also lives here but she's over in the barn ". The distribution of space did work for some of his family members, however Phillip regretted the decision of working from his room. He said "All of my environments that used to be split up whether it was studying in the CC or attending class has all been condensed into my room, six feet form my bed" and "I'm on the same computer that I play video games on" This made it challenging for him because he was using the same physical space for everything and he couldn't "focus".

There is no set formula for setting a workspace in quarantine, however moving around rooms and breaking the monotony of a single workspace did seem to work for many of my Interviewees.

New Hobbies

I expected to hear that these students picked up new hobbies during their time in quarantine. From my experience, WPI students are creative and if given the time will challenge themselves with new things to do. All seven of them said they had either found a new hobby or spent significantly more time on hobbies they already enjoyed. For example, Alexandra Heline recently started hiking and longboarding. These are activities she had never done before quarantine. The image below was submitted by Alexandra and captioned. "Adventures of Connecticut famous airline trail has provided a way to escape the house and see something new every time I go out". Being stuck at home aggravated her and she was able to pick up a new hobby while also safely leaving her home and escaping the reality our world was in. While some of the Interviewees scrolled through the TikTok app watching videos as an escape from homework, Alexandra created videos as a form of expressing their creativity as well. She would document some of her favorite procrastination moments and interests. At the end of the findings section you can a video she created one day after going on a hike on the airline trail.

When I asked river if he had picked up any new hobbies during our Zoom Interview, he was excited to mention TikTok: "It's like dancing and coming up with new Ideas". River Yan loves music, especially rap. River made videos ranking songs, goofing around and even procrastinating with his sister. This allowed him to share his Interest with his friends while also finding an escape from the mundane life of quarantine. At the end of the findings section you can finds video of River Ranking his favorite songs by Iann Dior.

Sam Bello also picked up a couple new activates during quarantine. He said, "I like going on walks during quarantine because it gets me outside, and it provides a well needed change in scenery" and "I explored my interest in puzzles during quarantine" as well. Similar to Alexandra, Sam found a new activity that pushed him outside, kept him moving and away from the at-home life. Some of the hobbies my interviewees picked up gave them a chance to explore things they normally would not have had the opportunity to at school. However, many of these activates were an escape to vent from home and disconnect. The following is a word cloud that highlights what new hobbies some of these students picked up:

Staying Connected

Many of my interviewees understood why research would suggest that physical distancing guidelines make it difficult to stay connected with friends and family that you are not homebound with. However, all of them had avenues of keeping in touch and actively used them. A few of them mentioned how at first, they did not feel disconnected at all, but as time went on and they realized that they would be home for a lot longer than they had initially realized, communications started again. All of them pointed out that they still use conventional modes of communication, which usually meant Snapchat, Facetime, Instagram, Facebook Messenger or whatever they usually used at school. In addition to that, most of them started using new avenues as well. As an example, Phillip used Discord as one of his main ways of communication during quarantine. Discord is a desktop application that blends the interface found in apps like Slack with video and voice chat (Hornshaw, 2020). It is primarily used by PC gamers. Phillip, who is an avid gamer himself said "So almost every day now I'm on discord with a group of friends and talking to them while we play video games and it's not

always the same group". He would play different games with friends from school, from home and having the ability to talk to them while playing was enough to keep them connected. River used House Party, an app that allows you to video call a group of friends and has a myriad of built in games in it to play as you talk. River is social when he is on campus which made House Party a great way for him to maintain relationships and have some fun. Alyssa and Alexandra used Netflix Party, a google extension that allows you to watch movies with friends from around the world. Alyssa, who was already watching movies with her mom, was able to expand her movie buddies across the country. Staying connected with people that mattered to them during this time did not seem to be an issue at all for all my Interviews.

Silver Linings

"Have you noticed or experienced any silver linings during the COVID-19 Crisis?" This question was my favorite because getting people to think about silver linings, made them think about their situation differently and brought a lighter air to the Interview. Many of the Interviewees smiled when they heard this question. Robert Starr says he thinks he is "probably the biggest proponent of silver linings" during this COVID-19 Pandemic. He noted things as small as no longer having to walk around campus to meet people "just clicking through my computer to get to the next thing is really really nice for me". He also made the point that spending more time with his family makes him feel better about the situation.

River Yan pointed out that we were all given an extended period of "time for self-reflection" and "we shouldn't take it for granted" because an opportunity like this will probably not come again. An anonymous Interviewee said that during quarantine he would get aggravated because the only people he would be around was his family, but he also said "I'll never take that for granted" because there would come a time when he will no longer be able to spend all that time with them. Increased family time, along with the planet being able to take a break from manmade pollutants were the two most common responses when I asked about silver linings. These two concepts gave these students the ability to see the light at the end of the tunnel known as COVID-19. One person said it was great to see Instagram posts of the water clear in Venice. Another said that with less people going back and forth and non-essential workspaces closed, pollution levels were down. Just seeing the world heal made them feel better about their situation. The following is a portion of the transcript from my favorite Interview.

Ardavasd: What are some silver linings that you've noticed come out of this pandemic?

Interviewee: I think a big plus coming out of this big like whole world quarantine thing is it was a good moment to let the world take a break.

Ardavasd: so, like let the world heal?

Interviewee: Exactly! *smiles*

Conclusion

All of my Interviewees had unique stories to share about their living situation, how they transitioned to online learning, the interaction with their families and the bright side of the COVID-19 Pandemic. However different their situation, there were commonalities in how they chose to respond to their circumstances. The most common way that these WPI students coped was that many of them found it helpful to just go outside. That could mean hiking, walking or even throwing a ball in their backyard. The space and time gave these students the opportunity to forget about the world around them and just enjoy doing something they loved without being reminded of the Pandemic that had encroached into nearly every part of their lives. Family time was also an important part of the day for many of these students. Through family workouts, dinners and other activities relationships and bonds within the group they were quarantined with grew stronger than ever. As my background research suggested, many of these students did feel like they were back in high school, but hat was not necessarily as bad as one originally might assume. COVID-19 is not an isolated event. It was not the first pandemic to happen and most probably will not be the last.

What is most important to learn from this research is that during this time, when millions of people around the world lost their jobs and millions more died, these WPI students were able to cope with their situation with the help of social networks, family support and self-reflection.COVID-19 is not an isolated event. It was not the first pandemic to happen and most probably will not be the last. What is most important to learn from this research is that during this time, when millions of people around the world lost their jobs and millions more died, these WPI students were able to cope with their situation with the help of social networks, family support and self-reflection.
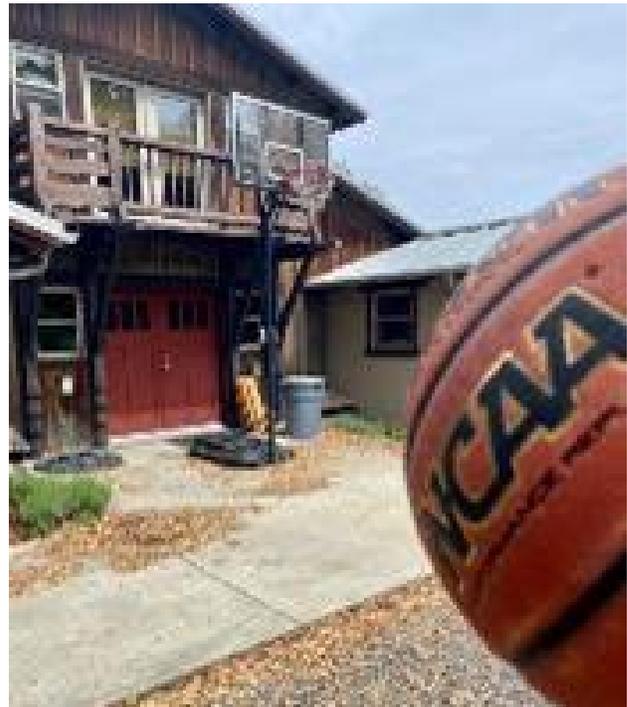
Effect of Social Media on College Students' Friendships During the Pandemic

By Connor Skinner

Today's college students are experiencing a pandemic of a magnitude never before seen in modern times, the social ramifications of which have hit hard a generation so used to interconnectedness. For those in college, who otherwise would see their peers on a daily basis, being sent home from school and having travel restrictions in place has greatly impacted their social lives. Furthermore, federal guidelines sate to "stay at least 6 feet from other people", and "not visit family or friends" potentially adding to the feelings of loneliness and social isolation students were already experiencing (CDC, 2020; SAMSHA, 2020). Living at home with parents could feel like a step backwards in their independence, which social media may help remedy (Standlee, 2018).

Social media has existed for decades now, and since its inception it has affected how we interact with others, both online and offline (Jones, 2015). Therefore, unsurprisingly, social media sites are closely tied with how their users understand their connection to their peers. Friendship has always been an important area of study, as it affects not only our mental health, but also our physical health and our development into a functioning adult (Primack et al., 2017). The use of social media has been proven to influence friendships in multiple, and sometimes contradictory, ways. While its use can strengthen bonds previously formed offline, constant social media use has also been linked to a higher risk of feeling socially isolated, and using it to meet strangers or

keep up with already close friends seems to do little for someone socially (Zhang and Gearhart, 2014). There is little research regarding these unprecedented times of the pandemic, however, where all social interaction has moved to the internet, and offline interaction is no longer possible.

This project aimed to explore this complex and previously unknown area of social interaction. Through a series of interviews and an analysis of free-listing exercises, I explored issues such as the challenges of making and keeping friendships from a distance, how social media has affected people's perceptions of their friendships with others, and the effects of a lack of in-person experiences on friendships.

Background

The concept of friendship, the conditions in which it grows, and the different forms it takes have been the topic debate for thousands of years. As defined by Uri Leibowitz , a senior philosophy lecturer at Ben-Gurion University, friendship is "a relationship between two people in which each participant values the other and successfully communicates this fact to the other" (Leibowitz, 2019, pg. 97). It is easy to see, therefore, why we as humans would crave friendship. The famous Greek philosopher Aristotle recognized the importance of friendship to human life and studied it deeply. He believed that three types of friendships exist, each more valuable than the last. According to him, there are friendships of utility (based on the acquisition of specific advantages or goods), pleasure (where the friendship occurs because of a shared interest and the pleasure of their company), and virtue (based on the mutual adoration of shared values and character) (Kaliarnta, 2016). Friendships of utility were considered the lowest form, while virtue friendships were considered the highest.

Friendship is more than just the topic of a children's TV show, and investigations into the nature and effects of socialization bring to light just how much it affects us as humans. Friendship is nearly a necessity in order to develop as a happy and healthy person, and a lack of it can lead to serious side effects. For instance, social isolation is "often compared to obesity in terms of potential association with negative health effects", and has the potential to disrupt sleep and immune function as well (Primack et al., 2017). The importance of the topic of friendship goes beyond that of physical health, however. Professor Peggy Giordano, a professor of sociology at Bowling Green State University claims that there is a "greater level of acceptance within the friendship context", and that friendships provide an area of "mutual trust", which contrasts with the "frequently more guarded relationships with parents" (Giordano, 2003). By providing a safe place for developing children and young adults to be themselves, friendships help them to develop their independence, and many researchers have concluded that "strong friendships and stable social networks are key to the success of college students" (Standlee, 2018, pg. 771). Recently, however, due to the sudden pandemic of Coronavirus, world leaders have enacted necessary changes that fundamentally changed this vital network.

Today's college students grew up in a world defined by constant socialization, interconnectedness, and interaction, both in person and online. When the world experienced an unprecedented outbreak of Covid-19, however, schools and universities took measures to minimize the risk of further spread, and many of these measures interfered harshly in students' ability to make in-person connections and experiences. Across the globe, schools have sent students home to continue their education online, affecting more than 1.5 billion students worldwide (UNESCO, 2020). With school and college as a major source of friends and socialization for many students, this came as a hard blow to their social lives. In the United States, certain states have taken even more drastic action, with 16 imposing travel bans in some form (as of 3/31/2020), some more harsh than others. For instance, in Massachusetts Governor Charlie Baker has closed restaurants and bars and strongly discouraged all travel of residents for non-essential purposes (CNN, 2020). As even more avenues for social interaction closed for college students, many resorted to social

media and the internet to maintain relationships with their friends. While this method of socializing allows for friends to stay in touch to a degree that would not otherwise be possible, this remarkable shift to completely remote socialization may have an effect on the dynamics of people's friendships, both new and old.

Some philosophers argue that friendships created or maintained online cannot become true friendships because they can never fulfill Aristotle's requirements of creating a virtue friendship (a friendship based shared values and appreciation of character). These arguments mainly revolve around different complications implicit to the nature of social media that prevent online friends from knowing each other's true character and virtue (Kaliarnta, 2016). Taking a broader look at how people actually use social media, however, and all the modern tools available to online users that prevent misinformation from flying under the radar, these arguments can easily be countered. Tim Delaney and Anastasia Malakhova from the State University of New York and Saint Petersburg State University, respectively, claim that "Electronic friendships...are as real as the friends that make them", as long as each friend is there of their own accord, shows some degree of affection, and shares personal details about themselves (Delaney and Malakhova, 2018).

College students are no strangers to social media. In fact, 90% of young adults in the United State use social media, and the majority of those visit these sites at least once a day (Primack et al., 2017). Such constant usage can have a large impact on social media users and their friendships. Dr. Alecea Standlee, a professor of sociology at Gettysburg College, explains that "digital spaces, particularly in social media, shapes offline social networksand friendships among college students in the United States". For instance, social media users often use these platforms to accelerate their understanding and to shape their perceptions of a potential friend's social and political attitudes (Standlee, 2018). This is supported by the finding that many students use social media to seek more information on people that the user already has a connection to offline (Zhang and Gearhart, 2014). In other words, social media has largely been used to support, develop, and curate in-person friendships. There is a gap in knowledge, however, about how social media might affect relationships between college students now that we are moving into an unprecedented time where in-person friendships are not possible. Past research suggests that high social media use is linked to a much higher likelihood of perceived social isolation (Primack et al., 2017). This is largely due to the fact that time spent on

social media "may displace more-authentic social experiences that might truly decrease social isolation", and that what one sees on social media represents a curated experience, meaning that it might lead one believing other's lives are better than their own (Primack et al., 2017 pg. 6). In a time when physical contact with others is limited, these effects may become exacerbated, affecting the mental and social health of today's young adults. There is no literature that examines these effects under the unique circumstances we are experiencing, however. Therefore, an investigation into how social media affects the social lives of college students sheltered against the pandemic is not only needed, but also extremely relevant to the experiences that my friends and I are going through.

My Approach

This project explored how students' friendships and social lives have been influenced by the Covid-19 outbreak and the subsequent shift to social media to maintain them. This was accomplished through a series of interviews. The interviews explored the following topics in the context of college students during the pandemic:

- What it means to be friends with someone before and after the pandemic
- Impact of social media on friendships during the pandemic
- Effects of a lack of in-person experiences Making friends from a distance
- Maintaining friendships from a distance
- Weakening of friendships due to distance

A full list of interview questions can be found in Appendix A . The pertinent parts of these interviews were then transcribed and coded to find commonalities between the different interviewees and to make analysis easier. The interviewees were family, family friends, friends from college, and friends from high school.

In addition to the interviews, at the start of the session I conducted a freelisting exercise with each of the interviewees. A freelist is "a mental inventory of items" that an individual thinks of for a given topic, and a freelisting exercise gathers quantifiable data about people's familiarity, knowledge, and feelings about the said topic (Quinlan, 2017, pg. 1). In this exercise I provided them the topic of "friendship", and, for a separate subsequent exercise, "social media" in the context of the pandemic. They then wrote down every word or phrase they could think of that pertained to the topic within a 2-minute time limit. I gave the prompt verbally, in which I explained that they would have two minutes to write down all the words/short phrases they can think of for a given topic. Then, when they were ready I prompted them with the topic (first "friendship" followed by "social media" for a subsequent exercise). I then compared the frequency and salience (e.g. frequency and rank order) of the words or phrases that different interviewees listed, which provided a further method of analysis for the interaction of friends and social media during the pandemic. By looking at the salience of the different words or phrases for the topics of "friendship" and "social media", the data presented a more quantitative method for understanding college students' associated words and emotions for with the two topics.

Results

Change in Social Media Use

In a time of boredom and mandatory social isolation, the relationship between people and social media is likely to change. All interviewees, with the exception of Ty Bugdin, a Junior at Worcester Polytechnic Institute, indicated that their social media use had increased, though by varying degrees. Bastian Rivas, for example claimed that "[he used] social media really regularly regardless…but it's definitely gone up even more", indicating that the increase in usage was not drastic. Similarly, Andrew Figlarz said his social media use increased, but "not by too much". For others, however, the change was more drastic. Alley Peters, a student at Stony Brook University, explained how her use had "gone up increasingly". In addition to the increased use, many interviewees indicated that their relationship with social media had changed as well.

Most students explained how they consider social media to be more valuable to them now. Jack Ginand, a business major at the University of New Hampshire, expressed a shared sentiment, saying "I have like, a dependency on it now because…it's the only way I can communicate with people, so that's my main form of social interaction". Andrew elaborates,

"either you talk with your friends online or you don't talk with your friends, so in that case it is more valuable". Ty is again a notable exception, stating that for him social media is "less to stay in contact with friends, and more to learn or see cool pictures or get ideas for new projects", although he does admit to "[connecting] with one or two friends over social media recently". In this case, the circumstances that pushed others to ascribe a greater value to social media (a lack of social contact) likely did not affect Ty in the same way because he does not use social media for social purposes. One pattern that was consistent across all interviewees, however, was an inclination to use forms of social media and communication that are centered around visual communication. For instance, the most commonly noted platforms during interviews were Snapchat, Instagram, Tik Tok, Zoom, and FaceTime. All five of these social media and communication platforms require visuals, whether that is pictures, recordings, or live video. This is further supported by the freelisting exercise. As displayed in **Figure 1**, the forms of social media which require a visual component were listed a total of 10 times, compared to platforms like Twitter and Facebook, which were only mentioned 6 times.
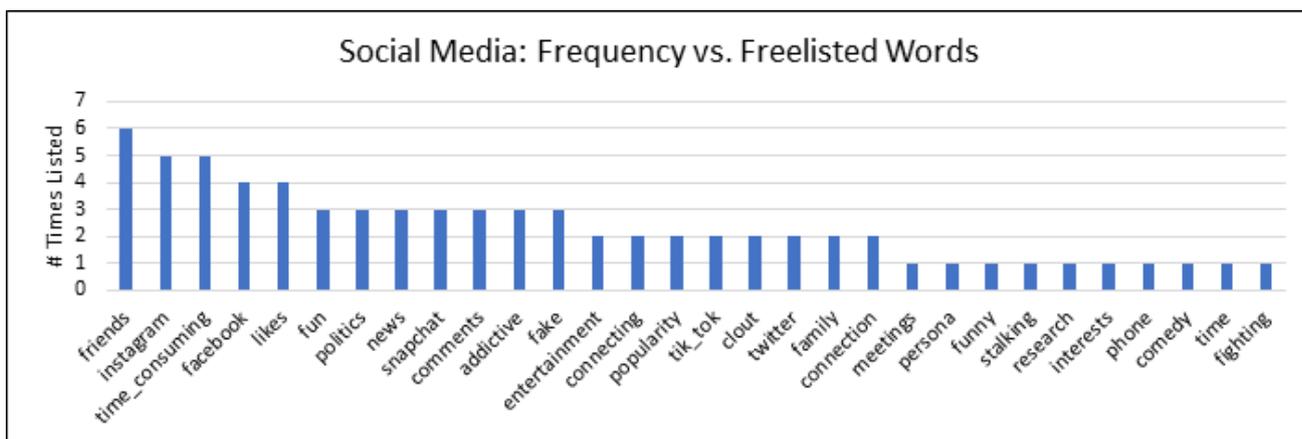

Figure 1: This graph displays the 30 words with the highest frequency of appearance on participants' freelists for the topic of "Social Media". (Note: Words with the same frequency of appearance are not sorted in any particular order, so the included words with a frequency of 1 are no more important than the excluded words).

Social Media's Effect on Interactions

Social media provides countless ways for an individual to interact with others, but when these interactions must help replace in-person friendships during the time of this pandemic, the quality cannot always compare. Across the board, interviewees agreed that, compared to the in-person interactions, those occurring over social media were fundamentally different, and most claimed that they were lower in quality. For instance, Bastian states that social media has "definitely impacted the quality" of his communication with friends, and Jack expressed a similar sentiment. Even for those who felt that the quality was relatively the same (like Ty and Kate Fabrizio, a Junior at WPI) there were admittedly still limitations. Kate explains how "It's not necessarily the same because it's not in person interaction". To that, Ty adds that "You can't feel [your friends'] emotions as strongly" because of the lack of readable body langue. Furthermore, a few interviewees mentioned how some types of interactions that happened on social media after the start of the quarantine were worse when compared to those same interactions before the quarantine because "there's not a lot going on" and "not many new things that like happen in our lives anymore". It is also important to note that, despite people's reliance on social media, these platforms are often associated with negativity. The salience data based on the freelisting exercise, shown in **Figure 2** (calculated based on the order and frequency of a word's appearance), shows that in the top 30 most-salient words, all the listed adjectives associated with social media bear a negative connotation. One of the more-salient adjectives is "fake", which suggests that in this time of social isolation people are aware that maintaining a friendship over social media is not always conducive to authenticity. This also runs contradictory to the fact that "friends" is the second most salient word, which supports the argument of some philosophers that online friendships cannot reach Aristotle's requirements for virtue friendships because of the difficulty of judging one's true character through social media.

Expectations for Friends in Quarantine

In a friendship, there is an expectation of certain actions or character traits from each person in the friendship in order to maintain it. Andrew explained that "a friend is someone that you do something with" or participate in a "shared interest" with. Others prioritize people who "are always there" and "always have my back". Other commonly mentioned traits by the interviewees included loyalty, honesty, and kindness. These expectations were affected little by the start of the pandemic. Bastian summarized it
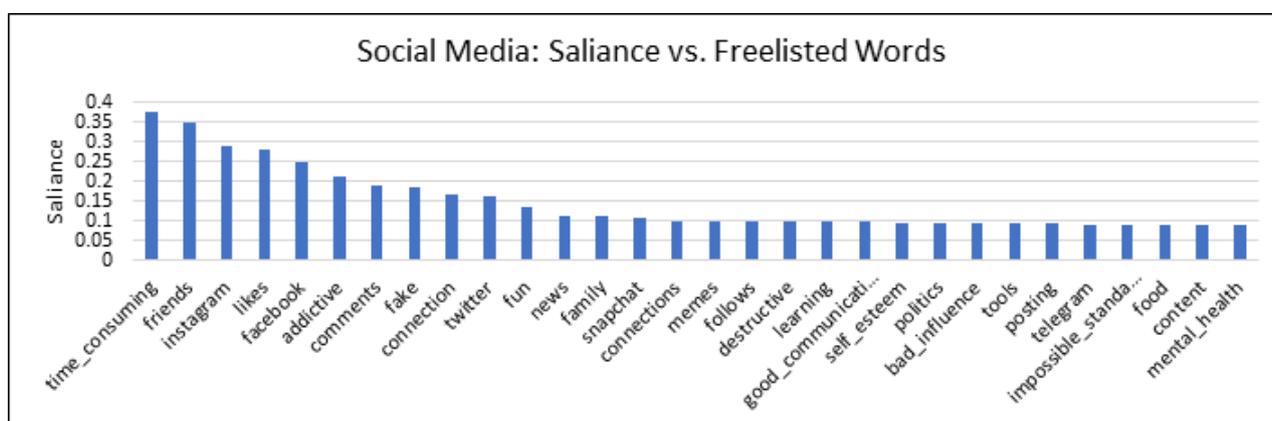

Figure 2: This graph displays the 30 words in the participants' freelists with the highest salience for the topic of Social Media.

nicely during his interview. For many college students, "all that's happening is that we just change from a point where we would see each other physically, but now all we're doing is just doing it behind…a screen". Although the method may be different, the intent and end product are the same. While it may be less satisfying for some, communication through social media does not affect people's ability to be loyal, honest, and kind, and even promotes participating in shared interests. Therefore, during the quarantine, social media may even promote friendships. Furthermore, the one change that many expect from their friends in these tough times is an increase in communication. Kate describes how she wants "[a friend] who actually cares to talk to [her] even though [they] have to stay apart". Similarly, Jack states that he "would like to see more communication just in friends virtually, like through social media". Ty echoes this sentiment. The general consensus is that, with all this new free time, college students expect their friends to reach out to them and reply to their messages faster and more often than before the pandemic. Promoting communication, which appears to be the one change that people wish to see in their friendships during the quarantine, is something that social media excels at.

Lasting Effect on Friendships

With regards to how the use of social media during the pandemic will affect friendships when the world returns to normal, there is little consensus among interviewees. While some, Like Andrew and Bastian, believe that little will change between them and their friends, others disagree. Alley, for instance thinks that some friendships may need to be rebuilt. She reflected, "It's hard…trying to bond with like, just one person in general, because there's not enough time to do that. Or at least it feels like there's not enough time. So I think

going back to it's going to feel weird. It's like starting over fresh again, and like having to rebuild those friendships". For her, the impersonal interactions that occur through social media mean that friends may drift apart somewhat. She further elaborated, saying, "I don't like that I have to like catch up with what's going on in the group chat and like scroll to the top and there's over 100 messages. Now it's just it's difficult sometimes". Although reforming some of these friendships will take work, she would jump on the opportunity in a heartbeat. She explained how she is a very physical person and misses hugging her friends. For her, the extra work "is still so worth it". For others, however, this is not an issue they anticipate. Kate voiced an opposite opinion to Alley's, responding, "Honestly, I think they'll be stronger. I think everyone misses each other enough, where, when this is over, everyone's gonna get together. Everyone's gonna spend as much time as they can with everybody else that they weren't quarantined with to make up for like, the lost time that we had. Because even though we can communicate…it's very different". Kate believes that the social isolation enforced during the quarantine will draw friends closer together and improve friendships when the restrictions are lifted. Likewise, Ty claimed, "I think that there's some build up to seeing friends that when we finally do go back to seeing each other it'll actually be cherished a little bit harder". It is clear that there was no unanimity when it came to the immediate changes in friendship that will occur at the end of quarantine. Some felt there will be no change, others thought friendships will need to be rebuilt, and still others believed friendships will be stronger. Even though Alley expressed she would need to reconstruct some relationships, she indicated that things would go back to normal after she put in that initial

effort. Therefore, it appears that college students do not feel that there will be any negative effects regarding their friendships in the long run due to either social media or the pandemic.

Discussion

Since social media's inception, the topic of how these platforms could influence people and their friendships has been one of heated debate. During the current COVID-19 outbreak, social media plays an important role in staying connected with one another, especially for college students displaced by the closure of campuses and social distancing rules. Based on the research conducted in this paper, during the time of the pandemic, college students do not view social media as an effective replacement for in-person friendships but rather as a tool to remain connected to friends in whatever capacity possible, and as a tool that will not affect the quality of any of their friendships when this global crisis comes to an end.

As previously indicated, most college students interviewed claimed that since the start of social isolation their social media use increased, although to varying degrees. I argue that this increase in social media use is in part a method for college students to feel more connected to each other. Although one may be tempted to claim that the increase was simply caused by the availability of more free time to fill and nothing more (and indeed this is the case for Ty, whose use for social media consisted entirely of entertainment purposes) for most students this is not true. This case is supported by the fact that most now ascribe a greater value to social media than they did before the pandemic because, like Andrew said, it is their only way to communicate with one another and interact socially. Furthermore,

college students during the pandemic are drawn to visual forms of social media like Instagram and Snapchat, as shown in **Figure 1**. The ability to see others instead of just text encourages feelings of connectedness. Jack, for instance, described how on Tik Toc (a social media app where people film themselves for quick 6-second videos), even though he does not know the other users on there he feels "almost one with that community that is engaging [with each other]". College students are drawn to visual social media during the quarantine that encourages feelings of togetherness, which supports the conclusion that the interviewees were using social media to help refill the gap created by social isolation.

Despite the role that it plays in connecting university students during the quarantine, social media cannot completely replace in-person interactions. About half of the interviewees expressed that they had made friends over social media, with two thirds of those claiming that they had made "close friends". In spite of this, all respondents said that during quarantine they have been unsatisfied with social interactions and that they preferred to see friends in-person, proving that even college students who have made great friends online acknowledge that the quality of interactions on social media is lower. Some problems they described with social media were a lack of flow in conversation, difficulty expressing and reading emotion, and connecting on a personal level. As mentioned previously, many aspects of what college students expect from their friends are not hindered by social media, such as loyalty, honesty, and kindness. Data from the freelisting exercise in **Figure 3**, however, show some words that
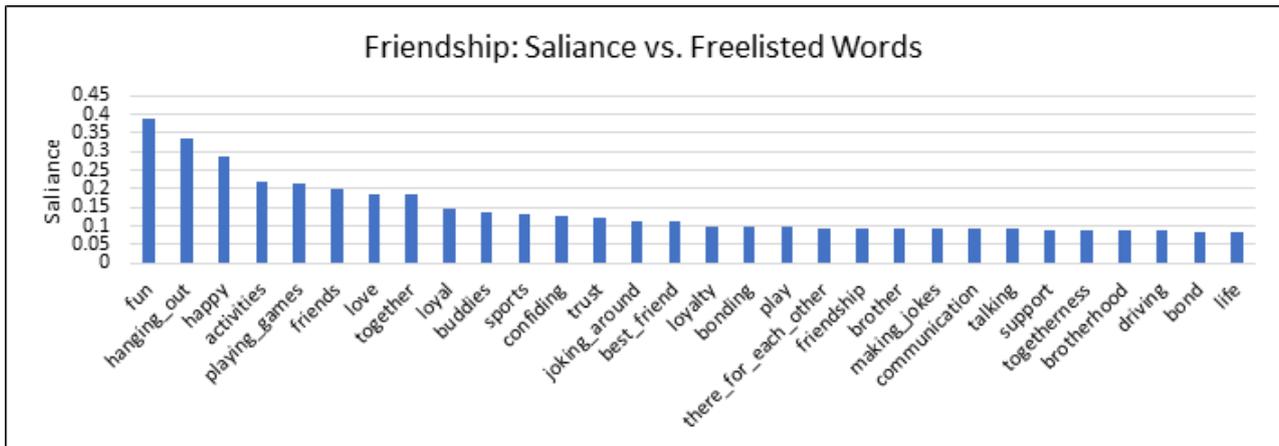
Figure 3: This graph displays the 30 words in the participants' freelists with the highest salience (calculated importance based on frequency of appearance and order of appearance in the list) for the topic of Friendship.

are strongly associated with the topic of "friendship" that cannot be accomplished from a distance (i.e. "hanging out", "playing games", "together", and "sports"). I argue that friendships formed online can still be true friendships, but that social media cannot provide the depth and connection that students crave, and which comes naturally to in-person interactions. Before the practice of social distancing, this was not an issue because students could maintain online friendships at the same time they were receiving in-person interactions with other friends. Now that college students cannot interact with the friends they've made in person, however, those strictly online relationships are no longer enough to satisfy them socially. This is why even those used to making good friends through the internet are no longer satisfied with the quality of interactions that social media can provide. This may be why most interviewees expressed that they would prefer if their friends contacted them more often and replied to them faster than they would normally expect outside of quarantine. Contrary to what one might expect, however, this conclusion does not necessarily mean that the students' friendships have deteriorated.

Conclusion

Social media is unable to provide the level of connection required for college students to be socially satisfied when it is their only form of social interaction, but this does not have a lasting negative impact on the friendships of students. One could argue that it may cause a temporary degradation in these relationships because of the difficulty in communicating, and like Alley said, some may "have to rebuild those friendships" when the pandemic is over. There is no consistency in how college students perceive this experience will immediately impact their friendships, however. It seems largely dependent on the person and their experience with maintaining friendships online. For instance, Bastian and Andrew both indicated that they have made many good friends through social media in the past, and so they believe that continuing these relationships in this manner will not significantly affect their friendships even if they can no longer supplement them with in-person interactions. Nonetheless, all the students interviewed conveyed no worry for the state of their friendships after life returns to normal. Furthermore, many stated that

friendships would be stronger after social isolation than they were beforehand. Their reasoning was not because social media was bringing them together, however, but rather because social media is such an imperfect replacement for in-person friendships that when it was the only means for connecting with others it forced them to reevaluate the aspects of in-person friendships that they originally took for granted. Despite social media's pitfalls, it will not negatively affect their friendships, especially when compared to the alternative of not interacting with friends. I therefore conclude that, while college students enjoy and value social media during isolation for its ability to connect them with their friends, they know that it cannot fully replace in-person interaction, but also understand that these drawbacks will have no consequences on their friendships.

The Role of Video Games in the COVID-19 Pandemic

by Cameron Walsh

Video games are an important part of the world today. Around 2.5 billion people, about a third of the global population, play video games regularly (Gough, 2019). A wide variety of video games exists in a plethora of genres, ranging from action to horror to strategy or city-building. There are games that take place in accurate historical periods or projected future timelines, or fantasy worlds of dragons and knights. They offer ways to connect with friends or loved ones who live far away online or can be used as educational tools to learn better strategy or decision-making skills (Choi, 2010). They can also be used to help relieve stress or anxiety (Scott, 2020). Many people use video games as a coping mechanism to help with their own mental health and well being when they are stressed or when an event occurs that throws their life off.

Due to the recent outbreak of coronavirus (COVID-19 or SARS-CoViD-2), there are a lot of people whose lives have been derailed. They are now working from home, going to school from home or even not working at all. This is a period of intense stress, anxiety and fear (Johnston, 2020). How are people coping with their emotions? How are they spending the free time that they are not used to having? This project will explore the role of video games in peoples' lives and how it has changed as a result of the pandemic. I asked people to reflect upon how their lives have changed and how they are using video games to fill certain "voids" – whether hanging out with friends or for school.

AVERAGE GAMER

65% of American adults **play video games**

The most common devices used for video game play among adult gamers

60% Smartphone   **52%** Personal computer   **49%** Dedicated game console

A Brief History of Video Games in American Society

If you live in the United States, the chances are high that you have been exposed to video games over the course of your life. After Nintendo single-handedly revived the US video-game market in 1985 with the release of the Nintendo Entertainment System (NES), the market has continued to rise and video games have become an integral part of American Society (History.com, 2017). As of May 2019, 65 percent of American adults play video games. 75 percent of Americans live in a household where at least one person plays video games (Entertainment Software Association, 2019). Those numbers may sound surprising, which raises the question: what really defines gaming? When most people think of gaming, they likely envision a teenager sitting at a desk or on a couch, clicking away on a keyboard or controller. While this may be accurate, there is a significant portion of American gamers who play on a third platform- their phone. As shown, a staggering 60 percent of American gamers play on their smartphones. Many smartphone gamers are older and play virtual versions of games that they have been playing for their whole lives. This leads into what is probably the most surprising statistic of gaming in the United States, the average age of gamers is 33 years old (Entertainment Software Association, 2019).

So, why do so many people play video games? Most answers lie under three main categories: family, friends, or freedom. Much of the population has grown up playing board games with their families – games like *Monopoly*, *Scrabble*, chess, checkers, etc.

Many of these games now have online versions that you can download on your smartphone to continue to play whenever you want, and for some families, "family game night" has transitioned to using these online games or others like *Jackbox Party Pack*. Parents also involve their children in video games for educational purposes. In 2014, the Entertainment Software Association (ESA) discovered that 68 percent of parents with children under the age of 18 believed that video games provide helpful mental stimulation or educational value (Sinem & Gee, 2018). Other people choose to play games simply because their friends play. According to the Entertainment Software Association, 63 percent of adult gamers play with other people and spend an average of 4.8 hours per week playing with their friends online or 3.5 hours per week playing with their friends in person. The last main reason that people play video games is because they are drawn to the virtual worlds. These worlds, teeming with adventure, danger and exploration, offer a lot of freedom to the player, and they are a perfect reality to escape into. These worlds, especially in the cases of popular Massive Multiplayer Online Role-Playing Games (MMORPGs) like *World*

of Warcraft, also offer the freedom to meet and interact with many people in a way that is different to how you interact with people physically. You can work together with people to trade items and go on quests and beat dungeons, working together towards a common goal (Munn, 2012). Many, myself included, have made long-lasting friends while playing together in these virtual worlds. Friendships made online can parallel friendships made in person, and the friendships can be just as powerful. (Munn, 2012). Many people simply choose to put the stress of the "real world" aside, and hop on video games as a way to relax after work or school, and a lot of video games make for fantastic stress relievers (Scott, 2020).

Video Games and the COVID-19 Pandemic

The recent outbreak of the coronavirus is an issue at the forefront of our nation. Many people are working or receiving an education from home, using video conference programs like *Zoom*. Many schools and jobs have half-days and a lot of people are not working at all. In this time period of uncertainty, what role are video games playing in peoples' lives? During this pandemic, The World Health Organization has partnered with

eighteen different video game publishers and begun a campaign entitled "Play Apart Together", encouraging people to use video games to connect with friends and coworkers while following social distancing recommendations (Haasch, 2020).

Many people have begun using video games to simulate certain activities they can no longer do in the real world (Sherr, 2020). On March 20th, right at the beginning of the pandemic, Nintendo released *Animal Crossing: New Horizons*, a cute town-building game that features animal villagers. The game is very open-ended, and players can do all sorts of activities from making a tree farm to building bridges and paths to make their town look how they want it to. Some people have been taking it to another level- hosting online versions of canceled weddings, going on online dates, or to celebrate birthdays (Sherr, 2020). Online games like *World of Warcraft*, *League of Legends* or newcomer *Call of Duty: Warzone*, which saw thirty million players in its first ten days, have seen incredible rises in their player numbers (Sherr, 2020). The streaming platform *Twitch.tv* has seen a 31 percent increase in daily viewership during the pandemic (Sherr, 2020), and video game platform *Steam* recorded its highest ever

ANALYST DESK

DASH
@RIOTDASH

CRUMBZ
@PROPHETCRUMBZ

#PlayApartTogether

Eric Solorzano

"I invest in a game very heavily, whenever I play it."

Hollow Knight

concurrent player count with 20,313,451 users simultaneously using the platform (Perez, 2020). Through this project, I examined the changing role of video games in peoples' lives during this pandemic. I asked them to reflect on how they have used video games in their lives, how they have been influenced by them, and how that has changed over the recent weeks.

My Approach

The goal of this project was to discover the changing role of video games in students' lives during the COVID-19 pandemic and to have them reflect on the role of games in their lives. In order to accomplish this goal, I developed the following research questions:

- How have students' attitudes and behaviors regarding video games changed as a result of the pandemic?
  - How has the amount of time students spend playing changed and why?
  - Has their reasoning for playing changed?
  - How have they been influenced by the video games they have been playing?
- During this period of uncertainty due to the pandemic, what role do video games play in students' lives? What "voids" do they serve to fill?

- What role have video games played throughout their lives?
- How have video games helped to develop friendships in the past and how do they help to maintain them during the pandemic?

In order to discover the answers to the above questions, I conducted semi-structured interviews of students who are avid members of the gaming community. Semi-structured interviews were helpful, as they allowed me to ask follow-up questions and to explore students' deeper relationships with games. The interview questions that I asked can be found in the Appendix. I asked them to reflect on their own experiences with and usage of video games in their lives since they started playing, and how this relationship may have changed as a result of the quarantine. I asked the students to submit photos or screenshots of characters, locations, or story cutscenes from games they have played that had a particular impact on them. These images are scattered throughout this section, and some are accompanied by quotes the students have said. Using the information I gathered from these interviews, I am able to demonstrate the role that video games have played in students' lives and how this has been influenced by the recent pandemic.

Student Reflections

Video Games in Students' Lives

Many students who play video games now have been playing them for a long time.   One student, **Ahad Fareed**, remarked that he has been playing games "probably since [he] was able to pick up a controller", while another student, **Jack McKay**, said that he has played "since [he] was a kindergartner". For many, video games have been a part of their lives for as long as they can remember. Some, like Jack and Ahad, were introduced to video games by their older siblings while others were brought into the gaming community by their friends.

Why Students Play Games

For many students, video games are more than just a form of entertainment- they offer an escape from the stress of schoolwork and other parts of life, while also allowing players to have fun with their friends. As Ahad puts it, "Video games are an escape, and are also a big way to be social. I think what makes playing video games special is that you immerse yourself either into a single-player story or into doing something fun with your friends." Jack agreed with this, adding, "Though maybe not an escape. I'm not really escaping anything, but it's cool to get immersed in a game and experience it."

Ahad Fareed

"Video games are an escape, and are also a big way to be social. I think what makes playing video games special is that you immerse yourself either into a single-player story or into doing something fun with your friends."

We couldn't wait for you to show.

The Witcher 3

Jack McKay

"I enjoy them. I think they're a good escape. I like when you get lost in a game, when the world really immerses you... It's cool to get immersed in a game and experience it."

World of Warcraft

Sky O'Connell

"I grew up playing them. It's just something that's always been a part of my life."

CHAPTER 2

For others, games offer an outlet for their creativity. **Andrew Kraunelis** says he plays games because he "can build cool stuff without having to make space for it or spend money on materials for it like you do in real life." Specifically, he is talking about the game, *Minecraft*, which has risen in popularity to become the most sold video game in history, surpassing *Tetris*. Other common games played for creativity include *Terraria*, *Sim City* and *Cities: Skylines*. Some, like **Sky O'Connell**, simply continue playing games because she "grew up playing them" and "it's just something that's always been part of my life."

Video Game Friendships
Many students, like Andrew, have gotten into playing video games because of their friends, which has served to strengthen those existing friendships. According to Andrew, "They've definitely strengthened friendships. I only really play with friends I already have." For others, video games have also introduced them to new friends . When reflecting on friends he made online, Ahad said, "Some of my best friends today I met over XBox online. I didn't know them but we had mutual friends and I met them under different circumstances than I would've normally, and we talked and played together and eventually hung out. But, yeah, some of my best friends I met on video games." Jack also has made friends over games, saying that "it's usually through people that [he] knows, like mutual friends of theirs." Sky O'Connell reflected on how she and her sister played a lot of *World of Warcraft* when they launched the

Andrew Kraunelis

"I can build cool stuff without having to make space for it or spend money on materials for it like you do in real life."

Minecraft

Difference in Video Game Playtime Before and After COVID-19 Pandemic
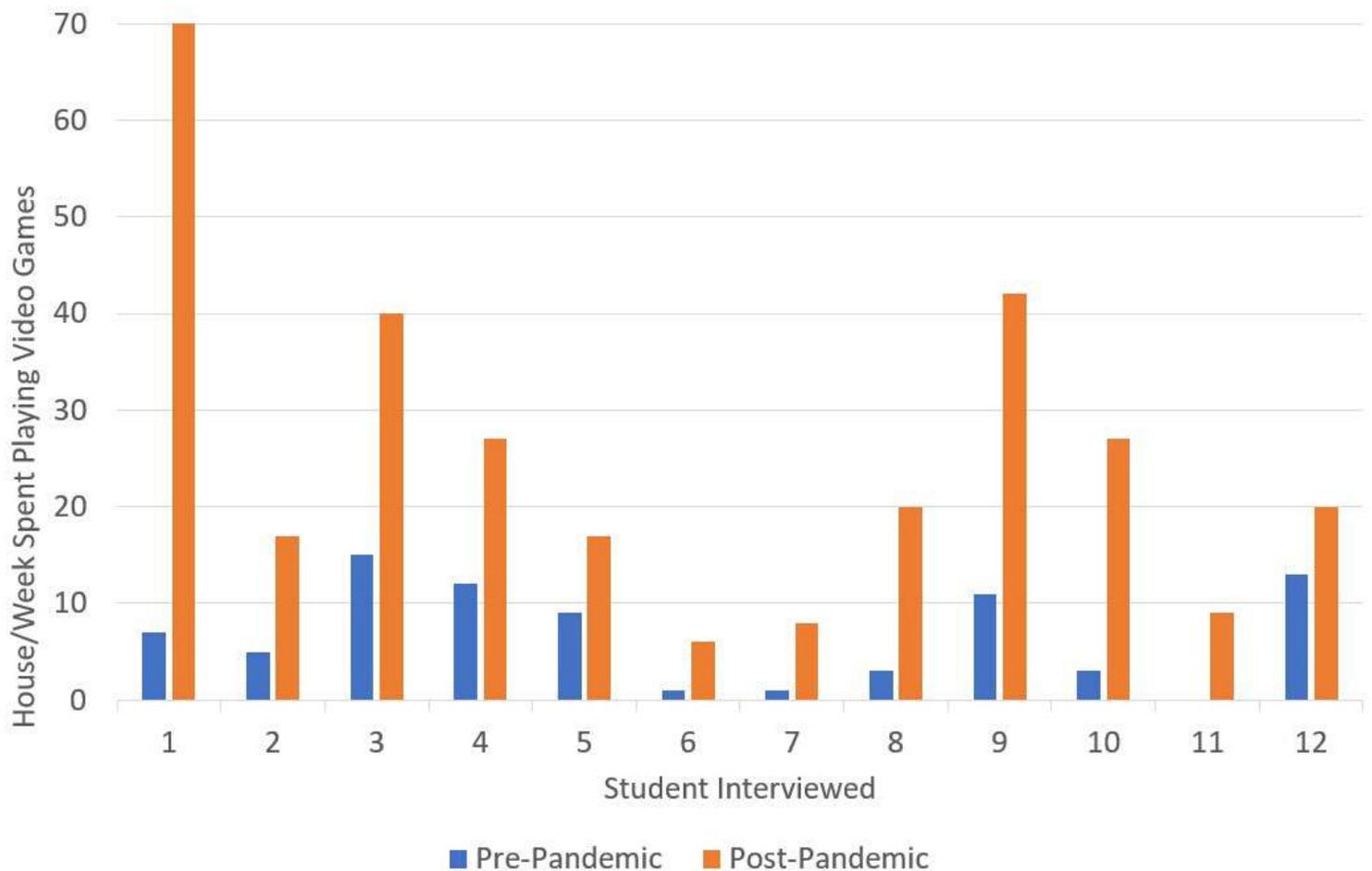
expansion, *Warlords of Dreinor*. During this time, they really wanted to start playing raids in the game, and they joined guild to help them accomplish this. Through the voice chat with other guild members during the raids, they made a lot of friends that they would not have made otherwise, and, ever since, they have gotten messages from members of the guild wanting to catch up with them, She added, "Raiding in WOW will never be the same as it was when we raided with that guild because of the close friendships we made."

Video Games During the Pandemic
Due to the COVID-19 pandemic, many students have been spending more time playing video games than they normally would, as shown in the graph above. When reflecting on why this was the case, many students discussed how it has a lot to do with the fact that they have a lot more free time. WPI senior Eric Solorzano said, "I have a lot more time for it even though I'm in classes. I don't have meetings or other engagements like I normally do on campus." Andrew had similar sentiments, saying, "I play it more now because, I mean, when I was at school, I had a ton of other stuff to do. I didn't even watch tv at school, I always had something to do. But now, it's just me and a computer, so." Other students discussed how their days consist of waking up, doing classwork,, playing video games, and going to bed or how they have an excuse not to leave their house, so they play games when they can. Another student talked about how he normally spends time outside with his friends or at his local gym working out, but now his friends are home in other states and his gym is closed, so he resorts to video games instead.

Animal Crossing: New Horizons
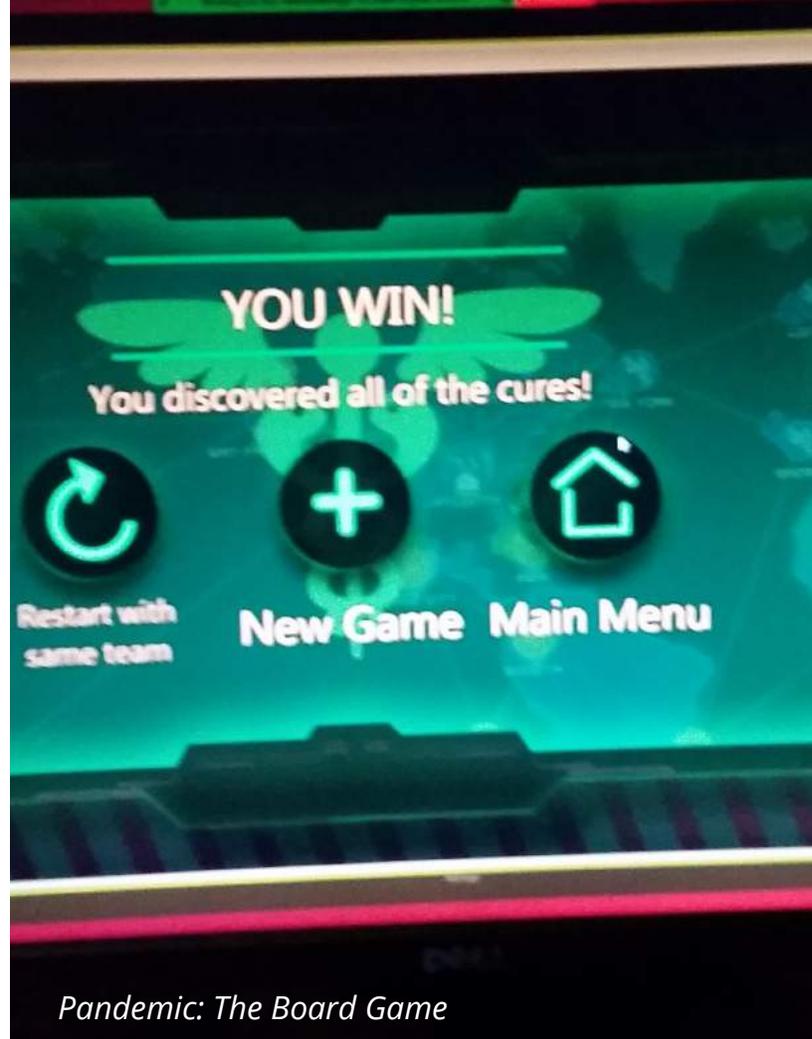
Pandemic: The Board Game

Faster Than Light
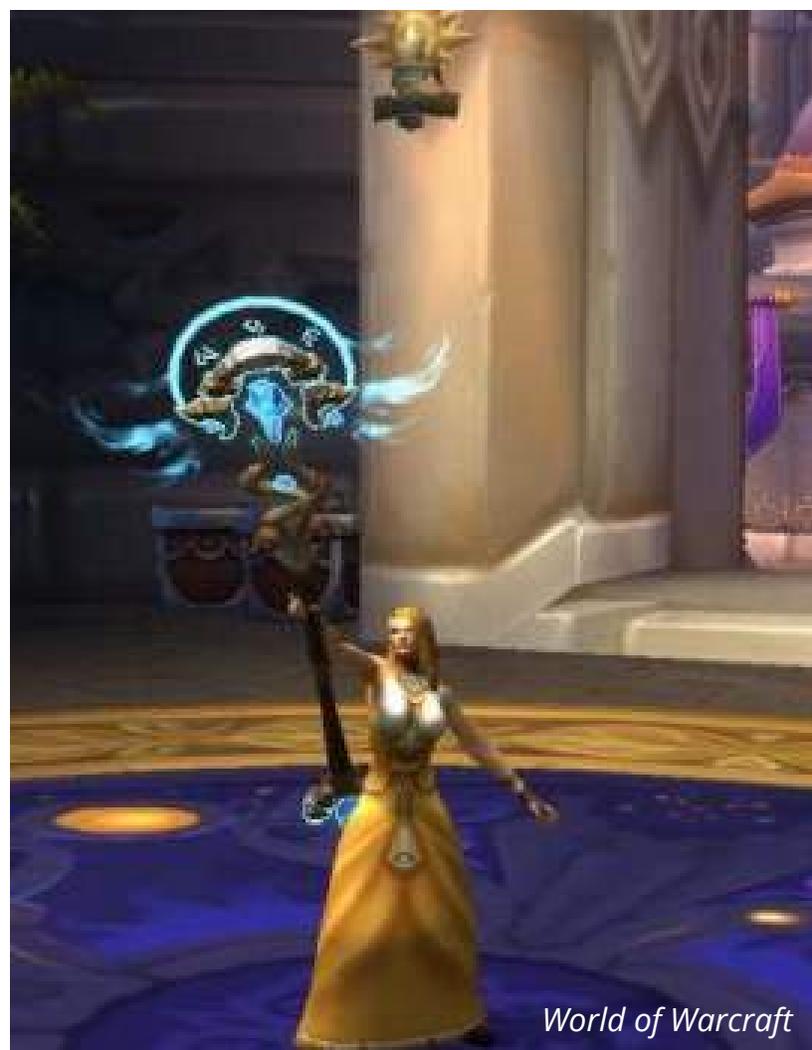
World of Warcraft

For other students, they play more video games now simply to connect with the friends they can no longer physically hang out with. As Ahad puts it, "Video games have always been a way to interact with friends and during the quarantine, it has been one of the better options available. Plus, it's fun." WPI senior **Tom Vagnini** said,"the video games I've been playing more recently are electronic board games that I would normally play with friends on campus, but now we play virtually." During the quarantine, these students have been using multiplayer video games like *League of Legends*, *Pandemic*, *Overwatch*, *World of Warcraft*, *Team Fortress 2*, and *Minecraft* to stay connected with their friends, competing or cooperating with them while immersed in a virtual world. A word cloud showing the common games students have been playing during the quarantine is shown above.

Likewise, many other students have played more video games during the pandemic to "escape" or "withdraw" from certain things in their lives. About his own situation, Jack had to say, "It's an escape for sure. Especially with the 8 people we have living under our roof." All of the students interviewed discussed times during the pandemic where they felt emotions such as loneliness, sadness or isolation, and reflected on how they have coped with it. The coping mechanisms they named are shown in the word cloud on the following page.. For many students, video games are their main method of coping with the negative emotions/stresses of being home during the pandemic, which has risen the amount of time they play games.

While at home during the coronavirus pandemic, students have had to deal with a variety of stressors they would not normally have, whether family dynamic issues or simply the lack of camaraderie from not being able to see their friends. Many of these students turned to video games to help them deal with these negative

Scroll Reddit
Go Outside
Talk to Family
Exercise Watch Movies
Play Video Games
Talk to Friends
Cook Read
Watch Anime Pray Clean

emotions. Throughout the remainder of their online semester, they had a lot of free time to play when they were not completing schoolwork. Adventures normally taken outside with friends have become adventures taken inside, exploring beautifully generated virtual worlds rather than real locations. In-person hangouts with friends have become online hangouts. Many students, like Ahad, Andrew, Sky, and Tom, have been competing in online games or solving puzzles or quests cooperatively with their friends and joking around as they would in person, before the quarantine happened. While video games may not be a perfect replacement for real world activities, they have been filling the voids that quarantine has created for many students.

IMPACTS ON BUSINESS AND WORK LIFE

CHAPTER OUTLINE

Chapter 3

INTRODUCTION

In the United States, 28 million small businesses make up 99.7% of all business establishments. Small businesses also employ 58.9 million people, making up 47.5% of the country's employee workforce (Lauckner, 2019). Small businesses are being hit extremely hard during this pandemic with many closing their doors and laying off workers. As of May 2020 over thirty million persons filed for unemployment benefits (Villa, 2020). And for those persons who have managed to keep their jobs and who work remotely, the experience of work has changed profoundly (Liang, 2020).

In this chapter we discuss four projects that examine how the workers in America are affected by COVID-19. Each project focuses on different aspects of the American workforce. We first discuss the impact of COVID-19 on small business owners and their employees in Massachusetts, and their use of social media to connect with their customers. We then consider workers attitudes in connection to how a manufacturing company located in New York is trying to restart production while keeping workers safe. The next chapter discusses how workers have been affected by COVID-19 and how they are adapting. We conclude by exploring public school special educators' and service providers' personal experiences as they adapt their teaching methods due to the shift to remote learning.

The Adjustment of Small Business Amidst the COVID-19 Pandemic

By Erica Houghton

In the face of COVID-19, small businesses have had to adjust to survive. To reduce the rate of infection, public health officials have advised the public to stay home, which has meant businesses have had fewer customers, and many have had to close or change how they operate (Center for Disease Control and Prevention, 2020). Small businesses that remain open have laid off workers, limited their hours of operation, as well as adjusted their available services (Huddleston, 2020). In the United States, 28 million small businesses make up 99.7% of all business establishments and employ 58.9 million people, making up 47.5% of the country's workforce (Lauckner, 2019). To navigate this 'new normal', businesses have had to adjust and change. One strategy for businesses to continue to reach their customer base is to use social media.

Small Business in the United States

The Small Business Administration defines a small business as one with either a maximum of 250 or 1,500 employees, depending on the given industry (McIntyre, 2020). Small businesses stimulate the economy and provide jobs to metropolitan areas (Amadeo, 2020). They are critical for economic growth in the United States as they contribute to 65% of all new jobs created (Amadeo, 2020). Unfortunately, these businesses have been negatively impacted by the spread of COVID-19 and have been forced to adapt.

The COVID-19 Impact on Small Business in Massachusetts

According to the Kauffman Index, a leading indicator of new business creation in the United States, which offers in-depth measures, reports, and data visuals of entrepreneurial trends, Massachusetts is the third highest ranked state for business creation in the United States. There are currently around 600,000 small businesses in Massachusetts, employing nearly 1.4 million people (Resources for Entrepreneurs, 2020).

In Massachusetts, Governor Charlie Baker issued an emergency order requiring all businesses and organizations that do not provide "COVID-19 Essential Services" to close their physical workplaces as of Tuesday, March 24th (Mass.gov, 2020). Essential businesses were encouraged to continue operations remotely as much as possible and remain open for public use with limitations. Businesses that have been deemed essential include supermarkets, pharmacies, convenience stores, healthcare operations, transport services, banks, gas stations, and places that provide food or food service (Jiang, 2020). As for nonessential businesses, their operations have had to completely shut down.

To adjust to demand reduction, essential businesses have decreased their employee count, changed their hours of operation, and adjusted their available services. A National Small Business Association member survey revealed that, by mid-March of 2020, almost half of the small businesses had experienced a drop in customer demand, and 38% of small businesses were not confident in the financial future of their business (Hannon, K, 2020).

Small businesses are taking matters into their own hands when it comes to ensuring their survival. To stay connected to their customers, many small businesses are utilizing social media platforms, such as Facebook and Instagram. Social media, by nature, connects people to one another and creates a virtual community.

The Impact of Social Media on Business

The influence of social media and an internet presence has a large impact on the success of a business. Social media websites allow users to create online communities to share content, such as pictures, videos, personal messages and other information. Creating an online presence on social media platforms can assist a business in growth, popularity, and market presence by allowing consumers to be instantly informed about new developments (McMullen, 2016). Social media can also offer consumers a place to make purchases and directly support the business. It also allows consumers to browse available products and services and generate interest. Using social media creates a combination of advertising products and services while also offering the opportunity to actually purchase the goods being shared.

It is notable that "social medias have revolutionized the ways organizations relate to the marketplace and society, creating a new world of possibilities and challenges for all aspects of the enterprise" (Aral, S., Dellarocas, C., & Godes, D., 2013, p. 3). The use of social media can help a business connect to the desired market by increasing communication and creating an online brand (McMullen, 2016).

In the time of COVID-19, social media enables businesses to keep in touch with their customers (McKinney, A., Lisa, & Nik, 2020). For essential businesses, social media can inform customers of their hours of operation, precautions the businesses are taking during this time, and the general status of the establishment. For non-essential businesses, social media can assist in maintaining connections and gathering community support for when the businesses reopen (McKinney, A., Lisa, & Nik, 2020). This can be done by offering virtual versions of their services, like at-home yoga classes, or discounts on services for once quarantine is over, such as advanced appointment/class sign-ups for a lower cost. Regarding the impact of social media during this pandemic, the social media manager Savannah Keck of Thrive, a U.S social media marketing agency, states that "Our communities need each other now more than ever. People need support, understanding, education, resources. Social media can provide just that and can be extremely powerful if it's done correctly" (McKinney, A., Lisa, & Nik, 2020). Social media allows a business to effectively market, improve response feedback, and effectively interact with their market which creates a sense of community (Wicks, 2015). This connection is becoming increasingly relevant given the state of COVID-19. Along with other tools, such as utilizing government loans, social media can have a positive impact on small businesses as COVID-19 continues to interrupt the market.

Approach

The goal of this research was to identify the challenges that small businesses experienced in the face of COVID-19 and to assess how they used social media to persevere. I conducted semi-structured interviews with owners of five Massachusetts small businesses that included a restaurant, bakery, physical therapy facilities, and hair salons. I selected these businesses because of personal connection, or proximity to Worcester, MA. I have been a client of many of the businesses, and I believe this familiarity enabled me to have more meaningful conversations. In the interviews I considered such topics as changes in revenues staffing, and the actions each business took to comply with government standards to limit the spread of the virus. I also learned about how this pandemic has been challenging for business owners on a more personal level.

During these interviews, my questions focused on how local small businesses, both essential and non-essential, used social media to promote their business to gain support from the community. I sought to understand if the businesses turned to social media in response to the pandemic, or if they had experience with social media beforehand. I learned how each of the different businesses have been interacting with their target market through social media and how customers can access their goods and services during this time. Questions that I covered in each interview are provided within Appendix A. Because these were semi-structured interviews, I learned a good deal from exploring and probing responses.

Keeping a Business Active Using Social Media

Many small business owners have had to completely halt their operations to comply with government guidelines. For example, businesses that are structured around close personal contact have had to completely cease operation. Salon Beleza, a beauty salon based in Fall River, Massachusetts, has had to do just that. The owner of this local business for 13 years, Jodi Carbral, spoke openly about the struggles she has faced during this pandemic. This pandemic has affected Jodi on a very personal level, as she was diagnosed with COVID-19. At the start of the pandemic and prior to Jodi's diagnosis, the salon remained open for one week before having to shut its doors completely. Jodi said that her "business has been shut down until further notice. Not having a reopen date is stressful, having no income and no means of paying bills." When asked about reopening and the risks she is concerned with, Jodi detailed her very personal experience. "That is a tough question, I am eager to get back to work, but at the same time I am nervous because I cannot maintain the six feet rule. Having had been diagnosed with COVID-19, I want myself and everyone that enters the salon to be and feel safe and healthy."

In order to attempt to stay connected to her customer base, Jodi utilizes social media to keep her business as viable as possible. The salon's Facebook page has included some promotional activity during the pandemic, including a brief offering of root touch up spray for those clients in desperate need, as shown in Figure 1. However, only a handful of orders were received. Right now, the circumstances are very unsettling for Jodi and her salon.

In contrast, Pageboy Inc, a salon based in Worcester, Massachusetts, has found social media to be a very useful tool during this time as it allows her to stay connected to her clientele.
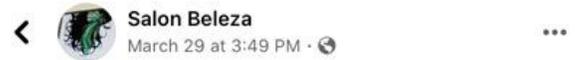
Brie Brooks, owner of Pageboy Inc, has experienced similar challenges in the face of the pandemic. The pandemic has forced Brie to close her salon doors as well. Before the pandemic hit, the salon was operating at maximum capacity. Brie mentioned that Pageboy recently moved to a larger location with more available chairs to accommodate their large, and growing customer base. Unfortunately, they were only able to spend a few short weeks at this new location before closing on March 15th, one week before non-essential businesses were told to close. "We just didn't feel right about it, I had been following the virus throughout the world and was like oh my goodness it's probably going to be worse in the US, so I want to be proactive. I was concerned about the health of others and my family".

In order to keep her business as active as possible, Brie has been experimenting with social media and trying out new posts. "Social media is such a great form of marketing", stated Brooks. "We've been using it to stay connected with clients". Brie focuses most of her efforts on their Instagram presence, posting little hair tutorials for clients to follow, pictured below in Figure 3. The amount of support she is receiving through social media is substantial and she mentions that it has helped her stay positive throughout the course of the pandemic. To establish communication with clients, Brie posts Instagram stories that ask for responses or feedback on business ideas like the introduction of selling Pageboy t-shirts and other attire. Her tutorial posts also entice clients to ask questions and interact with her. Clients have used social media to reach out and let Brie know that they can't wait to go back and get their hair done, strengthening the personal connections Brie feels with her clients. This connection helps Brie establish a brand that is personal and committed to her clientele. Ultimately, Brie hopes to return to work soon and see her clients. "I truly feel so lost not doing hair and not working". However, social media has helped her stay connected and support her clients self-care needs from a safe distance.

Finding Ways to Remain Viable

For businesses in the health field, maintaining operations has been deemed essential. Hodgson Physical Therapy and Pilates located in Dighton, MA, has been able to remain open for treatment. This small business, which focuses on a model of wellness for its patients, cancelled pilates classes but continued physical therapy. These changes in operations led to many challenges. Valerie Hodgson, owner of Hodgson Physical Therapy and Pilates, detailed that she had to decrease her staff significantly. Her client base has also shifted drastically because therapists are primarily only seeing post-operative patients. Although services are still available, Valerie explained that "[patients who feel uncomfortable] have stopped coming, and we encourage patients who are at risk to stay at home". Disinfecting measures have been put in place to keep clients safe and healthy. "We wear masks, take everyone's temperature before they step inside, and are constantly sanitizing all the equipment. Patients are on opposite sides of the gym during treatment and always remain six feet apart."

For those who cannot come in for treatment, the studio is offering telehealth. Telehealth is the distribution of health-related services through the internet or telecommunication technology (TeleHealth). For Valerie, this would include appointments over video or phone call. However, this is not straightforward since different health insurances vary on whether or not this is covered. With the decrease of clients, the studio is seeing a drop in revenue. Valerie explained that she worries about her family-owned business since it is a "Mom and Pop shop, so how will we pay the bills?".

Its social media presence has not changed much over the course of the pandemic. Valerie said that she is "leery to use it because people are so freaked out. I don't want to continuously advertise. If people want to come find us, they'll find us. The unknown makes it hard to know what to put online.

We just want to be here for the patients". However, Valerie did see the value in the use of social media and mentioned that using it to generate support could be useful for their small business. She mainly uses her Facebook page to update her clients on the measures being taken to ensure the safety of her patients and the latest information on studio availability. Valerie explained that she has found value in using their social media in this manner and that she believes it matches her focus on patient health during this time. Valerie offered free Zoom pilates classes for the month of April to her clients which generated some hype and gave her clients the opportunity to stay connected to the studio. These classes were not advertised on Facebook as she wanted her main focus to be about providing health care to those who really need it. Her clients received notice about these classes via email.

Hodgson Physical Therapy & Pilates
Sunday at 12:11 PM ·
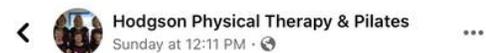
Starting May 6th, Governor Baker has signed an executive order requiring all MA residents to wear a face covering when social distancing is not possible. We ask that our patients coming in for treatment please wear a face covering in addition to the safety measures we already have in place:
*Temperatures taken upon arrival
*Hand washing prior to treatment: therapist and patient
*Sanitizing all surfaces after use and high traffic areas several times through out the day
*Social distancing patients in the clinic, only close contact with
*masks worn

Although Hodgson Physical Therapy and Pilates has not experienced a major change in their social media presence, social media has proven to be a useful tool for other essential small businesses. The Queen's Cups, finds itself utilizing social media now more than ever. This beloved bakery located in Worcester, Massachusetts has an exceptionally strong internet presence that was already thriving prior to the pandemic. As the pandemic progressed, their talent and expertise with social media outreach has become more and more valuable. The business posts many pictures of their dessert creations and on the ways in which it is dealing with the pandemic. An example of this is shown in Figure 6. Owner of the bakery, Renee Diaz details how strongly social media is utilized to keep their business alive. "It's our entire basis, and has been since the very beginning. I would like to think we were one of the first local people to use Instagram for our business. Now, it's so common you wouldn't even think that". With the new restrictions placed on restaurants, The Queen's Cups has begun offering online orders for pickup on select days of the week along with shipping cookies through the mail. "We are a completely different business right now" states Renee Diaz. As expected, the restrictions have caused a decrease in sales for the bakery. Despite this, they are experiencing immense community support and sales in some particular products available online have expanded greatly.

Using social media, Renee has been able to remain in contact with her customers and has gone above and beyond to stay connected. "The first week I wrote handwritten thank you cards to everyone who ordered. Each week, I try and do something to go out of my way for the customers and thank them. I think I am very honest and vulnerable, and I think everyone feels a little lost. I just try to be as grateful as possible".

thequeenscups

Liked by **ktravzzz** and **384 others**

thequeenscups Thankful for customers like @magicallymedeiros and so many of you who have ordered every week, sent me a nice message, left us handwritten cards at the shop, posted on social media, told your friends about us, offered to deliver to other people so they can experience TQC.... you're all helping us fight the good fight 💗

The Queen's Cups Instagram page posts updates on their Instagram on a daily basis advertising their desserts and informing the public on the current ordering methods. The Instagram page is very interactive as many polls about dessert preferences and favorites are posted, followers are asked what they want to see next, and images of their very satisfied customers are included almost daily. All of this helps The Queen's Cups strengthen their brand as a small business that appreciates its customers, especially during this time. The Instagram presence also instills a healthy concept of 'treating yourself', a motto that not only helps the business but promotes an aura of positivity overall. Renee was sad that she had to let go of 15 out of 25 employees, but she remains positive and hopeful that circumstances will change. "I think we will be okay as long as we keep being grateful, appreciative and creative in the kitchen".

Another Worcester-based small business, Nu Kitchen, is also doing well for itself at the time and has found social media to be a useful tool to stay connected to its customers. Nu Kitchen is a cafe/restaurant that offers a variety of healthy food options ranging from smoothies and specialty lattes, to loaded salads and sandwiches. The Worcester location receives a great deal of business from the surrounding colleges and with schools being closed, business has slowed. Through the use of social media, however, the owner, Josh Van Dyke has been able to stay connected to his customers as they post about the orders they are enjoying. "That first week was tough, trying to figure everything out" Josh mentioned, "but every week I get a little more optimistic, business has been growing". Prior to the pandemic, Nu Kitchen incorporated a delivery option utilizing Grubhub, UberEats, and Doordash. Using social media, Josh has been able to heavily advertise this option which, he says, has helped the business a lot during this time.

Josh also spoke of the support that he feels through Nu Kitchen's social media platforms. "Mostly people like tagging us with a picture of their order and are saying really kind things with it". Josh also mentioned that many customers have posted old photos of dining-in at Nu Kitchen and expressing how much they miss it. Josh believes social media helps people stay connected since there is "The feeling that everyone's in this together, no one's not affected by this". The most active social media platform for Nu Kitchen is their Instagram page. The page includes images of popular dishes, posts recognizing valued customers and staff members, and advertisement for their delivery services. Social media allows Nu Kitchen to generate a brand inspired by health, nutrition, inclusivity, and appreciation which promotes a sense of normalcy as the pandemic continues.

thequeenscups

thequeenscups Still rockin the bun, still lovin my job. 8 years and counting baby.

Liked by **ktravzzz** and **939 others**

nu_kitchen

178 likes

nu_kitchen Trying to support our community as much as we can during these times. We showed our appreciation to our Somerville Fire Fighters this week with healthy fresh meals!

Salon Beleza
Friday at 9:32 AM · 🌐

I passed my test to keep my salon, clients and employees safe when we return to work !

BARBICIDE.
COVID-19 Certification

Presented to

Jodi Cabral

This individual has completed the BARBICIDE® COVID Certification for the Professional Beauty Industry training.

Concluding Thoughts

As businesses are learning how to adapt to the pandemic, the use of social media has served many purposes. During this time of isolation, maintaining connection is very important, especially among businesses that are trying to maintain customer loyalty. For hair salons, social media is being used to create hype for when the businesses will reopen, while also trying to stay personally connected to the clients. For restaurants and other food providers, social media has played a role in gaining hype for business right now and generating support from customers. Throughout this research, it also became apparent how dedicated these business owners are. In every case, no matter the type of business or the financial situation, there was a sense of pride for their business and appreciation for their customers/clients. The health and safety of family, friends, and customers was always the priority. These uncertain times drove these business owners to find ways to keep their business alive, but also use their business to support the community during the pandemic. Using social media allowed these businesses to stay connected in a time where personal connection was hard to come by. The societal impact of the COVID-19 pandemic has pushed small businesses to dedicate themselves to their business and focus on ways to better themselves, as well as their surrounding community.

Returning to Work: Challenges on the Production Lines
Adam Klosner

The COVID-19 global pandemic has shut down broad sectors of the US economy. Automobile manufacturers and other large manufacturers have cut production and millions of small businesses no longer are able to provide services to the general public. Unemployment has risen to over 30 million, some 14.7% of the workforce, the highest level since the Great Depression (Schwartz, 2020). While much of the country has observed stay at home orders since March 2020, many commentators and public officials have devised plans to get people back to work and to stimulate the economy. This could well be a difficult task. It is unclear how manufacturing workers on production lines can be protected from the ravages of COVID-19 (Rosenbaum, 2020). This research project specifically examined how a large manufacturing firm kept production lines open while trying to safeguard its employees.

Economic Impact of COVID-19 on American Business

Since the beginning of the COVID-19 pandemic, the US economy had fallen substantially in the first quarter of 2020. One of the best ways to measure the status of a nation's economy is through its Gross Domestic Product (Ross, 2019). The Gross Domestic Product (GDP) is defined as "The total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period" (Chappelow, 2020). The recorded GDP in the United States after the first quarter was -4.8%. As a result, the longest positive GDP growth streak in the US was snapped. The steep decline in GDP was worse than the lowest recorded GDP from the 2008 Great Recession (Trading Economics, 2020).
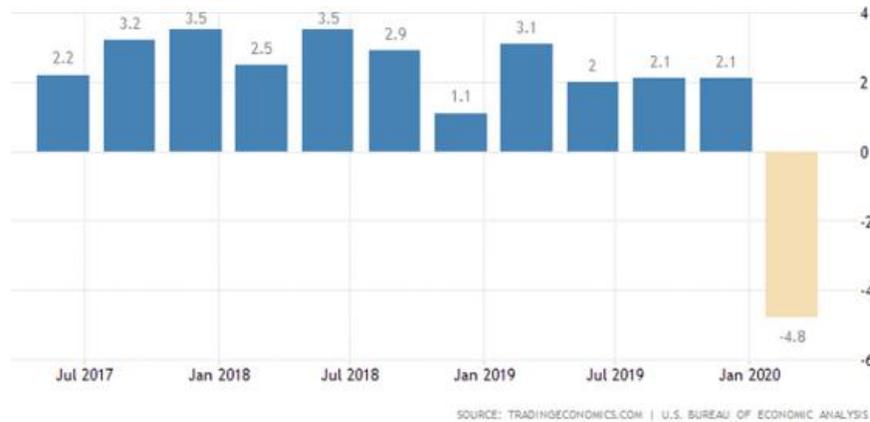
United States Gross Domestic Product: 2017-2020 (Trading Economics, 2020)

Economic Impact of COVID-19 on American Business Cont.

The first quarter in the United States recorded the closure of 3,000 chain retail stores. Two thousand-two hundred and ten of those retail stores have declared permanent closures so far this year (Bomey, 2020). An analyst from business insider predicts 12,000 of these major retail stores to close in 2020 (Peterson, 2020). A major clothing retailer known as J-Crew has filed for Chapter 11 bankruptcy. Other major retail stores such as Forever 21, Jo-Ann Stores, and David's Bridal are on the brink of going bankrupt (Bomey, 2020). The previously stated spike in unemployment rate directly correlates with the closing of many of these major retailers (Cox, 2020).

In view of these closing and high unemployment levels, a crucial question is how to reopen millions of temporarily closed businesses. As of mid-May, Georgia, Colorado, and Texas have already opted to reopen retail stores despite some warning from public health officials that this is premature (Goodman, 2020). Most other states are taking a more cautious approach including New York and California (Goodman, 2020). The Mayor of New York City mentioned the city is "a few months away at minimum from reopening". The plan to reopen businesses is a balancing act which must consider how to get people back to work without creating conditions that could spread the very contagious coronavirus and cause a second wave of infection (Goodman, 2020). President Trump's administration has released guidelines and phases to be implemented to guide the reopening of businesses. These phases are largely dependent upon the extent of the virus and overall health conditions in a region where a particular business is located. The guidelines include a decline in hospitalizations, a decline in cases, and a downward projection of the trajectory of a virus (White House, 2020). If these guidelines are not met then, President Trump mentioned "we're not going to let them open" (NPR, 2020). New York State has taken a different approach. Governor Andrew Cuomo's administration has developed a detailed phase in approach to the reopening of businesses (Spector, 2020). New York's plan to reopen the economy involves all of the President's criteria in order to reopen along with additional requirements (Spector, 2020). The plan to reopen New York is detailed below. An example of a company opening too early is a food manufacturer known as Tyson. This company is having trouble reopening as many of its employees are becoming ill from the virus due to few safety measures taken in the factory. The employees are demanding a higher level of sanitation to provide a safe working environment (Swanson, 2020).

CDC Health Guidelines for Business

The Centers for Disease Control (CDC) created broad interim recommendations for business operations during the global pandemic. The CDC states that a business should base its level of operation on the risk of the virus to the local community. In other words, depending on the severity of the virus within a community a business should refine their response plan to balance the safety of customers and workers, while keeping business open. The CDC encourages social distancing as much as possible, emphasizing those who are more susceptible to the virus should have minimal face to face contact with other employees ("Interim Guidance...", 2020). The CDC recommends informing employees of basic precautions to minimize their risk such as covering your mouth, limiting face to hand contact, and washing hands frequently ("Interim Guidance...", 2020). Commonly used areas should be wiped down frequently and if an employee contracts COVID-19, while employed, the facility should be shut down for two weeks and should have a deep cleansing by a professional company (Cleaning and Disinfecting Your Facility, 2020).

As the majority of states start to allow American businesses to resume, a general concern is what will the new process entail when a business begins to reopen. The CDC uses a three step process in order to reopen properly. The first step is to develop a plan that encompasses the facility of the particular business. This means identifying what materials the main surfaces are made of, what the high touch areas are in order to properly disinfect, and reduce as much contact between multiple people as possible (CDC,2020). The second step is to implement this plan, while utilizing all of the proper cleaning supplies. The last step is to maintain and revise the plan, this step may change as new recommendations are suggested by the CDC. (CDC, 2020).

As COVID-19 became a widespread pandemic, it was a matter of time before large manufacturing companies would be impacted. The manufacturing company that is the focus on this project is the largest employer in a small town located in New York State and has longstanding ties with the community. It employs approximately 650 unionized workers whoreceived hourly pay and 100 employees who received a set annual salary. It is one of the few companies in the US that still makes its original product line In recent years, the company opened up a second manufacturing plant in the southern United States.

Restrictions on the company

Shortly after COVID-19 hit New York State, Governor Cuomo issued an executive order on March 20th stating that retailers for the company's product lines are considered non-essential and should close immediately ("Governor Cuomo...", 2020). The company lost its retail market not only in New York but throughout the country given the provisions of the executive order. The company announced a temporary production halt as of March 20th, 2020 which affected approximately 650 union workers, a majority of employees. This was problematic because the company makes up one sixth of the local economy. The company is engaged in fulfilling government contracts for the federal government. These government contracts were entered into prior to the pandemic. Governor Cuomo's executive order stated defense contractors with the US government were considered essential ("Governor Cuomo...", 2020).   After the governor executive order forced the company to halt production, the company CEO stated in a letter to Governor Cuomo and President Trump that he was willing to use the facility to produce ventilators, surgical masks, and hospital beds. As of May 2020, this offer was still pending with government officials on the decision to proceed.

Approach

The goal of the project was to identify how workers were affected by the shutdown and to examine how the company planned to continue production in the context of the CDCs physical distancing requirements. To become familiar with the perspectives of workers on the shutdown and the process to restart manufacturing, I conducted 3 semi structured interviews with management and union employees. I had hoped to conduct additional interviews but this proved difficult due to reasons beyond my control. In the interviews I focused on questions such as:

How did you respond to the shut down? What measures were taken to enhance social distancing on the factory floor? To what extent has the company done an adequate job protecting its workers?

To identify what went into the decision making for the company to continue production under the circumstances, I focused on the following topics: plans for workers' safety, workers' attitudes to returning to the production line, and adapting to new regulations. Interviews were conducted by telephone. The interviews helped me explore the problems faced by a major company and how its employees reacted to the situation.

Findings & Results

Confusion Among Workers About the Status of the Company and Hiring Needs

On March 30th, 2020 the Trump administration contradicted Governor Cuomo's executive order that went into effect on March 20th with regard to the status of the company. The company had followed Governor Cuomo's executive order because the primary manufacturing plant was located in New York. The executive order gave the company no recourse but to furlough all 650 union workers until further notice. A union employee explained how the lack of agreement between the federal government and state government mandates was confusing for workers. Another union employee explained how many of the employees were left highly distressed as it was unclear if they would have a consistent source

of income.

On April 6th, 2020 company officials allowed approximately 260 union employees to return to work. The employees that wereselected to return to work had jobs related to fulfilling contracts with the federal government. These employees who worked to fulfill government department of defense contracts were furloughed on March 20th so management could create a new safety system around social distancing on the factory floor. These safety precautions taken by the company are discussed in the Health and Safety section below.

The company is partially open and is operating to fulfill government contracts. These government contracts were signed prior to the COVID-19 pandemic. The contracts had no relation to the Defense Production Act but were done through the typical federal procurement process. Working on the contract, means that only a third of the company's workforce, 260 workers are actively employed as of late April.

A local news station erroneously informed the public about the planned return to work and the status of the company as being a fully operational essential business. The station claimed, "The union representative for the company says more than 400 employees will return to work Monday after specific retailers were designated essential services by the federal government this week." This proved to be a misunderstanding and inaccurate and suggesting the broader confusion about conflicting policies.

The current furloughed workers, that is the 400 not working on federal government contracts, will not be returning to work until the executive order of the governor is modified to expand businesses that are considered "essential" or the stay at home order is lifted. As of May 9th, 2020, it is unlikely any retailers will be reopening in the near future in New York State. Governor Cuomo has split the state into 10 regions. The region where the company is located has met the 7 of the 7 benchmark requirements to open phase I of the steps to

Confusion Among Workers Cont.

reopen. In order for phases II, III and IV to open up all 7 benchmarks will need to be continuously met as the previous phase is open. Retail stores will open up if all 7 benchmarks are cleared for phase II (Spector, 2020).The seven benchmark requirements include:

1. 14-day decline in hospitalizations OR Under 15 new hospitalizations (3-day avg)
2. 14-day decline in hospital deaths OR fewer than 5 deaths (3-day avg)
3. New hospitalizations (Under 2 per 100K residents-3 day rolling avg)
4. Share of total beds available (threshold of 30%)
5. Share of ICU beds available (threshold of 30%)
6. 30 per 1K residents tested monthly (7- day average of new tests per day)
7. At least 30 contract tracers per 100K residents (Tracing the source of the local virus)(Spector, 2020)

Company employees who were temporarily furloughed or are currently still furloughed should have received, or will continue to receive, the standard unemployment benefits through New York State and a stimulus check put out by the federal government as stated in the CARES Act.

Company Adjustments in relation to COVID-19 Pandemic

Prior to the pandemic, production at the factory was limited by the number of machines available , not worker capacity. In mid-April, the company lacked raw materials and specialty wood products including various grades of walnut and high quality steel and thus production is backlogged by approximately one year.

The company's raw material suppliers are unable to keep up with demand because many of the supply chain workers are contracting the virus which is affecting production levels across multiple supply lines to the company. Almost all supply lines are based in the United States, not internationally. Current production at the factory is lower than pre-pandemic levels. The company is behind in production by 15-25% in comparison to this time last year. This percentage is expected to grow throughout 2020. As a result, the companycan not meet the provisions of its government contract.

Health and Safety

Management has stated that the company wants to reassure workers they are safe at work so they can focus on production to meet contract provisions. Officials noted the company is adhering to CDC guidelines following the standard social distancing protocol. This involves limited person to person contact, separation of workers, and spreading out shifts. Union employees noted that a typical shift would run from 6:30am - 3:00 pm prior to the pandemic. The pandemic shifts have been adjusted by fifteen minute increments based upon job groupings. For example, the employees who are working on a specific product enter the building at a certain time, while employees who specifically work with other specialty products enter fifteen minutes later. This helps limit the amount of traffic entering and exiting the building. This was one tactic used to promote physical distancing. Another tactic used by the company to utilize social distancing was to allow for only one employee to use the elevators at a time. Standard protocol for employees is to keep a minimal distance of six feet away from another employee. If a worker felt as if they were getting sick, the company's safety procedure follows the CDC recommendations which actively encourages sick employees to stay home, while informing the employees what the known symptoms of COVID-19 are at the present time.

If an employee did not feel comfortable with working due to the coronavirus, they would need a note from a doctor stating they are at high risk of negative effects if they contracted the disease. Sources mentioned these individuals would follow New York State Disability regulations.

Health and Safety Cont.

According to multiple union employees, on April 7th, 2020, it became known that an employee at company was diagnosed with COVID-19. As a result, the factory shut down for 2 weeks and employees were not allowed in the facility from April 7th - April 21st. A union employee who was scheduled to return to work on April 6th explained how devastating this was for him to experience yet another shutdown. A professional sanitation company was hired to decontaminate the entire factory. As of late April, a union worker stated, "the company was not supplying gloves and masks to workers". The same union worker explained that they were not even required to wear the standard gloves and masks. Another union employee emphasized that roughly only 50% of employees were wearing gloves and masks around the factory. If an employee wanted to protect themselves with a mask, they had to sign a waiver agreeing that the masks constricted oxygen flow. According to employees, the leadership of the company thought it was a risk to wear the masks in the factory. The workers thought management and corporate officials of the company were doing a poor job overall applying minimal standard safety protocol recommended by the CDC. The only positive remark given by the union employees was the company gave cleaning supplies to wipe down the workers' designated area before and after each shift.

The level of sanitation and decontamination to kill the virus has gotten mixed reviews. Union employees are concerned that factory cleaners and janitors have not improved how they clean the factory by increasing sanitation measures since the pandemic. According to management, the janitors and cleaners are still considered active employees.

Concluding Thoughts

Company management has sought to continue production while trying to keep their employees safe. Due to logistical challenges, from supply lines to a limited number of employees actively working, production has decreased in 2020 by approximately 15-25% thus far. With the shutdown of the plant on April 7th due to a COVID-19 exposure, the company should have taken an aggressive approach to screen their employees. Union workers explained how little change is being done in regards to their overall safety and argued that management could do a better job to ensure the safety of their workers. The research done on this one specific manufacturing company shows how difficult it will be to reopen the economy. This is a problematic situation facing many large scale companies across the United States.

The coronavirus has substantially disrupted society. To resume what we remember as a normal life will require from us resilience, determination, and more accountability. Post pandemic, a "new normal" of society will emerge. How we reach that 'new society' is a critical question for our future.

DETERMINING HOW COVID-19 HAS AFFECTED WORKERS

by Colin Gordon

Before the pandemic, having and maintaining a job was often stressful. A worker could fear being laid-off, not meeting deadlines, working long hours, and pressure from coworkers and bosses. Such stress could impair a person's ability to work, affect their health, and personal life (Segal, 2020; APA, 2018). Many workers didn't know how they would live paycheck to paycheck or if they could sustain themselves and their families. Many were concerned about losing their job and health benefits. In a survey completed by Salary Finance before the COVID-19 pandemic, 48% of workers surveyed were stressed about their financial situation (Rotondo, 2019). When COVID-19 appeared in the United States, workers' stress and struggles increased immensely.

Workers across social classes are struggling with this pandemic and are having to adapt to unique situations. Some are laid-off, especially unskilled workers, while salaried employees are adapting to working from home. Over 30 million people lost their jobs over the past 6 weeks (Associated Press, 2020). Forty-nine percent of Americans currently employed are now working from home and others, the ones considered essential, are still going into work (Kelly, 2020; Leer, 2020). The Department of Labor released its job report summary for April and it showed some staggering numbers that

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have not been seen since the last recession. Just in April, 20.5 million people lost jobs and the unemployment rate increased to 14.7 percent. This rate of unemployment has not been seen since The Great Depression (Schwartz, 2020). The government is enforcing federal policies and funds to help workers and business gain an immediate but temporary relief. CARES act primarily focused on the low- and middle-income families and small businesses. Many, however, worry about the future and if the effects of COVID-19 could lead us to an even worse depression (White, 2020).

Workers affected by COVID-19 can be grouped into three different categories: essential workers, people working from home, and people laid-off because of COVID-19. Each of these groups, represented in Figure 1, have been affected by the pandemic and are being forced to adapt to the new challenges.
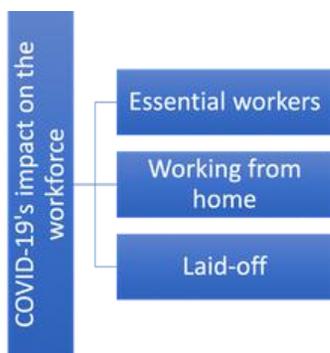
Figure 1. Infographic showing the breakdown of the workforce, during the pandemic, into three different categories

Essential Workers

Some workers are considered essential and continue to work during this pandemic. Essential workers include, but are not limited to, healthcare workers (doctors, nurses), media professionals, and emergency service people (KOMO, 2020). There is debate over who

exactly is considered an essential worker. While the federal government has issued guidelines, it is ultimately the states' decision on who is essential; workers and businesses that are considered essential can vary from state to state (Snider, 2020).

Many essential workers are low-wage, "unskilled" workers that work in grocery stores, warehouses, or pharmacies (Sultan, 2020). Without proper PPE, many workers are vulnerable to COVID-19 and have protested that they need better protection. They have also demonstrated the need for fair compensation and for mandatory paid sick leave (Sultan, 2020). Workers at Whole Foods stores, for example, claim that they have not been adequately protected with PPE, face a high risk for contracting the virus from working at the store and are demanding pay increases (Harnett, 2020).

An additional concern that essential employees have is how to protect their family and friends from infection (Flynn Jay, 2020). An Amazon courier named Oscar Morales explained BuzzFeed News that "When I get home I don't touch my kids… I don't touch anything until I get out of the bathroom" (Bubacz, 2020). Many other essential workers and their businesses are developing strategies to adapt to slow the spread of the virus, such as curbside pickups and limiting contact between employees and customers (Melin, 2020).

Working from Home

Any business that is not considered essential is telling its employees to work remotely if possible. Some workers such as hairdressers are not able to complete their job from and have had to close their salon or have been laid-off. The people who are able of working remotely are forced to alter their work

into a virtual office (Leer, 2020). Employers understand that the pandemic creates challenges for their workers but still need their workers to remain productive. Workers can struggle with the conditions of working from home and therefore may have a hard time meeting the demands of their job (Liang, 2020). Many people do not have a quiet office space at home, and some also have to entertain and watch their children during the work day (Booth, 2020; Pinola, 2020; Schrotenboer, 2020). Some workers may lack organizational skills or discipline that going into an office and having set work hours gives to an employee. Hence, they may work late into the night and be less efficient while possibly harming their life outside of work (Pinola, 2020). Also, workers can suffer from a lack of communication that was once present in the office. This communication is essential to many occupations and also a worker's mental health. A lack of communication can derail some assignments that need high levels of interactions (Liang, 2020). These factors that result from working at home can damage/lessen an employee's productivity. Workers are being asked to develop strategies to adapt to their new work atmosphere such as being more organized and developing a schedule (Booth, 2020; Schrotenboer, 2020).

Dr. Alex Vincent, who is the senior vice president at Lee Hecht Harrison Company (LHH), wrote about the adaptations that leadership and individual workers need to take to be successful to make it through this work-at-home consequence of the pandemic. He explains in his article from LHH that the management can play a significant role in their employee's productivity (Vincent, 2020). Management needs to give their employees clear roles, create a schedule of consistent meetings, and allow flexibility in their

employee's work day (Hernandez, 2020; Teo, 2020; Vincent, 2020). For individual employees, Vincent encourages them to find a space such as an office in their house, so they can separate themselves from distractions. Furthermore, he wants them to stay in contact with coworkers and management to help their social health and to stay on top of assignments (Vincent, 2020). Employees and their business can function properly during this pandemic, but adaptations such as the ones mentioned above need to be initiated.

Even with workers adapting to working from home, the economy and the businesses they are working for are still getting hit hard by the pandemic (White, 2020). Some sectors are struggling during this time more than others. Typically, people working in occupations in the mathematical and computer industries or the arts and design can complete almost all work responsibilities while working at home. However, food and transportation industry workers can struggle completing even 25% of their responsibilities from home. The responsibilities that are required by certain jobs such as driving a bus cannot be completed remotely and thus the workers risk losing their jobs. This can harm the entire economy and lead to more workers being laid off, specifically workers in occupations that struggle the most while working at home (Adams-Prassl, 2020).

Laid-off Workers

The final category of workers that I identified are workers that have been, or are at risk of, being laid-off; this includes up-to one third of the United States workforce (Kelly, 2020). Approximately 80% of people that have been laid-off are low-income workers that live paycheck to paycheck (Lund, 2020). Losing a job for the working poor can lead to eviction, having water/electrical bills cut off, and loss of

health insurance. For example, only 69% of apartment tenants had paid their rent by April 5 in a study across the nation, which is down from 81% the previous month. Many of these people are likely to be evicted if they cannot continue to pay rent (Semuels, 2020). Apart from many small businesses that were forced to lay-off their employees, many larger companies are starting to lay-off their employees as well. Lyft, for example, is laying-off or furloughing 1,270 of its employees, which is 17% of the company. Along with Lyft, other companies that have recently started to lay-off thousands include Boeing, Hertz, and Trip Advisor (Borden, 2020). Many of these jobs cannot be done at home and so increasingly companies have to lay-off workers (Borden, 2020).

Typically, these lay-offs and furloughs will start with the lower salaried employees and younger, less experienced workers. Also, the lower salaried employees typically have responsibilities that cannot be completed at home because many of their jobs require more hands-on work than working on a laptop like higher salaried employees (Adams-Prassal, 2020). Less experienced or new hires have been the first to go during these lay-offs. The young generation of workers are at a large disadvantage currently and this pandemic can possibly harm their ability to find jobs in the future. Many do not have savings or other advantages that people who have been in the workforce longer may have (Adams-Prassal, 2020).

Many of these workers are now having to apply for government relief services, such as unemployment, and may barely get by during this pandemic (Kelly, 2020). For example, 30,000,000 people have filed claims for unemployment, many of whom do not have much in the way of savings and thus need

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unemployment funds to get by during and likely after the pandemics (Associated Press, 2020). The government is giving $350 million to small businesses as part of a payroll lending program (CARES act), which is part of a larger congressional stimulus package. Certain small businesses are using this program to keep employees on the payroll, but in many circumstances, this will only pay employees for a few weeks (Segarra, 2020).

Methods

The goal of this project was to determine how workers were affected and have adapted to the challenges and struggles that COVID-19 presented. The questions I pursued in my research focused on people's work life before the pandemic, the impacts the pandemic has had on work, how people adapted to the changes in their working life, and how they see the future of work for themselves and others.

I completed 14 interviews with workers from different occupations and at different stages in their careers. I used a stratified sampling strategy to identify people from the three working groups mentioned in the background chapter. I interviewed family, friends, and people around my town. To enlarge my sample, I used a snowball sampling strategy, and asked every interviewee if they knew anyone else that would be interested in being interviewed. The interviewees occupations are listed in the table below. I gave each interviewee a pseudonym for reasons of confidentiality.

Interviews

1. Research professor at a University, John
2. Photographic Journalist at a private newspaper, Sarah
3. A small bed and breakfast owner, Margret
4. An assistant manager at a bed and breakfast, Emma
5. Volunteer coordinator and instructor at a non-profit therapeutic horse facility, Ava
6. A retail manager at a non-profit organization, Charlotte
7. A former manager at a gear rental company, Liam
8. A self-employed business owner of a successful dog walking business, Sofia
9. A hospice social worker, Amelia
10. A worker at a dog training company and a yarn shop, Emily
11. A former worker in a casino's finance department, Joe
12. The owner and instructor at a tennis complex, Ben
13. The director of global aviation and vertical development at a logistics shipping company, Mary
14. An owner of multifamily housing units, Mason

Figure 2. Table of interviewees' occupations

I used a prepared set of questions for each interview, but I diverged from the questions periodically to probe deeper into people's stories and reflections. The interview questions that I created for each interview can be found in Appendix A-N. During each interview, I took notes and summarized each interview. After each interview, I reviewed the notes I took and added important information that I missed while listening to the recordings. I also recorded each interview, only 4 of the interviewees felt comfortable with me quoting them or using the transcripts for more than just my notes.

Findings

Across all the interviews, words and phrases that signified 'stress' emerged. The interviewees talked about how the pandemic has brought a lot of stress for themselves and their family, especially when having to handle work on top of staying healthy. This stress stemmed from an increase in workload, from constant cleaning, phone calls, and planning/strategies for the future. Others were stressed about how they could get work done with their family around or without face to face communication with coworkers.

Challenges helping hospice patients and their families

Amelia, the hospice social worker explained how she was stressed at work because of the increased number of hospice patients and their grieving families. She stated that "nothing changes economically for my business because people keep on dying, however, what did change was the abilities of families to fly in from out of town". Almost all of her patients could not have families travel to see them because of the virus, which made the hospice worker's job much harder to help both the patient and grieving family. This forced her to constantly be on the phone talking with families from across the US.

Struggles faced by workers at risk of being laid-off

The bed and breakfast assistant inn (the inn is pictured in figure 3 below) manager, Margret, is at risk of being laid-off. She, along with other interviewees that were laid-off or at risk of being laid-off, all felt the stress of trying to figure out what to do without a job. They wondered how they would pay bills or if they could come back to that job when the pandemic was over? She and other interviewees in her position were worried primarily about the impact that losing their jobs would have on them and their families. Many of these interviewees, in particular, Emma, the assistant bed and breakfast manager, Emma, were concerned about the possibility and reality of their worst possible situation. Margret told me how initially she felt people were overreacting to the virus, but in time, she understood their fears and felt it was smart to close the bed and breakfast. But she has realized that things are not going to be getting better and back to normal in the near future. She was working part-time and did not have a plan if she was laid-off besides applying for unemployment; she was anxious about her current situation and the possibility of losing her job in the future.

Figure 3. Picture of the bed and breakfast where Margret and Emma work

Difficulties managing multifamily units from afar

Landlords are facing dilemmas as to how they can manage and continue to rent out their units to people who have been laid-off and are struggling during the pandemic. On participant in the project, Mason, who owns many multifamily units, was concerned about managing his properties. Before the pandemic, he typically flew down to his properties every

few weeks to check on their maintenance and to talk with the management that he had hired to run them. This was atypical for someone in his position but he did so, because he mistrusted the management because of stories he was told by friends about things not being completed correctly. When the virus hit, he was not able to travel down to his properties and now has to hope that the management there is doing its job, which is something he finds unlikely and stressful. His multi-family homes are typically rented out to working people, so many of them cannot and are not paying rent right now. He explained that trying to work with his tenants during this pandemic is frustrating because many are not responding to him. He is concerned that he may have to evict them and that he may have to default on his mortgages on the properties.

Loss of social connection

For participants who are working from home, five said that they were grateful to be able to work, but missed the social contact with coworkers at workplaces. Even though all five of these workers had ongoing webinars and screen contact with coworkers, they still felt a lack of social contact which made them feel isolated and alone while working at home. One of the interviewees, Joe, who previously worked for the financing department at a casino noted that although he was able to talk to coworkers through video calls, he still missed the face to face interactions. The owner of a tennis facility, Ben, noted that now that he had to close his facility, he is thankful that technology allows him to keep in contact with coworkers and some of his students. Four of the interviewees that were laid-off from the start of the pandemic felt completely isolated because they do not have the social contact even of webinars or phone calls with

coworkers. Joe explained that he has decided to retire after being laid-off, but was sad and the idea made him lonely that he was not going to be able to say goodbye to many of his coworkers/friends and have that typical last day at work celebration before he retired.

Concern with spreading the virus due to work

The seven essential workers I interviewed, described being scared or worried about catching and spreading the virus to others. Amelia told me that she was not provided with PPE even though she worked with sick patients, many of whom came from hospitals that had COVID-19 patients. While she stuck with her job, many of her coworkers quit out of fear of contracting the virus. The photojournalist, Sarah, that I interviewed told me that she still went out into the public daily and talked to people as part of her job. She is scared of contracting the virus, but is taking precautions such as cleaning her equipment and wearing masks.

Adapting to a New Work Demands

Each interviewee, even ones that still go into work, said that their work life has changed dramatically. They all identified struggles that they are facing and are figuring out ways to adapt. These struggles involved focusing on work while at home, staying safe in public while working, keeping their job or business open, and figuring out ways to stay in contact with clients and coworkers, some of which I mentioned in the previous sections.

Work-life for a non-essential worker

Four of the interviewees emphasized how the type of work they are currently doing has changed from what they previously did before the pandemic. Margret and Emma are currently

still working, thanks to the payroll lending program loan they obtained. But the work they are currently doing involves more cleaning, developing online services, and creating strategies for how they can attract people to stay with them when the pandemic is over. Margret mentioned how she is spending more time completing activities that previously got overlooked when they were busy, but that these tasks were not directly related or needed to bring money into the inn. Ben told me that his tennis facility (pictured in figure 4 below) has closed and is not bringing in any income. Like Margret, he and some of his employees have been supported by the payroll lending program, so he can keep some of his workers employed. He now does a lot of volunteer work with the USTA (United States Tennis Academy) to help create strategies for tennis to be played while people stay safe. He explained that even when he can reopen, he will have to have smaller lessons and have less people on the court to adapt to staying safe from the virus.

Figure 4. Image of the tennis facility that Ben had to close

The instructor and volunteer coordinator, Ava, who works at a non-profit therapeutic horse facility talked about how her work has changed. Before the pandemic, she helped organize and train volunteers to take care of the horses, working with anywhere from 50-70 volunteers. She also was an instructor and helped teach the students (children and adults with disabilities) about nature and horses and helped them ride and make a connection with the horses. Once the pandemic came, the facility had to close and students could not come for therapy anymore. She has been able to stay on board with the company for the time being. She now does a lot of virtual learning for her students and creates educational pamphlets for her volunteers, so they can remain informed about how to care for horses. She has tried to stay in contact with her students as many of them have made connections with the horses and instructors. To do so, she and her colleagues have developed webinars and virtual sessions to have the students continue to learn and 'see' the horses. She feels fortunate that she has been able to adapt to work remotely, but also worries how long the non-profit will be able to remain viable.

Emily, the person who worked at a dog training company and yarn shop has also changed what work she is able to complete while working from home. Typically, she would work in the yarn shop helping customers and completing yarn projects, but when the pandemic hit she moved to working virtually on the shop's website and tries to help customers through email with their questions. She says "it's difficult to work on a project that a client is struggling with remotely, but it has been a good opportunity to get more of their inventory online". In terms of her job at the dog training facility, she was laid-off because there was not any work for her. She is doing all the work for the yarn shop voluntarily. In this particular circumstance, she feels lucky because her husband has a full-time salaried job so she currently does not have to be preoccupied with finances.

Challenges and adaptations involved with working from home

The six interviewees that work from home mentioned that they found it hard to focus at home especially in the beginning of the stay at home order. Some described a lack of motivation because they are around their family, pets, TV, and food. John, a research professor described how he had to create a schedule during the day to stay focused. He also created a space that can be quiet but also comfortable to complete his work day after day. He also is not able to complete research and experiments right now, as they are all put on hold. So, in terms of his work, he does more editing of grants and papers than completing new research. Similarly, Mary, who works at the logistics shipping company told me that she had an office space in her home to do work, but she actually preferred to work in the kitchen. She does not have children that are at home and felt that working in the kitchen was more comfortable for herself. She feels that her particular situation, working from home, has improved her productivity which she noted was a good sign for the company. A large portion of her job involved offering developmental services to supply chains, meaning she would help improve supply chains. But now most of the supply chains are just trying to stay running, so her work has become more focused on helping them run. Also, she did feel that her social life was harmed because she was not experiencing the face to face contact that she used to have. She finds herself working at night frequently, checking emails and editing etc. when she happens to walk past her laptop and feels the need to work. Creating a schedule and planning has helped her balance her work life and limited social life.

Adapting and staying safe as an essential worker

The essential workers (3 of the interviewees) described how they are adapting to staying healthy and safe while going out in public to work. Sarah, the photojournalist, felt that her work has increased because "people are paying attention a lot more [to news], and that people want to get their information from a local news source [such as hers], as it will cover what is going on in their town and community". She also does not travel to or meet people with a fellow reporter, and she now talks to the people over the phone to avoid social contact. She is more cautious in the types of pictures that she takes as well. She takes many more portraits of people from behind a window and rarely goes inside to meet with people. Figure 5 shows two pictures that Sarah has taken during the pandemic. She also wears PPE and cleans her clothes and showers immediately when she gets home.

Figure 5. Pictures that Sarah has taken during the pandemic. Credit Sarah Gordon / The Day

Future Concerns for Work-Life

Throughout all of the interviews, no matter the types of questions that I asked, the people were concerned for the future as the pandemic continues and what the aftermath will be like for themselves and the country. For those with secure jobs, they were less concerned compared to others about their financial

situation or losing their jobs. Typically, the interviewees that held low salaried jobs were laid-off, while the higher salaried interviewees continued to work from home, which is consistent with findings from studies noted earlier that claim that people with lower income jobs cannot work from home because their job are more hands on are more likely to get laid-off. All the people I interviewed said that depending on how long the pandemic continues and how long people are forced to stay home, they feared things would become worse and they would need to find new ways to adapt. Some felt the economy would crash and that would put themselves and their coworkers out of work. Four of the interviewees were concerned about when they do return to work what health risks they will face and if there is likely to be a second virus outbreak. For example, the retail manager at a non-profit, Charlotte, said "I am concerned that we'll go back to work too soon and that the team won't feel comfortable enough to work".

Problems with continuing to work from home

John who is currently working at home explained that he worries about how long research and experiments can be put on hold. He also has concerns over future grants. He explained that it is hard to informally talk to coworkers, which is where a great amount of new science ideas come from. While he does meet with colleagues consistently, he thinks it will be difficult to write new grants with new colleagues or even obtain grants in the future because of the halt on current experiments. Mary who works at home, told me that she is worried about how long she will have to work remotely. She said that the most important part of her job previously was to travel and see people face to face to help develop their supply

chains. She explained that she has been able to work remotely for the time being, but believes that travel is still an important part of her job and hopes to be able to do that again soon. In her case, her company did not have a work at home policy before the pandemic, but from this experience, she fears that they may develop a policy to have employees work at home. She personally would not like that idea because she enjoys traveling to supply chain locations and meeting with people face to face, which she finds are still more efficient and useful than virtual. Typically, in my interviewees with the higher salaried interviewees, like the logistics director, they expressed that their jobs can be completed partly at home and there is a possibility that will continue in the future.

Anxiety about staying employed

As the pandemic continues, more people are becoming unemployed. Sarah told me that she had pretty good job security, but felt that many of her coworkers would be laid-off in the future because the newspaper would lose revenues because companies that advertised in the paper were either going bankrupt or didn't have the money to spend on advertisement. Many on the newspaper's marketing team do not have much work and will likely face lay-offs in the future. The newspaper did obtain a small business loan, so she feels that she has some job security for the next two and a half months. Joe told me that he did work from home for weeks during the quarantine, but as the effects of the pandemic became more pronounced it was not possible for him to remain at work so he was laid-off and subsequently decided to retire. Luckily for him he was already planning retirement so he was prepared.

The former outdoor gear manager, Liam, explained that he was worried about getting a job when the restrictions are lifted and people

can leave their houses again. For his particular circumstance, he was planning on moving to another state in May, which increased his concern for getting a new job after he moved. In his particular case, he was able to obtain unemployment benefits and for him the amount he is getting for unemployment is surprisingly more than he earned working at his outdoor adventure shop. So, while he does have concerns over getting a job in the future, he feels pretty comfortable about how he is doing currently. As time moves on and his savings and aid dwindles his hopes that by then he will be able to find a new job or possibly return to his previous one.

Thinking about the long term

All of the people I interviewed have started to reevaluate what their current work life is or to think more long term about their career than they had previously. Workers late in their careers are deciding to take early retirement and apply for early social security benefits. This applies to names for all financial worker at the casino, the hospice social worker, and the worker who owned a dog sitting business. Name said that she decided to apply for early social security because it was the only source of income she could currently obtain. She said that she also applied for unemployment but was not sure if she could obtain it because she was self-employed. These three-people emphasized that the pandemic has made them look more closely at their life and reevaluate if they wanted to continue working especially if that work becomes increasingly stressful during and after the pandemic.

Concluding thoughts

In the course of this research, I heard and saw the exhaustion and stress that people have been feeling during this pandemic. But I

also observed a few interviewees who talked about how they were hopeful for the future and that "we would make it through these rough times". Many people conveyed how they were grateful for their personal situation and understood that some people are having a much harder time. The effect the pandemic has had on different generations was also interesting. While everyone was concerned over some aspect of their work-life, younger people were more afraid of how it would affect the future careers. I found that each person I interviewed had a story that was unique helped be understand how COVOD-19 affected people differently.

Personally, this pandemic has presented obstacles for me as well. I found it difficult to remotely work at home on this project, especially in the beginning, but like many of my interviewees I was able to adapt and apply strategies to get work completed. I think that talking to people after the pandemic is finally over and gauging their stories then would be very interesting to see if they feel any different from when I interviewed them originally.

Special Educator Experiences and Adaptations During the COVID-19 Pandemic

By Madeline Blake

Two weeks was all that New Hampshire (NH) teachers planned for. Students were supposed to return to the classroom two weeks after the March 15th order was issued to move to online education due to the spread of COVID-19 ("Gov. Sununu moves all NH schools to online learning", 2020). After multiple extensions, online learning has since been extended for the remainder of the school year (Sexton & Cronin, 2020). Having only planned for two weeks, most teachers have been thrown into a scramble every time the deadline was lengthened.

While the stay-at-home order is in effect, teachers must determine new means of teaching in order to adapt to the online platforms (State of New Hampshire, Office of the Governor, 2020). General education classroom teachers are not the only educators included in this. Due to the Free and Appropriate Public Education (FAPE) rights of students, special education teachers and providers have to determine ways to continue to teach and provide services to students with disabilities, or else school must be cancelled (United States Department of Education, Office for Civil Rights, 2020). This is no easy task as special educators must incorporate different strategies to continue to provide in person one-on-one services, like physical therapy. Additionally, they need to determine ways to virtually connect with students who are nonverbal or are medically fragile and are typically more complex learners.

Through conducting a series of interviews with various special educators and special education service providers in a NH school district, I identified the various strategies that special educators and service providers used to address the social and pedagogical limitations of remote learning, as well as how they have been able to support each other in a time of isolation. I learned how teachers and service providers adapted and changed their pedagogies, and that many of them have a new understanding and appreciation for technology and will use it more in the future once school returns to the physical classroom.

Challenges Transitioning to Online Learning

With the executive order coming so suddenly from Governor Sununu, the public school districts had little time to prepare how they were going to shift to remote learning (New Hampshire Department of Education). Some districts faced the complication of limited student access to needed technology, and in others, it was simply a race to make the transition as smooth as possible (New Hampshire Department of Education). Transitioning to online teaching and learning is no easy task, specifically for K-12 teachers who have never been asked to do it before. Researchers have found that the challenges teachers face in shifting to online teaching can be grouped into three categories: learner, instructor, and content (Kebritchi, Lipschuetz & Santiague, 2017). Issues surrounding learners are similar to those in face-to-face environments, such as the level of participation and the students' willingness to learn. Instructors face the challenges of changing their role and teaching style, and as a result of the changing position, content delivery must be modified through multimedia means (Kebritchi, Lipschuetz & Santiague, 2017). However, one of the biggest challenges is the willingness of teachers to change and adapt their pedagogy (Choi & Park, 2006; Koehler, et al., 2004; Mayes, et al., 2011).

Kebritichi and colleagues found it often takes teachers up to two times longer to prepare an online course as opposed to a face-to-face course. In order to make the transition to successful online teaching, teachers must be willing to change the delivery of their content (Koehler, et al., 2004; Li & Irby, 2008). Many traditional classroom teachers are resistant to the online shift because they do not feel qualified, or do not feel like it fits into their teaching style, but the global pandemic of COVID-19 leaves little room for resistance (Koehler, et al., 2004). Classes can be tailored to the exact needs of the student, however, in order for online schooling to be successful, both the student and the teacher must buy into a system that relies on technology (Coppola, Hiltz & Rotter, 2001; Greer, Rowland & Smith, 2014; Mayes, et al., 2011).

Traditional Special Education

According to the Individuals with Disabilities Education Act, special education is defined as "specially designed instruction, at no cost to the parents, to meet the unique needs of a child with a disability" (United States Department of Education, IDEA, 2017). These disabilities include cognitive and physical disabilities, or a combination of both. To help students with disabilities, teachers, together with physical and occupational therapists, speech pathologists, and other service providers work to create and carry out a student's individualized education program (IEP). An IEP is a statement of the child's current academic and functional abilities that also includes goals for the student and plans to follow for the student to reach each goal (United States Department of Education, IDEA, 2017). How often and to what degree these professionals are involved is typically determined by a student's disabilities. Some students need constant one-on-one support, while others only need help to plan and organize their studies. The IEP considers individual students' needs (United States Department of Education, 2000).

Teachers and service providers are required to continually assess student progress in relation to the goals of the IEP (United States Department of Education, IDEA, 2017). Depending on the service provider, these assessments can take many forms. For example, a physical therapist will need a more hands on assessment while a speech pathologist can use

auditory assessments. The strength of this approach is that IEPs are individualized and assessments are ongoing, but during the pandemic and distance learning these "strengths" can be challenging to put in practice (United States Department of Education, IDEA, 2017). The plans for each student are thoroughly laid out, and schedules can be very rigid, making sudden changes in programs difficult.

Special Education During COVID-19

With the NH governor's order to transition to online schooling, special educators found themselves figuring out how to continue each student's individual education program, no matter how difficult the case, in order to ensure every student a free and appropriate education (United States Department of Education, Office for Civil Rights, Office of Special Education and Rehabilitation Services, 2020). Along with the challenges that come with transitioning general education to online learning, special educators are also faced with concerns for transitioning their students with disabilities into an online platform. Some of these concerns include delivering the lesson according to their IEP, the inability to evaluate a student, and an increased demand on parents to play a more central role in their child's IEP, which has led to increased stress on

the parents (Burdette, Greer & Woods, 2013; Greer, Rowland & Smith, 2014; Tindle, Mellard & East, 2016).

Studies have shown, however, that various technologies, like vendor-based curriculum and video conferencing software, and alternative practices, like including parents, can ease the special educator into the online format and help them deliver the lesson according to the IEP modifications (Greer, Rowland & Smith, 2014; Tindle, Mellard & East, 2016). However, one of the drawbacks with including parents is that educators include them too heavily, so the parents become frustrated doing a job they think the special educator should be doing (Greer, Rowland & Smith, 2014). Due to the nature of student evaluations necessary for updating IEPs, and the standards they need to meet, it is often impossible for special educators to evaluate their students' progress because they cannot be certain that the child did not receive help, or was prompted correctly (Burdette, Greer & Woods, 2013). This makes it difficult for the special educator to keep progressing the child according to their IEP because they are unable to determine, with certainty, how much the child is retaining due to the online format.

Many published studies, discussed above, focus on special education environments that are purposefully online or in a blended format. The studies analyze potential challenges special educators and service providers might face, but there is a lack of case studies showing successes and failures of remote special education. During this pandemic, special educators must continue to adhere to the guidelines and policies of the school, making it more difficult than those who are in a purposefully online or blended format. This project aims to discover the novel ways that special educators and service providers have

been able to adapt their curriculums and services so that the children on their caseloads are able to continue making progress throughout these uncertain times.

Methods

The main research question of my project was how and why special education teachers altered their pedagogies to enable students to learn and progress given the limitations of distance learning. I also explored the following questions:

- How do special educators and service providers include parents in the activities for the students?
- How do special educators and service providers modify their education plans when they are traditionally more "hands-on"?
- To what extent will special educators and service providers continue to use lessons they developed during distance learning in classes once schools reopen?
- What successes and failures characterize distance learning, and how has the experience of distance learning affected the educator personally?

I conducted interviews with nine special educators and service providers within a local NH school district including occupational therapists, physical therapists, teachers of the blind and visually impaired, special education teachers, intensive needs case managers, and speech pathologists. The interviews took place over Zoom, phone calls, and Google Meet, which is a video chat that the district is using during the COVID-19 changes.

The interviews included a series of guiding questions that prompted the special educator to talk about the different ways they have had to adapt their teaching styles and student

programs to fit the constraints of remote learning. Questions included the amount of time they spend modifying lessons, challenges, stressors, reliance on parents, as well as some new lessons they have learned and will use once online school ends. A full list of interview questions can be found in Appendix B. During the interviews, I used voice memos on my iPhone to audio record the conversations.

Following each interview, I transcribed the audio recording using otter.ai software, coded the data, and found powerful quotes. The information gained from these interviews helped me to better understand the impact that COVID-19 is having on special educators, both with their home life and in their communications with students, and how they are able to deal with the challenges it presents.

Findings

In the course of the interviews, I noticed that the project was becoming more of a reflection of people's attitudes and outlooks rather than an inquiry into their pedagogical adaptations. These special educators were given no templates of best practices and were put in a position to be an online teacher with little time to prepare. For many of the special educators, most of the challenges did not come from teaching a student or providing services; they came from other factors, like balancing family and work life, and doing paperwork. In this section I discuss some of the challenges faced by special educators and service providers, as well as the various accomplishments and perspectives they have gained.

The Never Ending School Day

As one special educator put it, "in twenty-three years of education, I have never, ever, worked harder". This was one of the most prominent themes from the various conversations I had with special educators. All of the educators and service providers are working harder than they have ever worked, and most of them are working significantly longer hours. This does not suggest educators were not working hard prior to the online shift because every single professional noted or expressed their passion for their job, and their desire to succeed. These long hours full of stress were clearly taking a toll on them as many expressed the desire to return to school, and to "never sit behind a computer again".

While many frustrations arose from the shift to online teaching itself, the top two recurring frustrations included the inability to assess students, and the endless documentation of the services being provided. This finding aligns with much of the research on the difficulties of special education in an online format: the concern of not being able to assess a student's progress. The inability to assess students stems from a variety of reasons. Some educators can attempt to assess a student by simply having a conversation with the student, but in the context of online learning the data has to be taken with a grain of salt because of the potential for a parent to help the student from behind the screen. One special educator said that this kind of parental intervention is usually unintentional, but the assessment cannot be deemed reliable because of it. One of the biggest reasons the special educators and service providers were not able to assess a student was because of the inability to have physical contact with the student. This was most apparent for the physical therapist, because a lot of her assessments have to be hands-on to analyze how the student is progressing. Due to the inability to accurately monitor progress, the special educators and service providers found it

difficult to determine if the student has mastered their goals. This undermines the intent of an IEP as it is a document that changes at least yearly and is dependent on the student making attainable progress.

Along with the challenge of assessments comes the challenge of documentation. I was surprised to find that the special educators were saying that most of their time was not spent on teaching or planning, but with documenting all of the services they provided to the students. Many of the special educators have a paraprofessional, or educational aide for one to one support of the student, to help file and organize this documentation in school. While school was shifted online that help was gone. The documentation had also gotten more extensive because the teachers and service providers needed to be able to prove what the student was provided in case the parent decided to take the school to court for violating FAPE. The educators and service providers had to keep track of data to show how long the sessions were, what was accomplished, what work was given to the student, and how the student engaged with provided service. Instead of being able to focus all of their time and energy on the students, special educators and service providers were drowned in paperwork.

A Family Effort

It was interesting to discover that many of the special educators and service providers did not modify the lessons and service routines they provided to students, only how they provided them. Various educators used Google Classroom with videos and Google Forms to help the students, along with meetings via Google Meet. These platforms were used for the higher functioning and independent

students. For those who were much younger, or less capable, the special educators and service providers noted significant parent interaction and intervention. In cases with intensive needs students, the special educators and service providers taught parents how to teach their children, or how to stretch their child in the case of physical therapy. All of the educators acknowledged the difficulties that parents and families are facing during this time and recognized that the inexperience of the parents affected the success of the child. Teachers tried to be realistic with their expectations to not add too much stress to the parents' already strenuous situation. One special educator told a story of a parent in tears over Google Meet because of the difficulties their child was facing with the transition. In order to soothe some of parental concerns, some educators provided help for the parents, like recommending chores for the student or by providing videos of story times to help occupy the child.

Teachers are Parents Too

While the special educators and service providers worked with parents for much of the day, many of them are parents themselves, and to small children no less. On top of having to work with students online, many of the

special educators and service providers had to help their own children with online school or had to keep them occupied as they are too young to even be in school. This balance of home and work life was something many of the educators talked about struggling with. Those with very little kids worked in shorter increments, or late at night. Even those with older and independent kids struggled to put the email aside to be present with their family. Some of the educators attempted to maintain a rigid schedule of work, but their passion for the students and their work did not allow them to put work away.

Little Successes

It was very easy for the special educators and service providers to talk about their frustrations and negative feelings that they experienced from the shift to online learning. When prompted with a question surrounding positivity or success many of them lit up and were eager to shift the conversation into a positive light. One of the biggest personal successes the special educators talked about was their new capabilities with technology. Many of them had feared the use of the various Google platforms because they did not grow up with technology, but are now considering using them more in school and when they are absent. They embraced the learning curve, and many of them were very proud of their new expertise. The special educators have also found benefits accruing to their students. Some spoke of the ability for some students to achieve more in school because of the lack of distractions that the student would typically face in a classroom. Others spoke of the students finding the ability to advocate for themselves while gaining more

independence from teachers and parents. This was the most apparent in stories from the teacher of the blind and visually impaired when she described first and third graders being capable of going through all of their braille supplies to get the materials she asked for, whereas in school these materials would be laid out for them. The special education teacher also touched upon the topic of independence describing a student who was doing multiplication table flashcards on their own when this form of studying was typically performed with the teacher.

One of the greatest successes found by the special educators and service providers was the parents recognizing the hard work of teachers and service providers. When the special educators and service providers acknowledged the parental appreciation they received, it was almost like they were able to take a breath because there was finally recognition for all of their past and present hard work. The parents were finally able to understand what goes on with their child when they are at school. Especially in this difficult and stressful time, the extra parental support was a light in the educators' lives.

Differences

While the majority of the special educators and service providers spoke about similar themes and experiences, there were a few interview topics that stood out. Some of these differences came from the nature of their profession. For example, the physical therapist spoke about using her son to demonstrate various movements and stretches that the parents needed to assist their child in doing. Using other people to demonstrate actions was a form of teaching none of the other educators

used, but it made sense for a PT. The teacher of the blind and visually impaired explained a scenario where she had to teach students how to read braille page numbers very quickly so that they would be able to find the right pages in the workbook she sent home. This was a case where the educator had to jump through curriculum quickly in order to stay on track, while the other educators and service providers were hesitant to even move forward slowly. Some of the special educators that worked with more high functioning and independent students experienced frustrations surrounding too much independence of the student. Many of their frustrations came from students not showing up to their Google Meet sessions, or from walking away from the screen and never returning.

Aside from the differences in teaching methods or experiences, there was one difference in perspective that really stood out to me. One of the intensive needs case managers that I interviewed described the timing of this situation to be the best in terms of where it was placed in the school year. She explained that due to the shift to online learning at the end of the school year, there is a lot less education lost. This is because the last quarter of school in this district is typically filled with year end celebrations, review, and field trips. Although students are still receiving education and services during this time, there is more emphasis on student socialization and tying up loose ends. The case manager went on to say, "[Students] don't realize that [they] are learning in the last couple of weeks of school. [They're] learning, but [they're] learning through other avenues". It was made clear that this shift to online learning gives even more opportunities for students to learn

and practice functional skills through different avenues, like cooking with parents or exploring outside. For a lot of the special education students, these functional skills are very important to improving their lives. Many of the other special educators I interviewed put so much stress on all of the learning opportunities that the students were missing out on, but this case manager was able to take a step back and find a light in all of this educational turmoil.

Outlooks for the Future

There is no doubt that this sudden shift to online schooling will have an impact on the education system. Many of the special educators and service providers expressed concern for their students not progressing or even falling behind. All of the educators want their students to achieve at a high level, and to continue to gain skills to help them live a fruitful life, so this sudden pause in progress created an uneasy feeling among the teachers. Some of the special educators and service providers managed this feeling with the idea that when looking at the bigger picture, the entire world is experiencing this shift in education, so in the end it is only important to do the best that one can. One intensive needs specialist had a particularly positive outlook

when she said, "We're all in this together, and I think we're really going to come out stronger because of this". She emphasized the appreciation for the little things that we are all going to have, and that there is no more complaining to go to work on a Monday morning because we will remember when we were not able to leave the house.

OUTDOOR SPACES

THEIR ABSENCE. THEIR PRESENCE. THEIR POWER.

CHAPTER OUTLINE

Introduction

As millions of Americans anxiously isolate themselves in their homes, many have found the outdoors as a place to safely spend time, to get fresh air, and to break the monotony of the day (Curwood, 2020). Many people have turned to neighborhoods, state parks and hiking trails to get fresh air, exercise or to just enjoy the nice weather while social distancing (Childs, 2020). Although many Americans have used the outdoors to cope with the pandemic, various national parks, state parks, and recreational areas have been closed as a means of slowing the spread (Beresini, 2020). Many states with stay at home orders are determining the careful balance of allowing recreational use of outdoor space without encouraging transmission of Coronavirus among patrons (Wiens, O'Keeffe, Ma, 2020).

The urge to spend time outdoors has been a topic of research for many years. Popularized by the psychoanalyst, Erich Fromm, in the 1960s and later published as a hypothesis by the biologist E. O. Wilson, biophilia is a commonly used term to describe the tendency of humans to be associated with nature (Rogers, 2019). Biophilia is also known as a love for life, and argues that people are drawn to living environments rather than inanimate spaces (Wilson, 1984).

Time outdoors, proves to be an outlet at this time to relieve the onset of fear and pain caused by this pandemic (Taylor, Young, 2020).

Stay at home orders can make us feel helpless and alone, despite the digital connections of Zoom or Facetime. Spending time outdoors has proven to increase the ability to concentrate, and lower levels of stress, sadness and anxiety (More, Payne, 1978 & Michael, Hull, 1995). Outdoor spaces ultimately serve as a counterweight to the mental challenges we face while staying at home.

This cluster of three projects explores the power of the outdoors during the pandemic.The first project, "A Controversial Journey: The Impact of COVID-19 on Appalachian Trail Thru-Hikers" explores the stories and experiences of 2020 AT hikers who had to alter their plans due to the pandemic. The second project, "Mindfulness Amidst the Madness: Finding Nature from Home" is an explorative study that investigates the way in which we experience nature when forced to practice safe social distancing from our homes. The third project, "A Look into the Role Nature Plays on Daily Life During COVID-19", explores the impact the outdoors has on people and how nature makes it easier to cope during the pandemic.

A Controversial Journey: The Impact of COVID-19 on Appalachian Trail Thru-Hikers

By Emma Bennett

The journey of hiking far off the beaten path has been seen as a means of self-discovery (Berg, 2015). This is why, in part, many people find themselves longing to hike the Appalachian Trail (AT). Extending over 2,000 miles, the route stretches from Northern Georgia, to rural Maine. As a long and strenuous journey, this trail has opened the doors for many hikers to experience self-fulfillment (Goldenberg, Hill, Freidt, 2008). Yet, for the AT Class of 2020 the Coronavirus pandemic is forcing many hikers to make tough decisions about their thru-hikes (Trail Updates, 2020). With COVID-19 standing in the way, thru-hikers will not be able to experience the journey they once dreamed of. This project examined the impact COIVID-19 has had on Appalachian Trail thru-hikers this year.

Why Hike?

The snap of a twig breaking beneath the brute force of a hiking boot, the trickling of a stream running besides the trail, a path carved out in the Earth from the many who trekked before, all contributing to the feeling of freedom, as if the world had stopped for a moment in time. Yet another aspect, sweat beading upon warm skin, a forest fire lit inside the muscles of walking legs, a challenge set forth by oneself that an end result must be reached. This idea of hiking is not a novel concept. For decades hiking been defined as walking in a mountain setting, urging its people to continually adapt and fine tune their gait to the environment (Steadman, Nykiforuk, Vallianatos, 2013). Hiking not only provides physical benefits as a means to stay healthy, but has served as a space for thinking and reflection.

Henry David Thoreau, a prominent transcendentalist, once preached "I cannot preserve my health and spirits unless I spend four hours a day at least—and it is commonly more than that—sauntering through the woods and over the hills and fields, absolutely freed from all worldly engagement" (Thoreau, 1862). The simplicity of walking outside, surrounded by the changing sounds of nature continually allows people to connect back to themselves. Some studies suggest that nature has specific restorative effects on the prefrontal cortex of the brain (Atchley, Strayer, Atchley, 2012). This is perhaps why many doctors and psychologists recommend that patients suffering from mental health problems could find psychological benefits from hiking. A Stanford-led study found quantifiable evidence that walking in nature could lead to a lower risk of depression (Jordan, 2016). However, hiking does not only serve as a course for people to connect back to themselves. It is also an opportunity for hikers to become engaged with others around them (Steadman et.al, 2013).

Fig 1. Map of the Appalachian Trail
(A.T. Essentials)

For some hikers, the Appalachian Trail (AT) has served as an escape from the world of regimentation a place to find themselves and build a community. A study completed by California Polytechnic State University professor, Dr. Marni Goldenberg, found that people generally hike the AT for fun, to enjoy life, and for warm relationships with others (Goldenberg et. al, 2008). Completed in 1937, the AT stands as the nation's longest marked footpath starting at Springer Mountain, Georgia and ending at Mount Katahdin, Maine. Measuring 2,193 miles, the AT spans across 14 states, six national parks, and eight national forests, as seen in Fig. 1 (A.T. Essentials). Each year, thousands of hikers attempt to hike the entire length of the trail, this is commonly referred to as thru-hiking, but only about one in four people make it all the way (2000 Milers, 2020). This grueling journey not only requires physical strength, but mental strength and perseverance in order to cover all 2,193 miles. This is where thru-hikers find other hikers to lean on, to share experiences with, and to build a community. Research completed through the Wilderness Experience Programs (WEPs) showed the importance of a community while on the AT, one hiker saying, "The trail is a community of other hikers... you get through it because you are making friends the whole time" (Dietrich, Joye, Garcia, 2015). The AT provides a marvelous platform to create relationships with other people. The unique experience of hiking on the trail allows for strangers to become lifelong friends (Dietrich et. al, 2015). However, for the AT Class of 2020, a huge obstacle stands on the trail between Georgia and Maine: COVID-19.

Fig 2. These notices appear at trail heads, notifying hikers of the trail closures through National Forests and National Parks (Morgan, 2020).

For many people who choose to hike the Appalachian Trail, the journey represents the fulfillment of a lifelong dream. Thru-hikers often spend years saving up money, hours upon hours of training, and planning logistics to then leave their jobs and maybe sell their houses to spend anywhere from four to seven months on trail (Farzan, 2020). With more and more people turning to nature to seek isolation during the pandemic, trailhead parking lots and overnight shelters have become exceedingly crowded. As a result, on March 23, 2020, the Appalachian Trail Conservancy (ATC) urged all hikers to stay away from the AT, as well as asking all hikers currently on the trail to leave, as shown in Fig. 2 (Trail Updates, 2020). While this warning did not require all hikers to remove themselves from the trail immediately, many considered the reccomendations and evacuated from the AT (McMillon, 2020). Thru-hiker Kimberly Selvage had quit her job and rented out her house in Las Vegas before starting her journey on February 26. After 470 miles, Selvage threw in the towel as she expressed, "the closures and general virus fear was changing the vibe of my hike" (Morgan, 2020). Beginning in late March, various shelters and trailheads began closing all over the country. Soon after, Great Smoky Mountains National Park was closed on March 24, 2020 and Shenandoah National Park was closed on April 8, 2020, restricting hikers from being able to hike on the trails that pass through these sections. Following these closings, all Katahdin trails were closed and the hiker town of Damascus told all AT hikers to stay away (Trail Updates). Despite these warnings, many hikers continue to stay out on the AT claiming they are less likely to contract and spread the virus to others (Farzan, 2020). Even though the trail serves as a place of isolation, many AT hikers heavily rely on small backpacker towns for resupplies and lodging (Fleming, 2020). This leaves many hikers and small communities uneasy about the spread of the virus.

These kinds of shelters span
all along the AT
Photo: Kimbery Selvage

To be considered an Appalachian Trail thru-hiker, the full length of the hike must be completed within 365 days (McMillion, 2020). As the ATC urges hikers to postpone their journeys, those who follow these advisories run the risk of not being able to finish this year. In an interview with *Outside*, Scott Wilkinson, director of communications and marketing at the Pacific Crest Trail Association, said "People are going to do it [thru-hike], and that's their choice" (Currin, 2020). This leaves hikers with a tough choice: to continue in view of warnings to go home or to postpone their thru-hike and risk not being able to complete the journey. This project explores how a few individual hikers have dealt with this dilemma and adapted to the ongoing pandemic.

Campsite along the AT
Photo: Ed German

My Approach

The goal of this project was to understand how the Coronavirus pandemic has impacted the journey of Appalachian Trail thru-hikers. For the hikers I contacted, I sought to understand:

1. What purpose does hiking serve in the lives of thru-hikers?
2. What sacrifices did hikers have to make in order to hike the AT?
3. What were the deciding factors when choosing to continue or stop?
4. How have hikers' feelings on COVID-19 changed over time?
5. What are hikers doing now in place of being on the AT?

To capture a range of hiking experiences, I interviewed hikers who were of different ages, came from different places, and had varying experiences with the AT this year. This year's class of AT thru hikers fell into 3 categories: those who planned to hike but never started, those who started and decided to end their journey early, and those who are still on trail.

Hikers who planned to hike but never started
- Thomas Bouissaguet
- Adrian Ryan
- TJ Skeith
- Ethan McNary

Hikers who started hiking but decided to leave trail
- Kimberly Selvage
- Jo and Steve Smithwick
- Donna and Bob
- Rite Freudenberg
- Andrea Drott
- Christopher Cusson
- Jonathan Malkin
- Maria Yarczower
- Ann Johnson
- Morgan Boutwell
- Boogie
- Jason Rocheford
- Alluson Olson
- Ed German
- Rune Ravn and Nicolene

Hikers still on trail
- Bearfoot
- Scott Craven

I wanted to compare the impacts from the pandemic as well as opinions regarding the safety of staying on trail during the pandemic. Through YouTube channels, whiteblaze.net (an AT forum), and Facebook pages, I contacted and arranged interviews with hikers hoping to complete the trail this year. These interviews took place over the phone, video call, or email. Each interview began by reading the consent script found in Appendix A and by understanding the participants' expectations for the interview. I asked the interviewee to tell me about themselves and what their plans were for thru-hiking this year. Based on this conversation, I then used the questions found in Appendix B to guide the interview depending on the hiker's situation. Each interview was recorded with permission from each hiker, making it easy for me to go back, listen, and take notes.
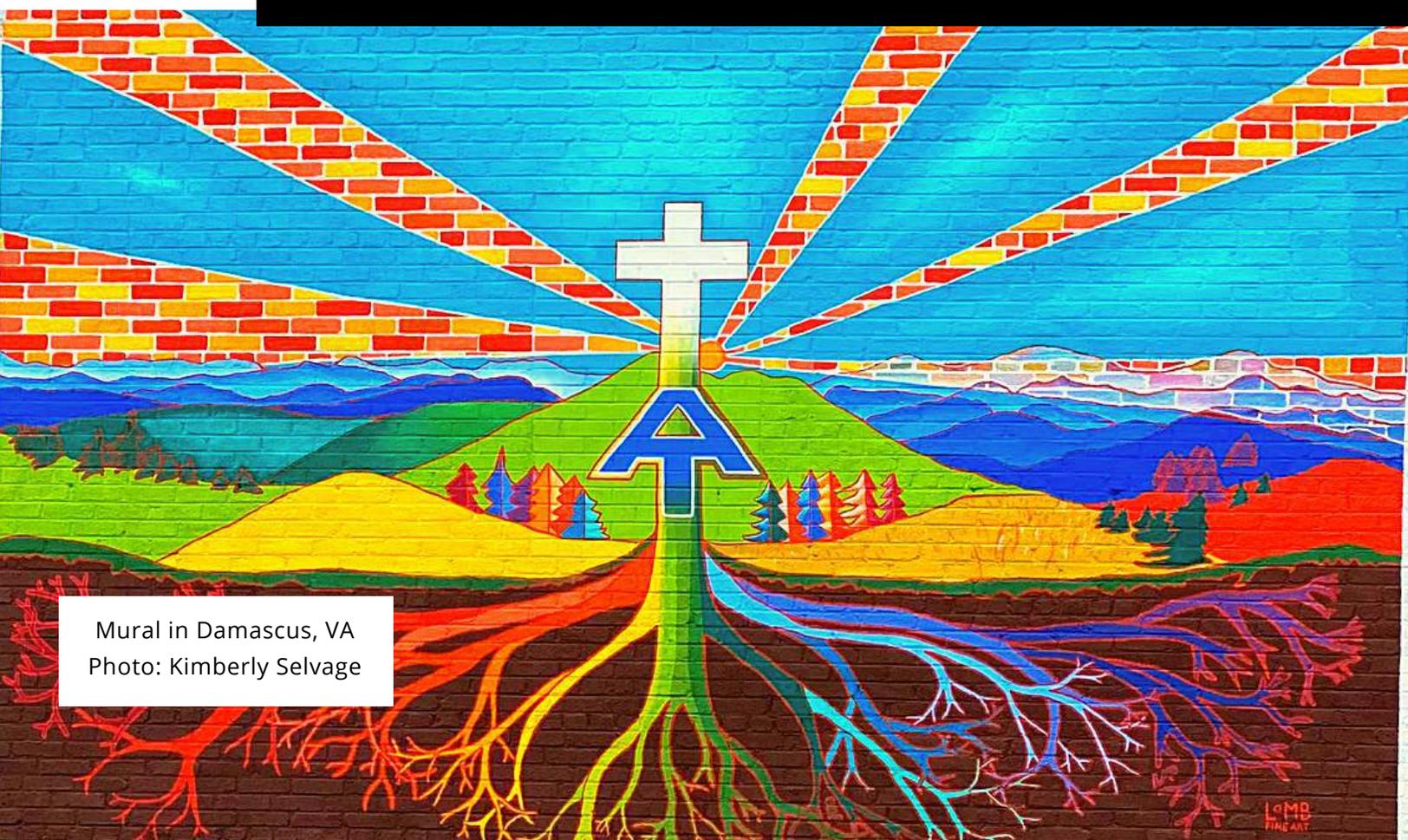
Mural in Damascus, VA
Photo: Kimberly Selvage

Hiker Experiences

Why the Appalachian Trail?

For many thru-hikers that I interviewed, hiking in the woods is used as an escape, as a way for people to detach from the world and only focus on themselves, and as an opportunity for chance at a fresh start, a chance to change their lives for the better.

Living a sedentary lifestyle, tired of his day-to-day job, smoking a pack and a half a day, hiker Adrian Ryan was using the AT almost as a restart button. The AT finally gave Thomas Bouissaguet a goal to work for after breaking up with his girlfriend and quitting a horrible job. Hiker TJ Skeith was hoping to complete the trail to celebrate 4 years sober. Hiking the trail would allow him to help others with addiction along the AT, showing them, "you can still have fun and achieve goals without having substances around".


TJ SKEITH

CHRISTOPHER CUSSON

For Christopher Cusson, section hiking the AT had always been something his dad had talked about. Chris's dad had told him, before he passed away in 2014, to "start planning the things you want to do with your life and start doing them, or things are going to slip right past you". As for Ann Johnson, hiking the AT had been a dream since junior high after meeting a woman who had broken her wrist on trail but insisted on finishing the hike. "My thought at the time was that I wanted to grow up to have the same spirit and sense of adventure that she had. I am still amazed at how a brief, random meeting with someone can generate such a dream". However, these 2020 thru-hikers had no idea their journeys would change so drastically.

A Growing Concern

Many hikers had been preparing for the trail for months, buying gear, planning out their mileage, and meticulously piecing together resupply boxes. At first, many hikers thought the virus was just something that was going to blow over, something that would not come near the 2,193 mile trail from GA to ME. For Jo Smithwick and her husband Steve, COVID-19 was not of any concern as they took four flights from Australia to get to the United States. They felt much safer on the trail, "feeling germ free, besides all the muck they carried on their gear". Andrea Drott even said that the virus was sort of a running joke. "Sometimes it was like you would hear somebody cough in the distance and you're like 'Is that corona?'". But as the month of March progressed, hikers recalled seeing the personality of the trail change.

As COVID-19 continued to spread across the U.S., its impacts were felt in the hiking community of the AT. Bearfoot, a hiker still out on the AT, was seeing fewer and fewer people on trail. It was becoming increasingly challenging to network with other hikers to try and find rides into town. When Jo, Steve, Donna, and Bob arrived at a resupply location to find it closed, they had to get creative. In the pouring rain, the two couples had to walk through the drive thru of a restaurant in order to get food, waiting for a car to come through to set off the sensor to order. Scott Craven, another hiker still out on the AT, was told about a cop kicking hikers out of a hostel in Hot Springs, NC, not allowing any hikers to shop or stay. Allison Olson had even heard about an "underground network" that was supporting thru-hikers, picking them up wherever needed and supplying them with food. This change in trail culture was enough for some hikers to leave the AT.
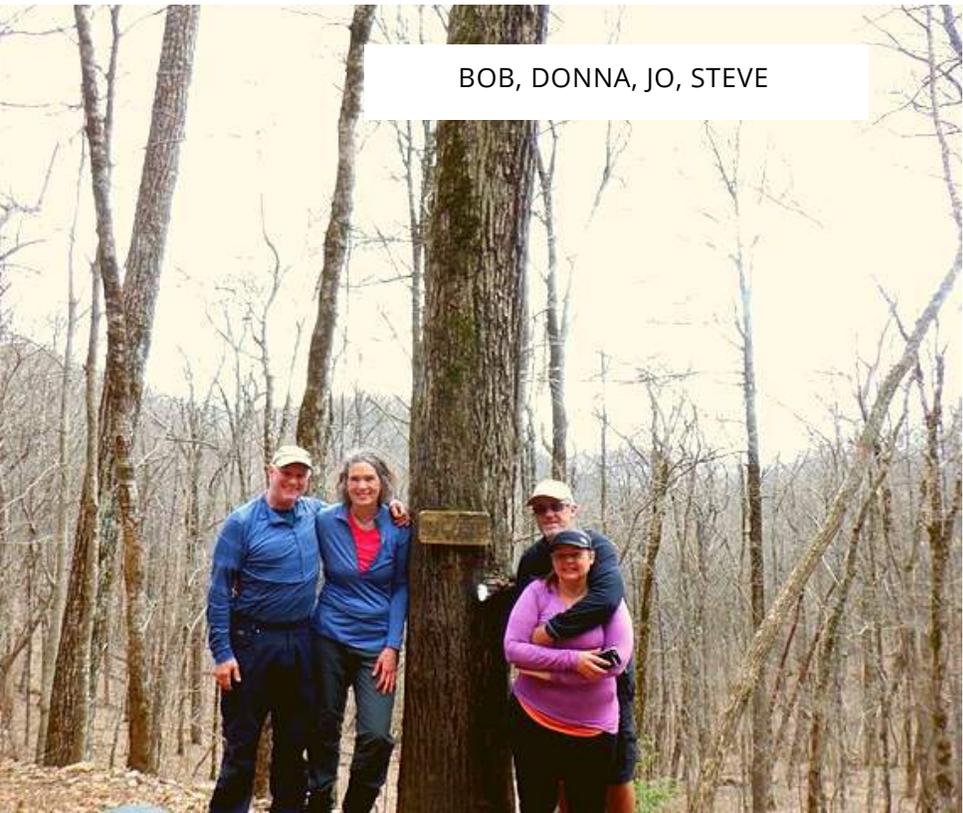
BOB, DONNA, JO, STEVE
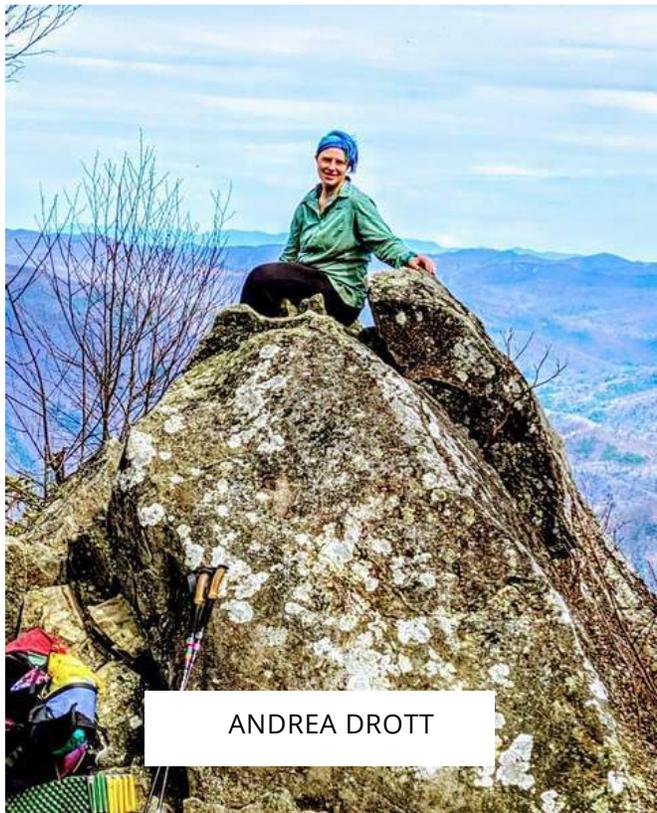
ANDREA DROTT

As the pandemic intensified across the U.S., so did worries along the AT. Morgan Boutwell was only 20 miles into her journey when she saw three white paper signs that the forest service had put up, notifying hikers of the temporary closures of access facilities for the AT. Upon seeing these signs, a man had pulled up in a truck where Morgan was standing along the road. "He was like 'Did you hear? At the next big mile marker, Woody Gap, there are concrete barriers,' and I was like well that's crazy, and to nature you know, that just something insane." On the third day of his journey, hiker Ed German had been hearing about the absence of toilet paper, paper towels, and Kleenexes at most nearby stores. At this same time, Ed was hearing about the exponential virus increases through the news. It was at this point that Ed decided to call his wife to come pick him up. Even though other thru-hikers thought he was overreacting, Ed determined, "it was important to believe science and math over biased opinions that everything would be okay in the near future."

Temporary closure signs around mile 20 of the AT

ED GERMAN

For Danish hikers Rune Ravn and Nicoline, minimal cellphone service on the trail meant they could not get the whole sense on how bad the pandemic was. Nicoline recalled looking up numbers when they arrived in town on how many people were infected and where the spreading was taking place. Attitudes surrounding the trail were a touchy subject for hikers. Rune and Nicoline did not want to be pessimistic because other people around them were determined to make it all the way. Hikers were facing a serious dilemma. Do they hike on and risk spreading the virus or leave the trail and abandon an unbelievable journey?
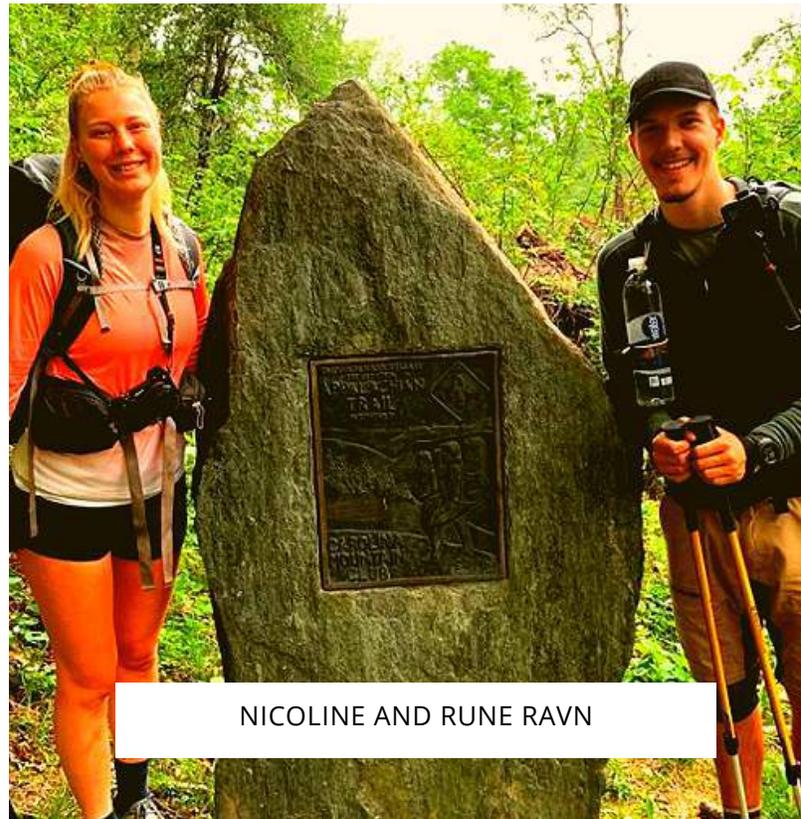
NICOLINE AND RUNE RAVN

Impacts of COVID-19 on Hiker Journeys

As most AT thru-hikes can take anywhere from 4-7 months to complete, many hikers spend months to years preparing for their thru-hikes. For these several months on trail, the AT acts as a home, a job, and a lifestyle for the many travelers who choose to endure the journey. Hikers have traded their houses for tents, swapped their 9-5 desk jobs for 24/7 wilderness, and packed their lives into the backpack on their shoulders. Yet, with the ATC urging hikers to get off trail, the class of 2020 has endured a wide range of obstacles.
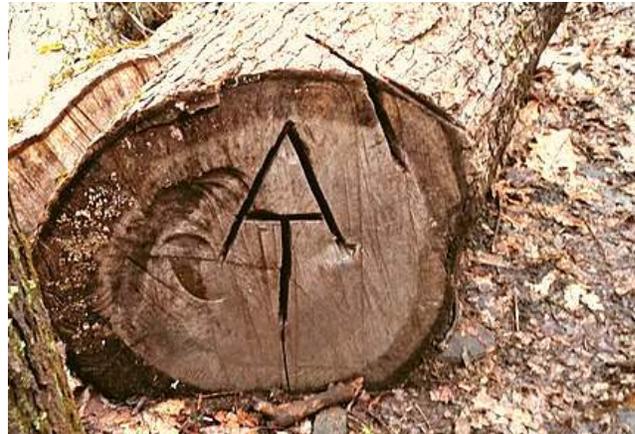
Hiker Andrea Drott, had obtained a leave of absence from her job, sold her car, and moved out of her apartment before coming on the AT. When she left the trail and returned home, she had to crash with her brother. All of Andrea's belongings now lie in the corner of her brother's apartment while his office was converted into a make-shift bedroom. Allison Olson endured a similar situation after leaving the AT. Before starting southbound in June of last year, Allison and her husband quit their jobs, moved out of their house, put all their stuff in storage, and dropped off their dog with family. After taking leave from the trail, Allison and her husband are staying with her husband's parents, applying to jobs, and are unable to reunite with their dog in Massachusetts. For Adrian Ryan, quitting his job was something he was looking forward to. Adrian had given a month's notice to quit his corporate job when two weeks later the Appalachian Trail Conservancy released the statement urging all thru-hikers to postpone their thru-hikes. With this news, Adrian suspended his hike and unsuccessfully tried to get his job back, leaving him unable to work or complete the journey he prepared for.

JONATHAN MALKIN & LIBERTY

BEARFOOT

The AT is a trail built on community. Hikers create tramilies, or trail families, close knit groups of hikers who usually connect somewhere on the trail and stick together throughout the remainder of the hike. Others thrive on the generosity of trail magic, where locals drive to spots along the trail to provide food and company for thru-hikers. For Jonathan Malkin, much of the experience was about the community of the trail and meeting people along the way. While some people are only focused on getting the miles in, Jonathan wanted to be able to go into towns, meet different people, and experience life in the small trail communities. Now with the virus, there have been fewer and fewer people in the towns and on the trail which is "not nearly as fun". Even though these small towns have continued closing down, hikers are still able to create their own sense of community on trail.

Bearfoot recalls a moment with his tramily as one of his best memories on the trail so far. "We were staying at the campsite right after the GA/NC border, Erin (another thru-hiker) was thinking about leaving [due to concerns around COVID] and the tramily was kind of having like a group hug to make her feel better." Boogie also had a similar experience with her tramily before cutting her journey short on the trail. After the governor of her home state of Virginia put a stay at home order in place, Boogie's mom told her she needed to come home. When she got to their campsite for the night, Boogie had to break the unfortunate news to her tramily. Boogie and her tramily proceeded to have a feast of the 7 days worth of food she had just resupplied with before she would leave the trail the next morning. Small moments like these are helping to keep the hiking community strong during these trying times.

As hikers began their 2020 thru-hike, it was almost like entering into a new relationship. The first couple of weeks they experience the honeymoon phase. As weeks turn to months, the relationship becomes more serious as the hikers learn more about the pain and joy the trail brings. Yet, the pandemic threw everyone off guard, making hikers question their relationship with the trail. For some, leaving the trail was like a heart-wrenching breakup. For Boogie, the hardest part about leaving the trail was knowing that she failed, but also did not fail. After spending months preparing to mentally stay on the trail, "You learn to internalize different feelings so that if you get off trail you feel like a failure. I spent 4 years teaching myself this lesson and now I've played myself".

BOOGIE
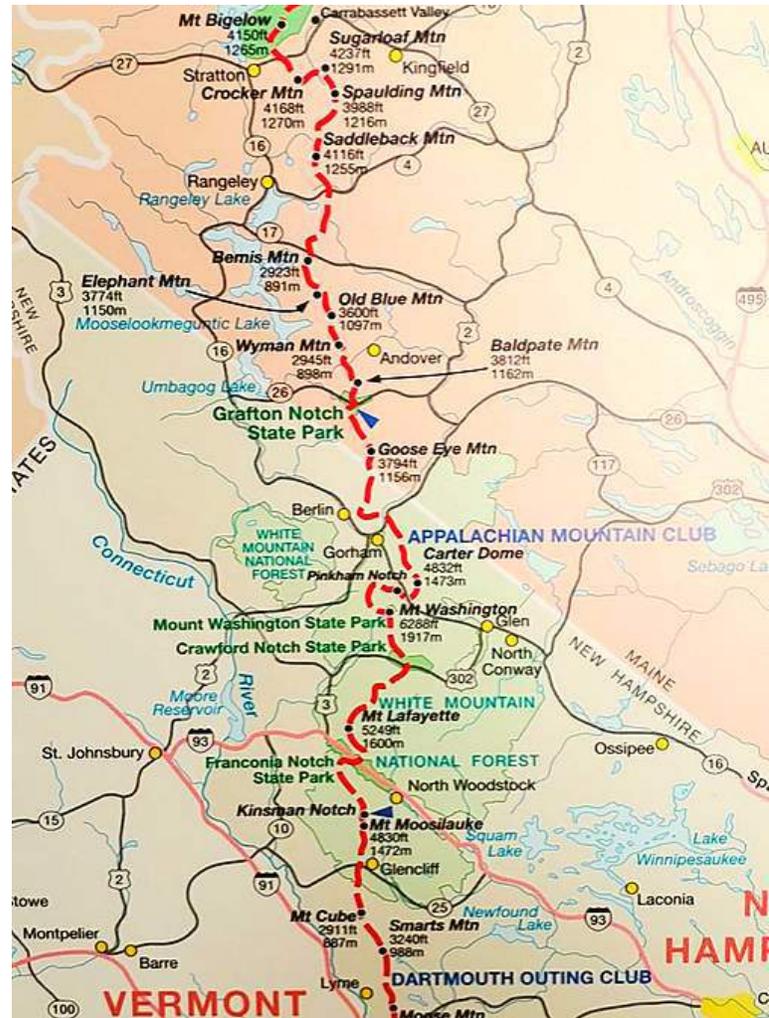
A tipping point for Allison Olson and her husband was having to judge whether it was safe to enjoy a campfire with other AT hikers. Making the decision to leave was extremely tough for them after traveling almost 1,500 miles southbound from Kahtadin. "We don't want to endanger other people on the trail, we don't want to endanger ourselves, like this is not about our ego or what we want to achieve, we're not leaving the trail as we want to".

For Ann Johnson, leaving the trail was extremely emotional. Some people argue that the trail will always be there, that a hike can just be postponed. Ann was on sabbatical this semester and needed to return to school by late August. Any time taken away from the trail this spring would hinder her ability to finish in the fall. Her next sabbatical likely will not happen for another 6 years, not knowing if she would be up to the challenge at that time in her life. "There were many tears shed that week and many times I questioned my decision. But our [Ann and the AT] relationship had changed". Leaving the trail behind was not an easy task for any hiker. For their journey to be defined by something out of anyone's control was something no one could have foreseen.

Despite warnings from the ATC urging hikers to leave the trail, some members of the AT class of 2020 still remain on the trail. Bearfoot was most looking forward to the "confidence boost" of completing the trail after struggling with dyslexia in school. Despite the controversy on social media and closings of national parks and forests, Bearfoot has chosen to stay on the trail adding, "yes I am putting myself in danger and other people in small towns, but after hiking through Georgia, we didn't really see many other people". With minimal exposure to people on the trail and maintaining safe practices, such as wearing a mask into town, Bearfoot believes continuing to hike is better decision for him than returning home and worrying about the pandemic.

ANN JOHNSON

Hostel shower stall
Photo: Scott Craven

Scott Craven was able to see the how the growing awareness of the coronavirus changed attitudes on trail. In the beginning, the atmosphere surrounding the trail started out with lots of positivity. Once out of Georgia, Scott encountered an aggressive man in Franklin, NC who yelled at him for continuing on trail. For Scott, staying on the trail feels safer than going home to Grand Rapids, Michigan which had been hit really hard by COVID-19. His thought process it to just continue hiking, knowing "everyone on the trail is still 100% gonna make it to Katahdin". Even as the year continues, many hikers hope to be able to step back out on the AT. Many wait back home, hoping that the warmer months will help hikers resume their journeys.
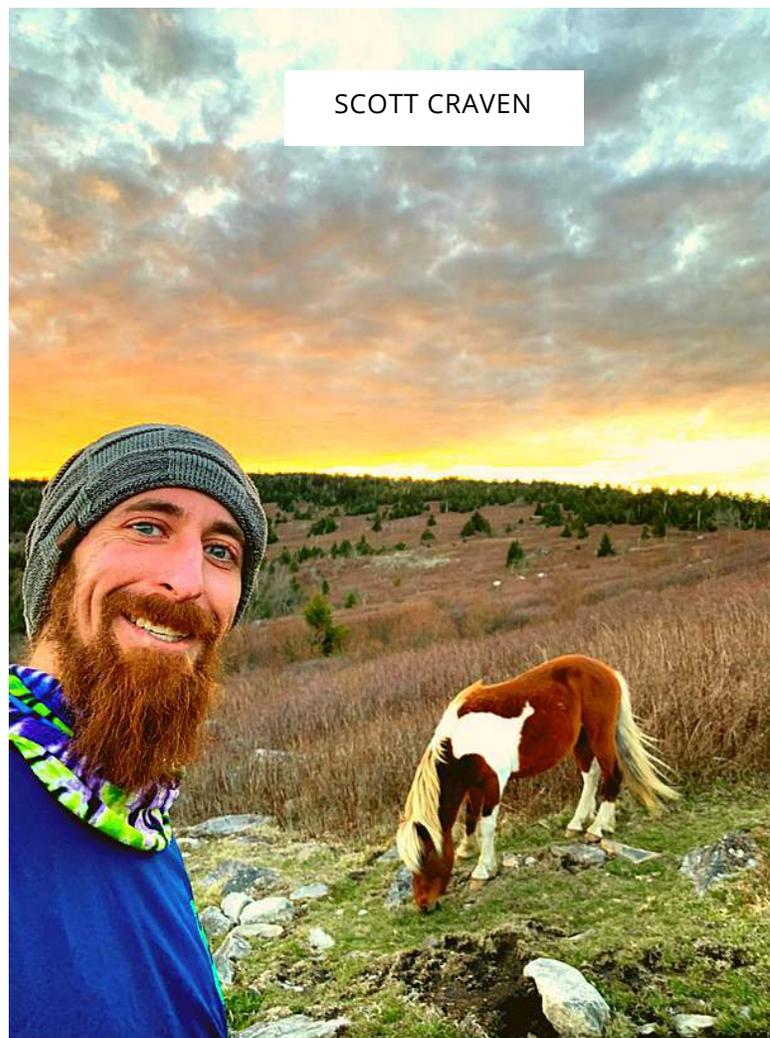
SCOTT CRAVEN
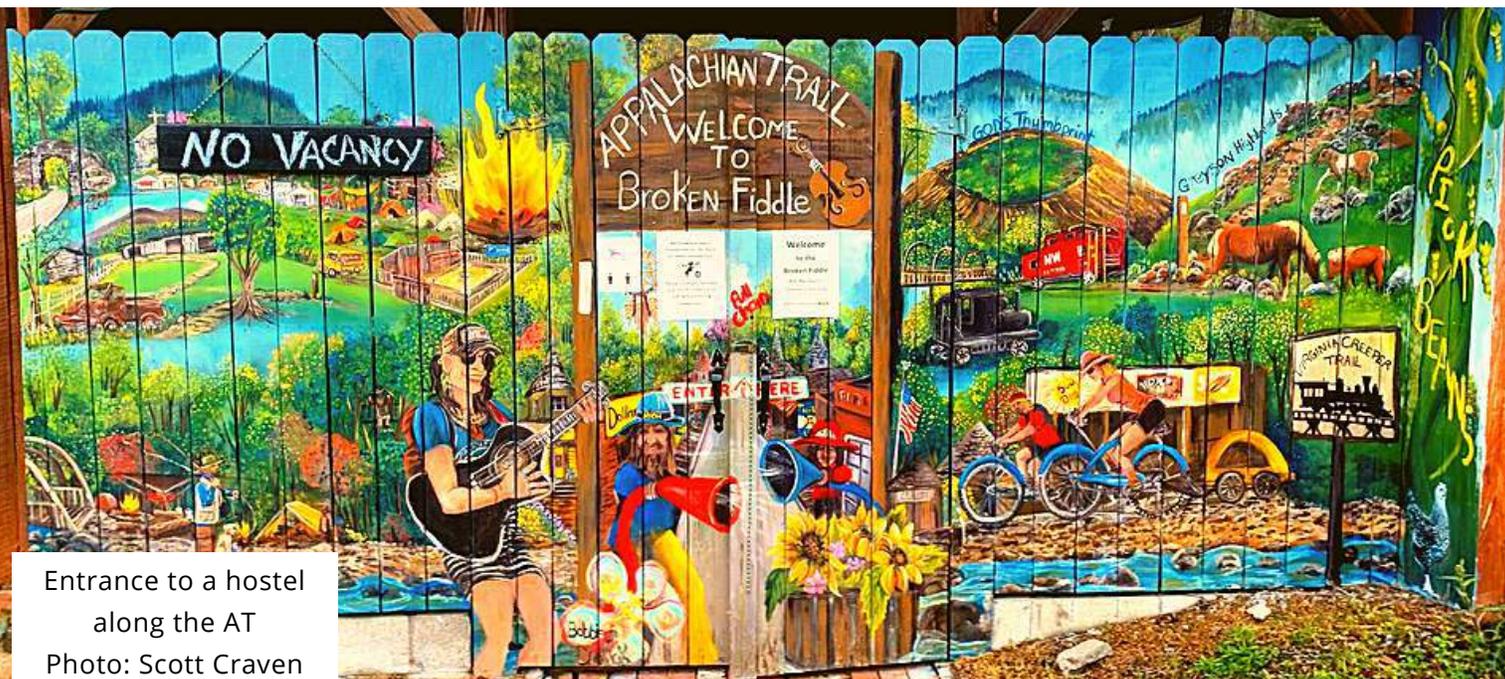
Entrance to a hostel along the AT
Photo: Scott Craven

More Than Hiking

Two thousand one hundred ninety-three miles. That's approximately 4,631,616 steps, 8,823 laps around a 400 meter track, or 84 marathons. These numbers might show the physical demands of the AT, but don't even begin to scratch the surface of what else the trail has to offer. Hiker Tony Grausso went into the hike with an open mind. " I knew that I would gain a unique life experience, just to attempt to take on the trail and its challenges. I anticipated gaining all sorts of things that I knew I could not possibly know of beforehand, so I did not even venture to think that way. As a 60-year old, I've experienced much. That prepares you to know that you just don't know and cannot know how things will unfold." High school senior Ethan McNary was also approaching the trail with an open mind. For Ethan, the AT was an opportunity to quiet his mind for a couple of months, to reflect back on the years he's lived and think about the person he wants to become. Rune and Nicoline talked about the people and the community involved with the AT. For Nicoline, hiking the trail was also about the ability to get lost in nature. "I was really looking forward to waking up in nature and being in nature and off grid and having that experience of how time moves when you're in the forest." Between the simplicity of nature, the community along the trail, and the unknown challenges, hikers look to immerse themselves in all the trail has to offer.

ETHAN MCNARY
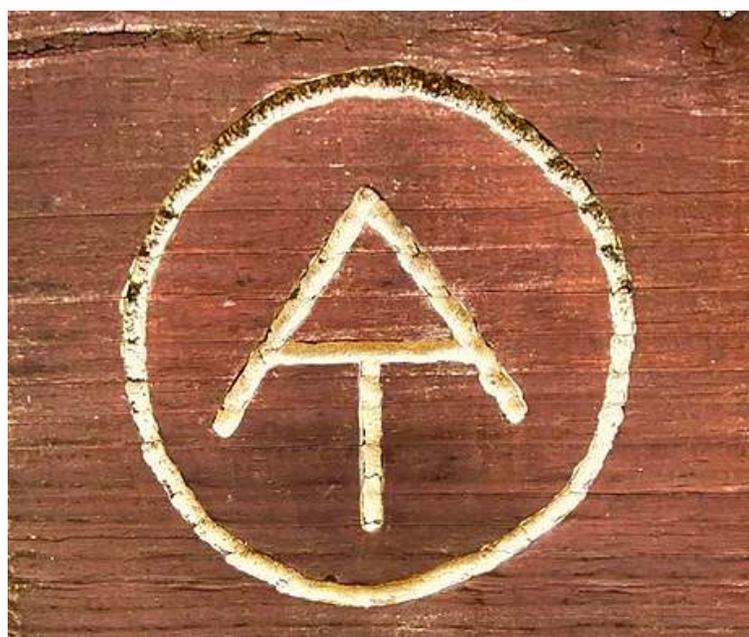
RITA FREUDENBERG

When I asked hikers to talk about their favorite memory on trail, many were stuck trying to narrow their experiences into one thought. German hiker Rita Freudenberg explained the joys of hiking happening everyday or at any time. Being immersed in the sounds of the birds or the water and the ability to connect with different people were some of Rita's favorite memories. For Maria Yarczower, pushing herself throughout this year's journey was her favorite memory. Having started on trail January 1, Maria experienced two nights where temperatures dropped below 0 °F.

To be able to get through the extreme cold was extremely challenging and rewarding for Maria. Being able to reflect upon these experiences brought hope and joy into the lives of the hikers. Despite the sorrows coronavirus has brought to the AT community, their spirits remain high. This community is built around people helping each other. These hikers are caring, kind, resilient, tough, and brave. While this community may have been physically broken apart by COVID-19, they still remain together.
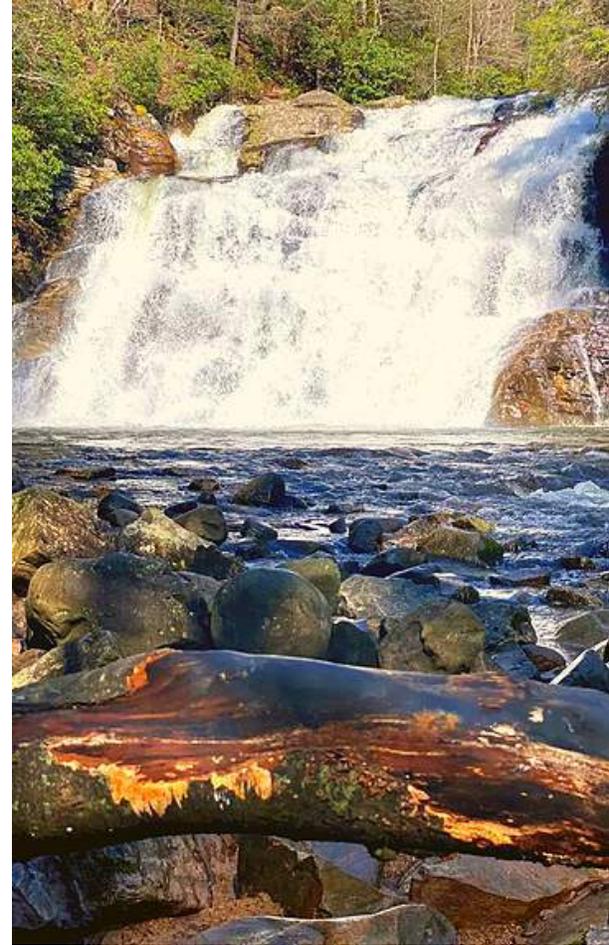
"An event like COVID-19 highlights what is really important: we need to conquer this outbreak. That will require some sacrifice by all. I will hike again. 'When' is to yet be determined."

-TONY GRAUSSO

On the Trail

1 **Amicalola Falls & Springer Mountain**

Southern most terminus of the Appalachian Trail

2 **Nanthala Outdoor Center**

Major resupply location for hikers

3 **Franklin, NC**

This point marks around 100 miles on the trail

4 **Erwin, TN**

This town marks the end of NC and the beginning of TN

5 **Hot Springs, NC**

The AT runs through this small hiker town

6 **Damascus, VA**

Damascus is known best as Trail Town USA, where seven nationally known trails intersect within its borders

7 **Harpers Ferry, WV**

Headquarters of the Appalachian Trail Conservancy

8 **Old Speck Mountain**

It's trail follows part of the AT

9 **Mt. Katahdin**

Northern terminus of the AT

APPALACHIAN TRAIL
CONSERVANCY®

ATC Trail Communities

★ Approved & Designated
National Park
National Forest

Map created 01/13/14, Appalachian Trail GIS Office
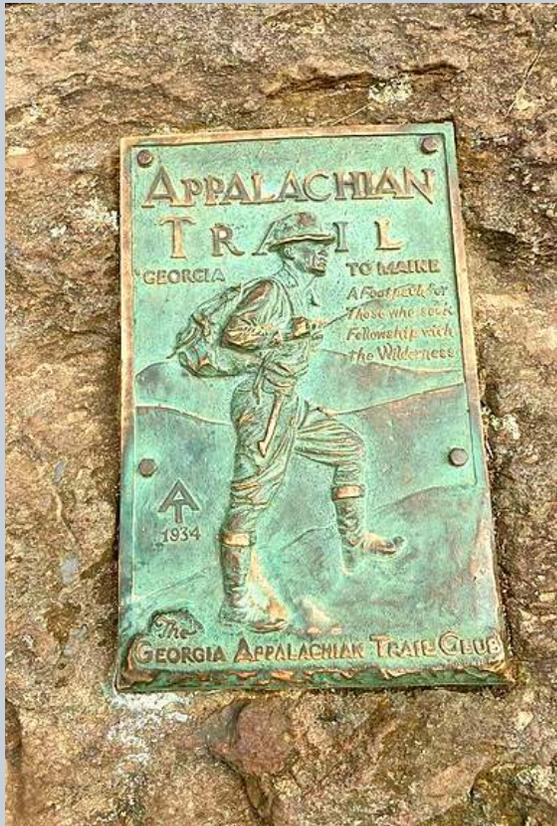
This plaque signifies the southern terminus of the AT, Springer Mountin, GA, where hikers spot the first white blazes.
Photo: Kimberly Selvage

"It's so weird, it's so surreal, you're like waiting for that day to get there and then you're so anxious the night before, and then you take the first couple steps and you're like 'I guess I'm doing this!"

-Jason Rocheford

With much analysis, his plot was contrived,
Meticuously planned, twenty times revised.
Over every detail, he agonized,
Now with an alias, he was disguised.
A choreographed fete of locale and gear,
A dance that lasts for half a year.
Five million steps to persevere,
Before Katahdin will appear.

-Christopher Cusson
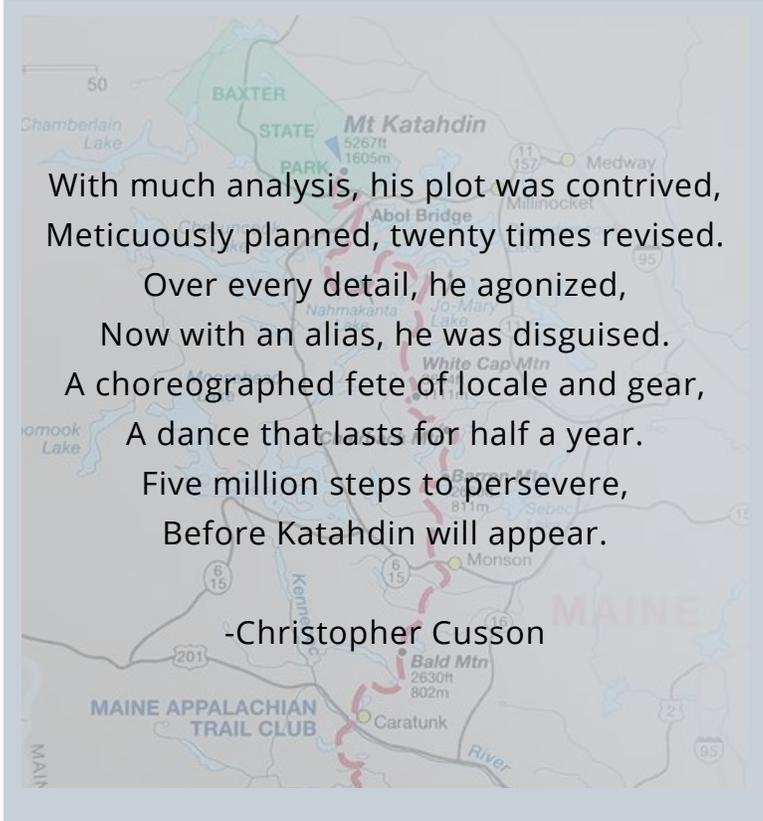
Hiker Kimberly Selvage standing under the Amicalola Arch in GA, signifying the start of the approach trail to mile 0 of the AT.

For Jonathan Malkin (left), hiking with his dog Liberty is a huge mental advantage. She never has a bad day and will always come back to give him motivation.

"Last white blaze for a while, I was sobbing" (showing emotion was a new trail skill)
-Boogie

❻

Day 3 - 10 March 2020 - Hiked 4.8 miles to Woody Gap at mile 20.5. It was an easy, short hike in pouring rain and wind. During a conversation with my loving wife at Woody Gap, reality set in. Those stupid things called science and medicine - along with US Gov't recommendations for old folks to stay home mean my hike is stopping for now at least. Nannette and I may hike on the AT again...later

Journal entry from hiker Ed German the day he decided to leave the trail.

❹

For Ann Johnson (blue coat), her journey ended in Erwin, TN with some members of her trail family. "Many of the hostels and shuttles were shutting down. Resupply options were dwindling. Days after the ATC made their initial recommendation, several states began closing their trails to overnight camping – PA, NJ, MD, and NY. More counties were creating more restrictions for businesses and hostels. Two days out of Hot Springs, I made the decision to end my thru-hike."

Danish hiker Rune Ravn is getting back out on trail May 1 after suspending his hike at the Nantahala Outdoor Center. The hardest part for him was all of the uncertainty and not knowing when he would be able to return to the trail. ❷

Hiker Maria Yarczower was the first person through Harpers Ferry, (ATC headquarters), hoping to be able to complete both the AT and the Pacific Crest Trail. ❼
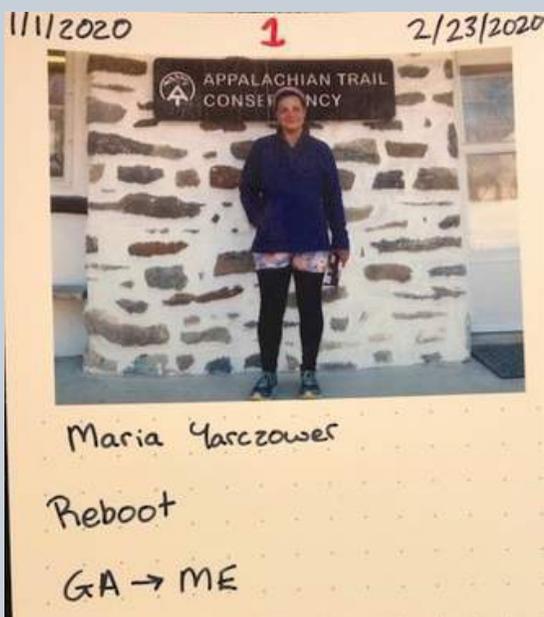
After leaving trail on March 31st, Australian couple Jo and Steve (back) are now staying with Donna and Bob (front), a couple from Chicago, until they can return to Australia. ❺

For Maria Yarczower, after completing the trail last year, this years hike was about doing it for herself. It was cold, miserable, and amazing to just be alone.

❹

Scott Craven (left), is still out on trail with other members of the AT class of 2020. "We got the energy and we got the spirit, we got the moves"

After a hike up Katahdin was cancelled due to dangerous snow conditions, TJ Skeith ended up hiking Old Speck in snow and 40 mph winds. When he saw the sign for the trail, he knew he had to hike the AT. "I'm going to be back here in two years".

❽

The entrance to Damascus, VA otherwise known as Trail Town USA. Left or right at the fork?

❻

TRAIL MAGIC!

Trail Magic: It might be a ride offer from a passing stranger, free food courtesy of tourists, having a lost piece of gear found by a fellow hiker, or any other acts of serendipity

❾

This summit marks the end of the journey for hikers who choose to hike the AT northbound. This peak marks extreme accomplishment for AT thru-hikers

My Inspiration

As an avid outdoorswoman, I've enjoyed being outside since I can remember. From rock climbing, to skiing, to hiking, something about the outdoors keeps me longing for more. In 2019, I was able to take a 3 day backpacking trip in the White Mountains. After 33 miles my legs were jello, my back ached, and my feet were throbbing. When I look back on this experience, it amazes me how I only seem to remember how happy I was. There's no cell phone service, you carry all you need on your back, it is just you and the woods. It was after this trip that the AT turned from a fantasy to something I believed I could actually do. Working on this project has only solidified my dream to hike the trail from Georgia to Maine. If all goes acording to plan, I will be out on the trail in 2022 or 2023.

Mindfulness Amidst the Madness: Connecting to Nature from Home

By Hannah Schulz

Introduction

As of April 30, 2020, 30 million Americans filed for unemployment during the six weeks of the pandemic (The Associated Press, 2020). Supermarkets and grocery stores have been cleared of food and other essentials amidst panic buying (Lewis, 2020). Many families have lost loved ones and have been forced to grieve in isolation (Waters, 2020).

With the rapid onset of the pandemic, people are looking for ways to cope with the stress and anxiety from these drastic changes. In view of the great uncertainty associated with the pandemic, spending time outdoors has proven to lower levels of stress, sadness, and anxiety (More, Payne, 1978 & Michael, Hull, 1995).

I created a four-day program of nature-based activities meant to inspire mindfulness during the pandemic. I asked people that I had seen posting about the outdoors on social media in my town and from the WPI community to participate. People took time to listen to the sounds of the outdoors, build a cairn, draw something blooming and watch the sunrise and sunset over the four days. These activities were completed on local trails, in backyards, and in neighborhoods. After each activity, I asked each person to reflect on a few questions in a video or journal entry. These questions were relevant to the theme for the day whether that be slowing down, balancing, growing or connecting to the rhythm of nature.

At the conclusion of the program I had a conversation with each participant to help explore and reflect on their experiences adapting to the pandemic and their experiences outdoors. These conversations helped me to develop a deeper understanding of the ways I and others have been enduring stay-at-home orders during a global pandemic. Our world feels like it has been turned upside down. Yet nature remains true to its cycle amidst the madness.

Background

The benefits of spending time in nature have long been understood in the medical and psychological fields. Starting in the late 1800s, spending time outdoors was a method of treatment for tuberculosis and depression. It is even known to speed the healing of wounds (Hobday, Carson 2009). Today, outdoor activities such as hiking have been used to treat Post-Traumatic Stress Disorder for veterans. In one study, combat veterans reported a better sense of self and a more positive outlook on life following an extended hiking trip along the Appalachian Trail (Dietrich, Joye, Garcia, 2015).

Many people are working or taking classes from home under stay-at-home orders (Thompson, 2020). With these new work environments, many have found it challenging to focus (Cording, 2020). Connecting to nature has been shown to help focus on the day at hand. This popular theory is known as the Attention Restorative Theory (ART). ART was formed by Rachel and Stephen Kaplan, professors specializing in environmental psychology at the University of Michigan in the 1980s. They found that viewing scenes of nature helped individuals concentrate. Setting up work near a view of the outdoors or taking breaks outside can be a way to cope with the stay-at-home orders by improving one's ability to concentrate.

Immersing ourselves and exploring the outdoors fosters self-reflection. Contrary to activities such as watching television or reading a book, which require intent concentration, nature allows for a different type, coined as "soft fascination," which gives space for reflection and allows the mind to wander (Ellison, 2011).

During this pandemic, we are largely cut off from one another. Many cannot attend religious services (Dias, 2020). Schools have been closed nationwide (Porges, 2020). We cannot meet as volunteers or as neighbors to think through collective actions. Deprived of these physical connections in a community, we can feel isolated and lonely. However, many of us under social distancing guidelines can still go outdoors, hike, become immersed in nature, Richard Louv, an American author known to have inspired an international movement to incorporate nature into the lives of all children, has found that those who spend more time outdoors nurture closer relationships with others and value community. He has named this phenomenon "human/nature social capital" (Louv, 2017, pg. 71). In other words, Louv has found that spending time in the outdoors can help us understand the interconnectedness of different species on Earth and its natural processes. Spending time outdoors can bring us to notice and become deeply aware of other living beings that we are a part of something bigger and not a separate entity from nature (Louv 2015). Our connection to the outdoors is more complex than just the physical elements that we can see, touch, taste, or smell (Louv, 2017). Researchers have argued that nature can be seen as a social construction. Greider and Garkovich, sociologists at the University of Kentucky, use the metaphor of an open field to explain this concept: "a real estate developer looks across an open field and sees comfortable suburban ranch

homes nestled in quiet cul-de-sacs, while a farmer envisions endless rows of waving wheat and a hunter sees a five-point buck cautiously grazing in preparation for the coming winter" (Greider & Garkovich, 1994, pg. 1). Analyzing how we interact with and experience the outdoors may help us to develop our sense of self and place during the dislocating time of the pandemic.

Social distancing orders have proven to slow the spread of the infectious Coronavirus, but have simultaneously transformed our everyday spaces and disrupted our connection to the outdoors. Yards, rooftops, and balconies now act as important vessels to connect with the outdoors (Lee, 2020).

> **"A real estate developer looks across an open field and sees comfortable suburban ranch homes nestled in quiet cul-de-sacs, while a farmer envisions endless rows of waving wheat and a hunter sees a five-point buck cautiously grazing in preparation for the coming winter"**
>
> **GREIDER & GARKOVICH**
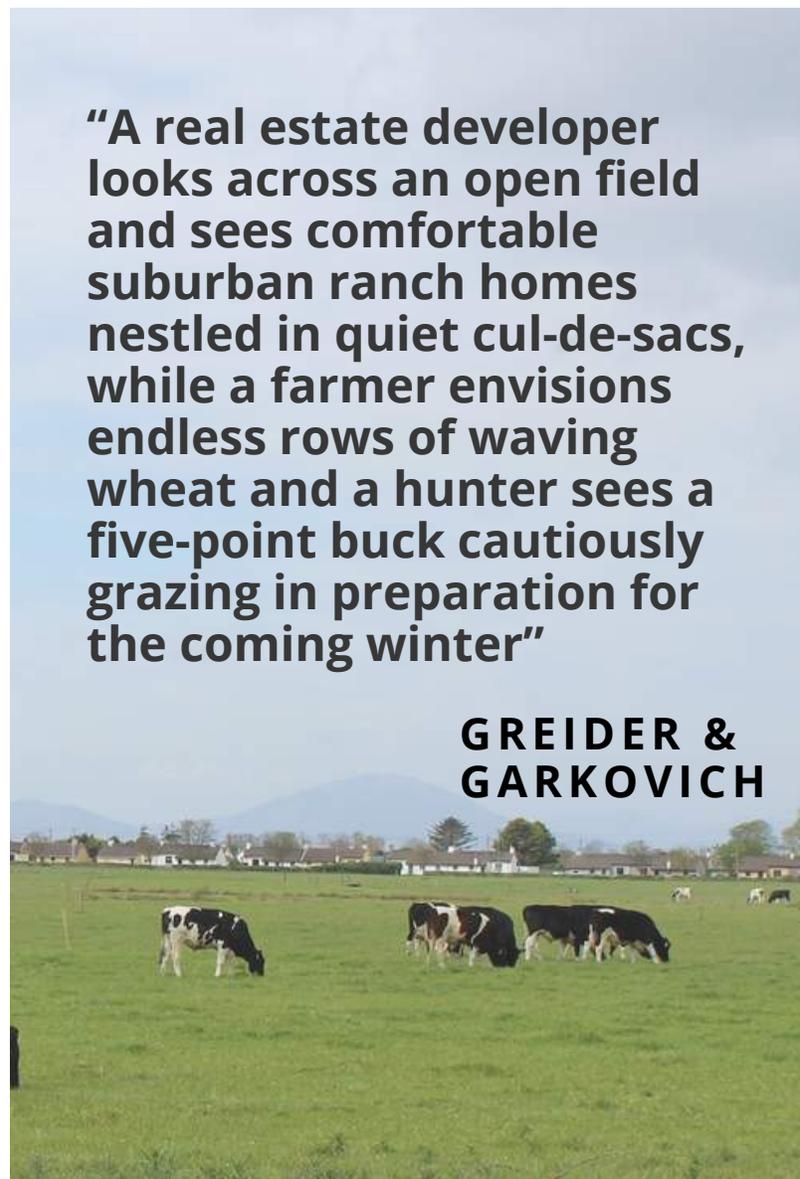
In Xalisco, Mexico, Cesar Rodriguez shared a photo of his rooftop, overlooking the surrounding mountains. He reports that the roof was a place he always wanted to sit out on, but never really did before the stay-at-home orders (Shea, 2020). Isolating at home has even elicited newfound appreciation for nature nearby. Photographer David Hurn from Tintern, Wales, watches the birds outside his window as he makes his morning coffee: "As I contemplate the world shut down, I can't help but feel for 'our feathered friends.' They spend their whole lives braced for violent death by some predator or another. Do they know?" (Shea, 2020). Bird watching, star gazing, and even home gardening are a few of the activities that many have resorted to in this time of isolation (Taylor, 2020).

There have been other initiatives trending on social media encouraging people to spend time outdoors during the pandemic. One trending hashtag #DontHugMeHugATree entailed users posting a picture hugging a tree, and then nominating three new people to take on the tree hugging challenge (Twitter, 2020). Another trend for outdoor rock climbers was posting a video of climbing throughout your house, using granite countertops and stone fireplaces as foot and hand holds (USA Today, 2020).

While I loved the way social media could bring the outdoors community together through challenges such as these, I wanted to inspire a deeper awareness of the outdoors for others. I wanted these activities to promote mindfulness and appreciation for what we have where we are sheltering in place whether that be from someone's backyard or from their desk chair by a window. Mindfulness is the ability to be fully aware of where we are and what we are doing (Harvard Health Publishing, 2020). The basic practice of mindfulness consists of taking time to observe the present moment as it is. When practiced, it helps us become not overly reactive or overwhelmed by what is happening around us (Boyce, 2019). To make the experience of connecting to the outdoors more powerful than a short social media challenge, I thought of four days of outdoor activities.

These experiences may even help promote physical and mental healing during the difficult times of a pandemic.

I also wanted this program to be an opportunity for deliberation, conversation, and reflection between myself and others during the pandemic. Bob Strema, the director of Counseling and Coordinator of Outdoor Programs at the University of Puget Sound, in Tacoma, Washington writes, "The mountain doesn't speak for itself. Neither does the river, the rock face, or the desert" (Strema, 1989). Adequate debriefing, discussion, and reflection can help to derive lasting and transformative meaning from an experience in the outdoors. Perhaps the program and discussions, I hoped, could bring to light the different ways we experience the outdoors during a pandemic and how these experiences may help us to find resilience in uncertain times.

A backyard sketch by Annie Hughes

Approach

The week before my home state issued stay-at-home orders, I had been hiking in the White Mountains and Acadia National Park. This trip reminded me of the ways the outdoors can help us disconnect from our phones and focus on the present. Social distancing has made me feel helpless in many ways and disconnected from others. One of the very few places that still felt normal to me was the outdoors. To help share and promote that same comfort I felt when connecting to nature, I developed four outdoor activities with opportunities for reflection. It was my hope that this could help promote mindfulness for others in a time of our lives full of uncertainty.

When I set out to develop activities to inspire mindfulness, I had an informative conversation with Dave Dishaw, the founder of Ripple Outdoor Adventures in Mindfulness (ROAM). After working for over 30 years in the corporate world, Dave was feeling burnt out. He saw this in himself and his co-workers. This burnout inspired him to start ROAM. Dave was able to help me better understand the way his program in mindfulness works and to offer advice in creating meaningful ways to connect to nature. Dave and I met in mid-April, and we discussed our own experiences living through the pandemic over Zoom. The questions I used for this conversation with Dave can be found in Appendix A.

This picture was from my trip to the White Mountains before the stay-at-home order

A cairn I built on Sand Beach in Acadia National Park

After talking with Dave, I decided to create four activities to help promote reflection in nature during the pandemic. Dave's biggest piece of advice for me was facilitating discussion and reflection after the outdoor activities. I achieved this by setting up three to five questions for the person to reflect and speak to either in a journal or video entry for the day. His point also went well with the fifth-day interview I had set up. The purpose of this conversation was to foster deeper reflection and to allow sharing. Dave described this type of transformative sharing as a council, typically hosted in a group setting. We discussed the possibility of having a group sharing, but over Zoom, a group discussion can be tricky to facilitate. Dave told me, what is important in sharing with others is that "it's a way [to give] closure to that experience, but it also is a way for people to kind of mark [it] in their memory." On the next four pages, you can find a workbook of the four activities I created and distributed to the participants.

A flowering cherry tree in my hometown, Berlin, Connecticut.
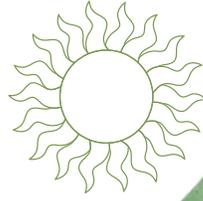
CONNECTING TO THE OUTDOORS

Outdoor Mindfulness Activities

A Four Day Challenge
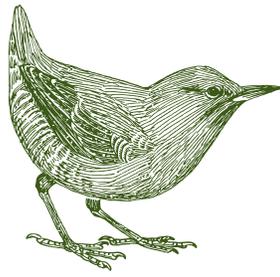
Day 1

Finding Peace Amongst the Sounds of the Outdoors

Find a place outdoors to have a few minutes of "quiet". Close your eyes and try to listen to the sounds around you. Take ten minutes to listen to your surroundings. After these ten minutes, take some time to write down a few of the things you were listening to in this moment on some notebook paper. If you'd like, record the sounds you were listening to.

◆

Questions for Reflection

What were some of the sounds that most resonated with you during this activity? Were any of these sounds expected or perhaps unexpected? Which ones? If you could use one word to describe how you felt while sitting and listening to your surroundings what word would you use? Why have you chosen this word?

DAY 2

Balancing with Uncertainty

Cairns throughout time have been representative of finding direction in uncertain times, they have been used to memorialize, and are known to be a balancing act to put together.

Build a cairn in your yard or in your home. Document with a few images of your cairn. Your cairn doesn't necessarily have to be made from rocks!

◆

Questions for Reflection

Why do you think you chose the materials and the place for your cairn? When was the last time you spent some time to create something with your hands– apart from writing or typing away? What did it feel like to search for materials? In what ways have you been finding ways to "balance" yourself during this pandemic? What methods have helped you so far feel more balanced?

Day 3

Growing Through Crisis

Each spring Mother Nature reminds us that despite a harsh winter, the grass will start to green, the tulips will start to open, and the cherry trees will start to blossom.

Find a place near or in your home where there is something growing. This could be a household plant, a flower in your backyard or something you see along a walk in your neighborhood. Once you've found something you'd like to admire, sit by and draw the object, you can do this with just pencil and paper, or any art supplies like crayons, watercolors, colored pencils you may have at home.

◆

Questions for Reflection

Why did you choose this plant to draw? Was it easy to transfer your view of the plant on to paper? How did drawing change your attention to detail? What have your experiences been when trying to concentrate during this pandemic whether that be during school work or even accomplishing a task?
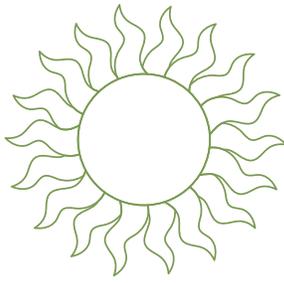
Day 4

Renewing with the Turning of the Earth

Despite the craziness of the pandemic, the sun rises and sets each day. There is a rhythm that nature naturally provides.

Watch the sunrise and the sunset for the day. Amidst both the sunrise and the sunset take some art supplies with you to document the moment. It could be crayons, markers, watercolors, even just pencil and paper!

◆

Questions for Reflection

How was this start to your day different than a normal start to your day? What method did you choose to document the moment? Take a few moments to look back at what you documented during the sunrise and sunset, how would you best describe your feelings as you were documenting the moment you were in? What did you experience seeing both the sunrise and the sunset in a single day?
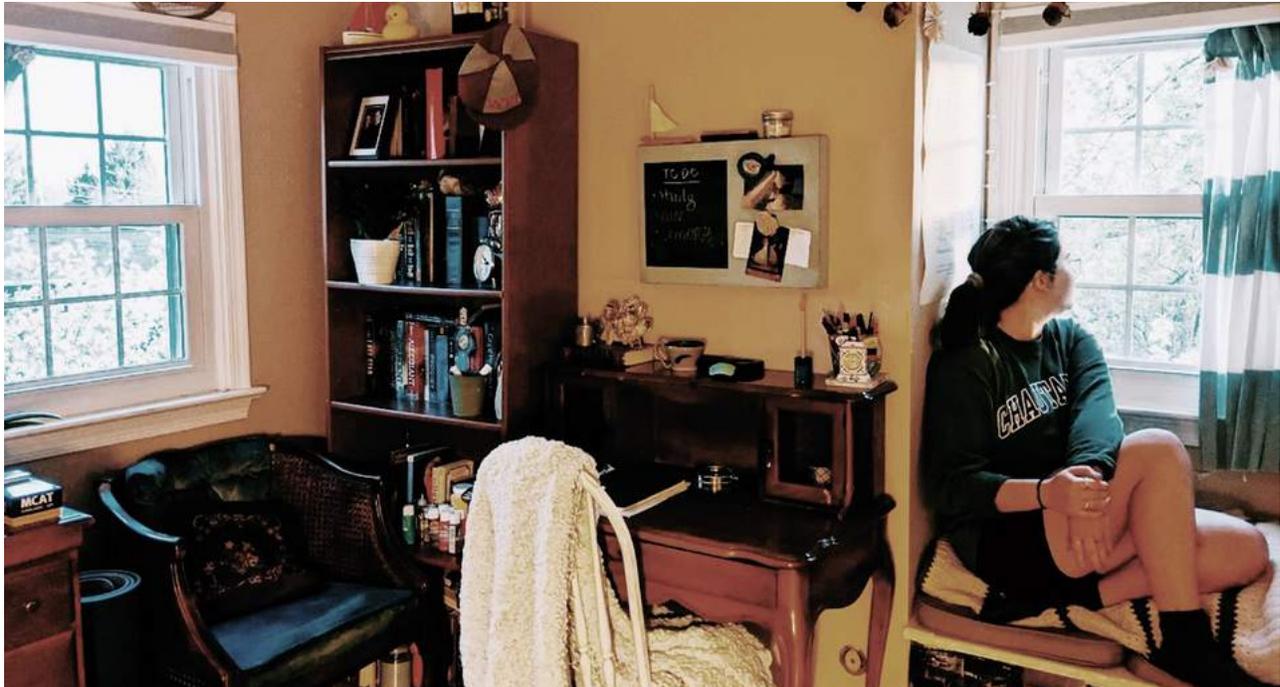
Meg Heinle, a particpant of the program sit by her window under stay-at-home orders.

The Inspiration Behind the Program

Day One

When I set out to plan for the first activity, I knew I wanted it to be an enjoyable activity that would help foster a powerful feeling of embeddedness in nature. When I asked Dave to explain some of the ways that he has been able to find deep connections with nature, he told me about his Sit Spot. Out on his lawn, he has a Sit Spot where he sat at for a few minutes each day over three months. The Sit Spot is an accessible place that can serve as an area for meditation outdoors (Heimbuch, 2018). Dave shared his experiences in his Sit Spot:

"I remember sitting here watching how the sun would rise and see how the shadows would change as the months went on. I would notice how the sound of the birds would change, I would notice when something spooked the birds and you just develop this connection and I think what it does is it takes you out of your head. Which is where all the stress and all that anxiety is, all the thoughts that go through your head. It calms your head, calms that thought process. It kind of helps support that parasympathetic nervous system that helps you just to relax, and it's amazing because all of a sudden nature starts to deceive you because most of the time we walk through nature and we don't pay attention. Even when we're walking through the forest, we're scaring birds. People wonder why they never see anything it's like well because you're walking through the forest like you own it. I was sitting here, and I had birds land on me. It's just some things happen that create this sense of awe and wonder about what's going on."

While this experience surely was unique due to the duration and repetition of returning to the sit spot, I wanted to foster a similar experience on Day One. So, I came up with Day One: Finding Peace Among the Sounds of the Outdoors, each participant would find ten minutes of their day to find a place outside to simply sit and listen. This activity could help many connect to that tranquility Dave describes. I also wanted this activity to show how easy it is to walk a few steps outside and connect to the outdoors.

Day Two

On Day Two, I wanted to elevate the level of engagement that people experienced with the outdoors. To do this I came up with Day Two: Balancing with Uncertainty where I tasked each person to build a cairn. Cairn is another word for a rock pile. People make cairns to provide directions on a trail or mark the top of a mountain. Sometimes cairns are even used as a way to memorialize a place (Chalmers, 2018). Dave mentioned that exploring nature with your hands "deepens that connection with nature. It just opens up a whole new level of awareness and curiosity as to what's going on around you." The activity of finding ways to build a structure encourages a multi-sensory experience, one that utilizes our tactile senses. In addition to the engagement of the activity, cairns can have many different meanings. The meaning of each cairn built could provide a great way to foster discussion and reflection on the pandemic while also connecting to the outdoors.

Day Three

In his book, "Vitamin N: The Essential Guide to a Nature-Rich Life," Louv writes, "The best trackers, wildlife photographers, and hunters practice mindfulness, though they may not call it that. More meaningful experiences in the natural world require deep, moment-by-moment attention" (Louv, 20178, p. 25). To inspire this moment-by-moment awareness, I created Day Three: Growing through Crisis to be an observational experience of finding and watching nature growing or blooming at home. To enrich this observational experience, I asked each person to choose a blooming or growing piece of nature to draw, color, or paint.

Day Four

When Dave Dishaw described his perspective on the pandemic he told me, "People could just sit around and binge Netflix or whatever and yet I'm seeing people out walking. Now, people are out hiking. And I'm seeing families get together. So, you're seeing this kind of slowing down of our life. I've seen change to the nature of humans, and I think I'm seeing people connect more with the rhythm of nature, rather than the rhythm of our chaotic life." I wanted to inspire participants to take time to slow down and connect with the rhythm of nature that Dave spoke about.

One of the most prominent patterns of our day is the rising and setting of our sun. The sun has been shown to play a part in our mental health. In her book, "Mental Health Naturally: The Family Guide to Holistic Care for a Healthy

Mind and Body," Dr. Kathi J. Kemper explains why sunshine on our shoulders makes us so happy. Natural light can help reduce agitated behavior, sleep, and day-night activity patterns by helping us synchronize with our circadian rhythms (Kemper, 2010). This theory helped shape the activity of Day Four: Renewing with the Turning of the Earth which aims to help illustrate the rhythm of nature that Dave was describing. The Day Four activity was to watch both the sunrise and the sunset in a single day. The experience of seeing both in a day would help frame a conversation around the routine that people have found while staying at home. This would further promote conversation about how we can continue to take on each day, mirroring the rhythm of nature.

I asked five people to take on the four-day challenge. The people that I asked to participate had been posting on social media that they had spent time outdoors whether that was going for a long bike ride, watching the sunset, or taking a walk in their neighborhood. I reached out individually to see if they would like to take on the four-day challenge. All of them were excited to have a challenge sent each day over email. Along with the day's activity, they received a few reflection questions to answer in a video or journal entry. After the four days of activities were complete, I held a one-on-one discussion over Zoom to better understand their experiences of the pandemic, share my own, and allow for open reflection of the four-day challenge. The questions I used to direct discussion can be found in Appendix B.

The Participants

Chase Gaudino

Amanda Lowther

Colleen O'Malley

Jody Dicicco

Meg Heinle

"It was nice to slow down and realize that there was no need to rush."

AMANDA LOWTHER

Findings
Day One: Finding Peace Among The Sounds of the Outdoors

During the Day One activity, Finding Peace Among the Sounds of the Outdoors, I asked each person to find ten minutes in their day to sit outside and listen to their surroundings. Meg took to a local trail to find a good lookout to sit during her ten minutes. Chase took a step outside and sat on the front stairs of her house. Colleen walked to a small pond in her backyard. Jody went for a walk through her neighborhood nearby a waterfall as seen in the image to the right. Amanda found a good spot to sit in her backyard near some boulders she used to play on as a kid as seen above. One of the greatest effects of the ten minutes was participants' feeling a slowing down. Many people described the experience as peaceful or tranquil. For Amanda, "It was nice to just kind of stop and take a moment and realize that I feel like it's in my nature to kind of rush from thing to thing. And it was nice to slow down and realize that there was no need to rush." For some, finding ten minutes to listen to their surroundings was a challenge. Colleen told me she kept feeling a need to be doing something other than just settling into the outdoors. For others like Amanda, she had no idea how much time had passed. She had settled into a place where she could let her mind wander and pass no judgement on to the need to be productive in the moment.

While most participants chose to sit still, Jody decided to go for a small walk in her neighborhood. When I asked her what it was like during her ten minutes of listening, she told me, "I remember just feeling like an instant relief, almost like I didn't have any eyes on me, like no one was around, and then all of the birds just finally came out of nowhere. Even though they were probably around all the time, but I just finally took a step back and I felt way more open about where I was". I think her sense of being surveilled before her moment of listening to the sounds of the birds had to do with being fully present in the moment. I have found when I let go of the worries or insecurities I have of how others may see me, I have been able to focus more on the present moment. I tend to do this whenever I am at the top of a mountain. Sometimes after a good long hike, I will take a few moments to close my eyes at the top. I will focus in on the sensations of the wind, the sun on my face and the rock beneath my feet. It helps me to feel grounded, feel more aware of the experience in the outdoors and to feel connected to something larger than myself. It is as if taking those moments to feel and appreciate the earth brings me closer to feeling I am also a part of the great outdoors.

"Life wasn't meant to be lived how we were living, or at least how I was living. You have to slow down and take what comes, like the wind"

COLLEEN O'MALLEY
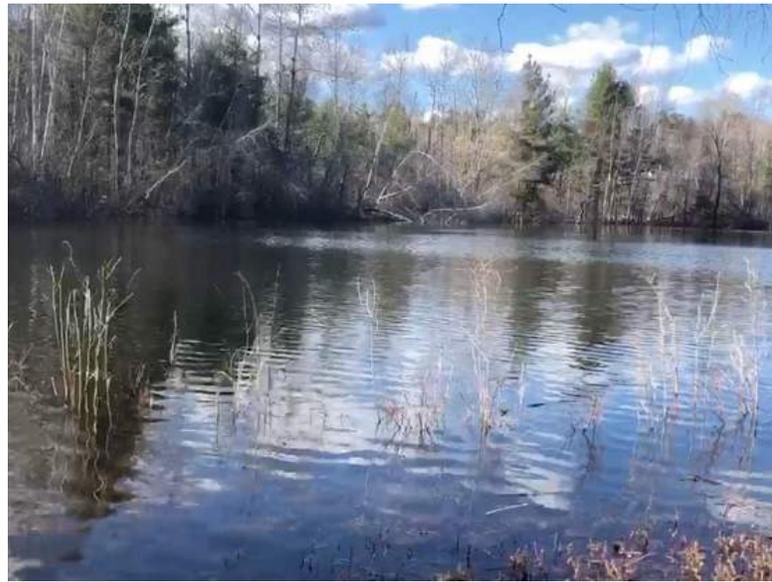
This feeling of being connected to nature was echoed in similar ways by the experiences of other people like Colleen. Colleen looked out on a small pond behind her house during her ten minutes, as seen above. What stood out to her the most was the way the wind affected everything surrounding her. She listened to the way it rattled the tall, dry grass and the dead leaves of the trees around her. She watched the way it would push the surface of the water into ripples. These ten minutes allowed the participants to, in the words of Dr. Mark A. Ellison, softly fascinate about their surroundings. It gave them the ability to experience the sensations of the outdoors while letting their mind wander.

Colleen found a deeper meaning in the ten minutes of silence. In her video journal, she felt that observing the movement of the wind resonated with her during the pandemic. Metaphorically, she feels we need to learn how to better move with the larger things in life that are pushing us. She told me, "Life wasn't meant to be lived how we were living, or at least how I was living. You have to slow down and take what comes, like the wind." We have to learn to become flexible, to let the wind push us and move us naturally.

People observed the sounds of twittering birds, the rush of a waterfall, the wind, the rain. They heard cars and the echoes of civilization, even a woodpecker. Interestingly, some people were searching for the physical sounds of the outdoors whereas others were looking for the absence of sound. For Amanda, she was back at home in Pennsylvania for the pandemic. She was far away from the typical hum of her college town in Worcester, Massachusetts. When I asked her to describe what she heard, she described the sounds of the wind and a far-off dog barking interrupting, what she called the "main event," the silence.

As I was developing the four-day challenge, I began to take time out of my own day to sit outside and listen to my surroundings. I could not believe how many different bird calls I could hear just from my backyard.They were especially loud outside of my window a few minutes before the sun rose.

When I started to take the time to listen, I found their sounds provided me with a sense of hope and peace. As I discussed the other sounds that people listened to during Day One, it occurred to me that I could find a way to compile them altogether. It would be a way to connect all of our experiences. When thinking of a way to compile them, I remembered hearing 'Here Comes the Sun' on the ukulele by a WPI student, Van Harting, I had bumped into on top of Wachusett Mountain at sunrise. I messaged him to see if he could provide me a recording I could use as a music overlay. He was very excited to contribute with music. I explained the idea to each participant and asked for permission to use the recordings they made. A few people even sent me recordings after the program that they wanted included in the song. If you would like to here the song visit https://wp.wpi.edu/covidcollection/

Day Two: Balancing with Uncertainty

On Day Two: Balancing with Uncertainty, I asked people to build some type of cairn or rock pile at home. This cairn could be made from whatever the person felt most inspired to build it from. For some this meant digging up rocks in their mother's garden, collecting pinecones, or even using Easter cookies to make a pile. In many ways, these creations were social constructions that symbolically represented pieces of nature. The Easter cookies were not physical elements of nature, but to Chase, they represented a meaningful end to a family holiday. Her cairn was more of a memorial that represented a holiday celebration during the pandemic. You can see her cookie tower to the right.

Building a cairn was a tactile activity meant to encourage creativity and the important element of balance.

As the participants balanced the rocks physically, I asked them to reflect on their balancing act that they have had to maintain during the pandemic. Before reflecting on the ways people were finding balance in their lives, we discussed what our biggest challenges had been during the pandemic. For the majority, many felt that their thoughts could easily become overwhelming during these uncertain times. The worries that many described included the impacts that this virus will have on our economy, the threat that the virus poses for the immunocompromised, and an overwhelming feeling of not knowing when things will return to normal. The most common ways participants sought to "balance" the overwhelming thoughts and worries was through running and walking outside.

Everyone that participated in the four-day challenge either walked or ran to relieve tension. Running helped people feel more connected to their bodies, whereas walking was a means of connecting more closely to the mind. For example, Chase jokingly mentioned the half marathon she had found herself running the other day. This was a huge feat for her, one that she had been dreaming of accomplishing. What surprised her the most while she was running was she forgot about the pandemic for a slice of time. She didn't plan on running for that long. Her legs just kept going, carrying her 13.1 miles. Was it the experience of the pandemic that allowed her to do this? I'm not sure I know the answer to the question, but there is a lot to be said about how exercise can ground us, it's capacity to provide a cathartic way to process growing worries and challenges. Chase's surprise achievement of running a half marathon helped to balance herself with her overwhelming thoughts.

When Jody described taking walks in the woods, she discussed with me the way the outdoors helped her to think about the world she is living in, "I just start thinking about what's happening in the world and how different things turned out to be. We're so used to having everything going our way and then everything gets uprooted and then we don't know anything for certain. I've definitely been thinking a lot about that and how uncertain everything can be, but in a good way."

Meg has found that activities like baking and gardening allowed her to feel a better sense of control and balance in her life. She described these activities as mind-numbing. This description led me to believe that these activities that had deliberate steps and rules to them provided Meg a different type of fascination, one reminiscent of hard fascination which requires intent focus and attention to detail. This notion of finding comfort in activities at home brought Meg and me to discuss the balance of keeping yourself between ignorant bliss and informed awareness. It is important to know what is going on in the world, but at the same time it is important to not become overwhelmed with the negativity of the news. She shared, "I probably intentionally fill the silences of my day to avoid thinking, but I think it is important to contemplate not only your surroundings but the world at large. I was thinking back on a comment from my sophomore English teacher. She told us it's a sad life to have a quiet mind. I think what she was getting at, that if you are not able to think, and be in peace and quiet, you'll

> **"Everything that we're doing right now builds on itself. It's easy to try to compartmentalize your life but really everything always affects everything ... I think that's just one of those things that realizing the bottom rock you have can be adjusted, and we might realize that sometimes adding an extra rock on top can make you more balanced even."**

AMANDA LOWTHER

have a less fulfilling life. That's definitely accurate, not only to exist in your head, but to be able to have thoughts, feelings emotions, and being able to process them is such an important part of being human. It allows them to get through situations like this." Making cairns prompted nostalgic moments for some. As Amanda searched for rocks, she decided to visit to a part of her neighborhood she used to play in after school. The small area she walked to was a small field of big boulders and dirt piles that developers had left after building their neighborhood. Near these boulders, the neighborhood kids had set up an imaginary fireplace and even nicknamed the biggest boulder "Pride Rock." As she was searching for rocks to add to her cairn, she decided to complete her cairn with a red rock from the pretend fireplace they had created years ago. When I asked Amanda the best way to describe staying at home, she said it was a lot like an eternal snow day, continuous days of spending time with family, picking up old hobbies, and feeling like a little kid again.

Similarly, the pine cones that Jody collected were not rocks, but a material in her yard that reminded her of playing outside when she was younger. She used to collect the small acorn tops and pinecones from her driveway. Building the cairn was in a way, a step back into her childhood.

When I talked to Amanda about her rock pile, she reflected on it in the context of the pandemic. She felt that symbolically, her cairn may have been shifted by the placement of a large rock, which in this case, was the pandemic. She told me, "Everything that we're doing right now builds on itself. It's easy to try to compartmentalize your life, but really everything always affects everything ... I think that's just one of those things that realizing the bottom rock you have can be adjusted, and we might realize that sometimes adding an extra rock on top can make you more balanced even."

One participant's attempt at achieving balance was more difficult. Jody's pinecone pile, as seen in the bottom left corner, tumbled down as she was building it. When she told me about this she said, "I knew that it probably wasn't going to happen on the first try, but the fact that I built it again, it kind of makes sense with what everyone's going through. Like you have this concrete plan, but then it turns out not everything can be concrete, and we have to kind of uproot everything and try again. So, I think that's what everyone's experiencing one way or another."

Feeling inspired after our conversation, Jody sent me a recording of her reciting a poem she wrote when reflecting on what the pandemic has taught her. With her permission, I put her poem with another guitar recording Van Harting sent to me. I also added in a few of the birds sounds that people had recorded. The final product can be heard, on this projects website https://wp.wpi.edu/covidcollection/ .

I built a cairn of my own with the challenges and worries that people have had to balance during this time.
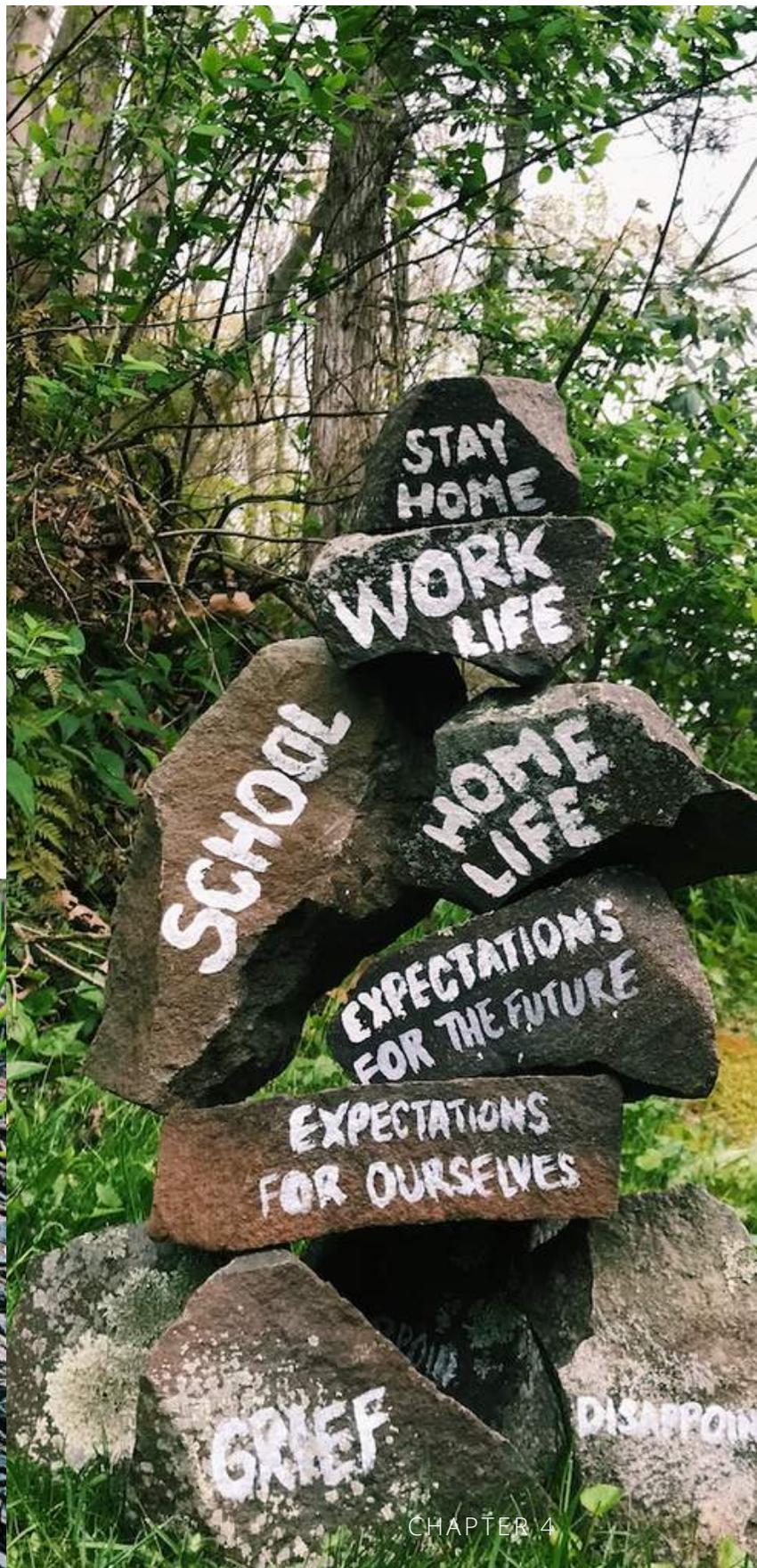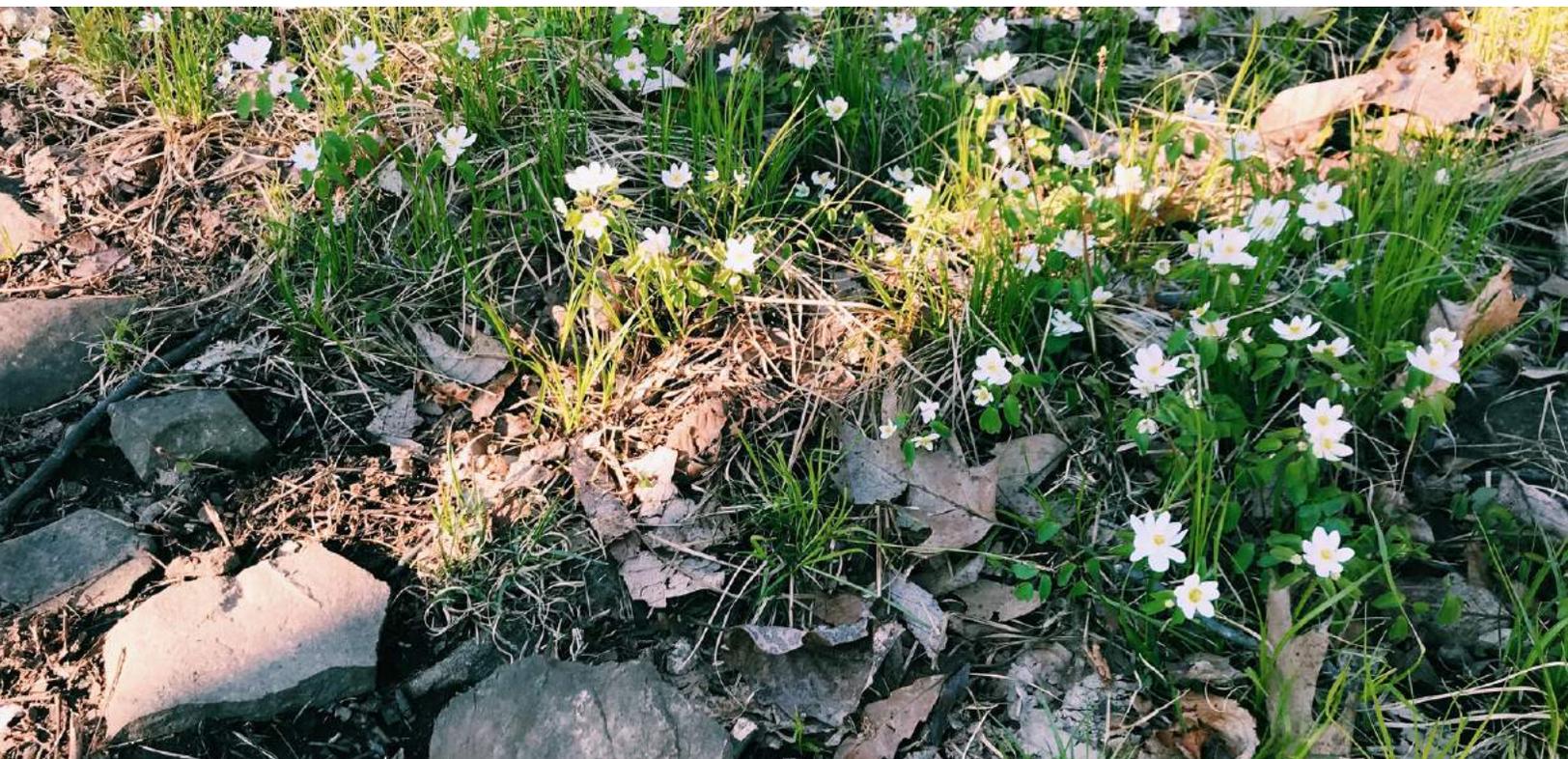
Day Three: Growing Through Crisis

On the third day, I asked that each person draw or paint a piece of nature that is growing or blooming. I received many different submissions including a painting of a blossoming tree, a digital drawing of a Peach blossom, sketches of small ferns, and a drawing of petals from a houseplant. I even got a sketch of a lemon tree.

The challenge of transferring ones' observations into artistic expressions was intimidating for some. Many felt it was difficult to manage the personal expectations that they had of the art. Colleen realized that she had to let go of expectations that she had for her final product. Many of the other participants shared similar feelings as Colleen.

The activity brought a deeper appreciation for the plants. Amanda decided to draw a few of the small ferns next to a yellow flower. She told me, "I found myself just kind of seeing and noticing…And when I look closer, you can kind of tell the diversity of what's there. Some of them were more alive or healthier than others. Some of them were more intricate." She felt that without the activity, she would have never seen those small ferns. Jody had a similar experience: she told me "I was also focusing more on the shadows and the tiny little details that people don't notice unless they stare at something for a long time." She described what it was like to care about the way the veins looked on the leaves, something she never took the time to notice when she would water the plant.

Chase transferred her observations of a blossom on a peach tree using digital media. When she did this, she had a deep appreciation for the color of the petals. She told me that the color pink matched exactly with the one she saw on the peach tree blossom. It was warm, bright, and made her so happy to look at. When I got to this point in the interview, she had a huge smile on her face; she was almost giggling explaining to me why she loved this color so much.

Chase's digital drawing of a peach blossom.

During the activity reflection, I asked them how they have seen themselves adapt and grow as a person during the pandemic. Jody told me during her interview that one of the biggest lessons she has learned is the importance of finding time for yourself, "I battle a strong anxiety not being able to do a lot during a typical day. allowing myself to cave a bit and unwind has been a method of growing through this time in my life." In Colleen's journal entry, she wrote that she has been growing as a person in two ways: as a daughter and a leader. She has been adapting to managing college work while living back at home with responsibilities such as chores, cooking meals, and finding time to spend with the family. She also reflected on the challenges that she is growing through as a leader, how she has to continue to encourage connections through college clubs during a time of isolation, "Now is a time to reach out, spread love and support one another."

As I discussed with them their perceptions of growth, many brought up the way that spring has provided a sense of hope amidst the stay at home orders. Colleen's parents, appreciation for the blooming spring has helped her feel more in tune with the changing of the season. Her mother is always looking for what is new and blooming when she walks outside. When it began to snow, her mom put trash bags over her newly bought pansies to protect them. Then, periodically, her dad would run outside to brush off the snow to make sure they were okay. Chase found that in a way spring is encouraging us to stay hopeful, "you can look at it like nature is still being positive, being constant. Spring is still coming like good things are still coming, they just lie ahead."

Amanda's sketch of small ferns. Her dog, Lucy had jumped on her while she was drawing so she drew in her paw, and Meg chose to paint the a tree in her yard.

Despite rainy weather, Jody completed Day Three from inside, sketching a small lemon tree her family has in their sunroom. When I asked her to explain the experience to me, she mentioned that as she was drawing, there was a tiny metaphor in her mind when admiring the growth of the tree. Jody told me "growing through things like (the pandemic), this kind of changes you for the better. Even if it's something really terrible." Feeling inspired after our conversation, Jody sent me a recording of her reciting a poem she wrote when reflecting on what the pandemic has taught her. With her permission, I put her poem with another guitar recording Van Harting sent to me. I also added in a few of the birds sounds that people had recorded. The final product can be heard here. Below is a sketch I've started of a tree growing with quotes from the reflections about growth and spring.

Jody's lemon tree sketch. The lemon tree had been grown by her father who planted seeds from a lemon one day.

I noticed that the tree was way more remarkable than I gave it credit for. My Dad had literally put a seed in the soil and it became a lemon tree. It made me notice just how much things are growing. Growing through things like this kind of change you for the better even if it's Something really terrible. My grass is really healthy. It's so green, so green and I think that pollution has gone down and the air's much fresher and cleaner. Just the fact that we're doing less harm, I don't know if it's making a direct impact on my yard in my neighborhood. Everyone's cherry blossom trees are blooming. It's kind of nice to see that around this time of year too.

In a couple of weeks we have a garden in our back yard and we'll start getting it ready. It's nice that that's still going to happen even with everything going on it'll still occur despite the pandemic. Spring is still coming, good things are still ahead. Nature's still going to do its thing that it would do normally, it won't change because of the pandemic. Can you imagine being a flower right now? Doing your own thing? Meanwhile we are all panicking? It's crazy. I think I've learned that instead of wanting more, appreciate what you have and what's already there. Find new ways to use what's already around you. I just found myself kind of seeing and noticing. And when I look closer, you can kind of tell the diversity of what's there. Some of them were more alive or healthier than others, some of them were more intricate.

Day Four: Renewing with the Turning of the Earth

This activity proved to be similar to Day One: for many, it was a peaceful way to connect to nature to help think about the pandemic. On Day Four, the participants were asked to watch both the sunrise and the sunset of the day. While watching both, they were asked to document the moment. Following the way that this activity asks you to frame your day, Amanda shared that she has found it much easier during the pandemic to focus on a smaller time scale of the week to week, rather than dealing with the trapping "What Ifs" of the future. When reflecting on the experience, Meg told me, "I probably

intentionally fill the silences of my day to avoid thinking, but I think it is important to contemplate not only your surroundings, but the world at large...not only to exist in your head, but to be able to have thoughts, feelings emotions, and being able to process them is such an important part of being human. It allows us to get through situations like this."

Meg sketched her sunrise and sunset in the shapes of water bottles, inspired by the water bottle she carried with her to watch the sunrise.

Waking up before the sun inspired discussion of the challenge during the pandemic of finding routine during the day. Colleen described the blending of days when staying at home. For her, time feels abstract, as if life right now is moving in slow motion. Amanda shared similar insight: she could best describe it as an "eternal snow day." There are no places to go to, but many things to keep busy with at home while her family waits out the storm. When Jody was asked to wake up for the sunrise, she told me it helped her realize the benefits of waking up early, "opening up my days to having a sunrise and a sunset, cannot only give me more time during the day, but it can also change our perspective on what's important and what kind of attitude to start my day with."

The sun also helped people to feel more open to possibility. Chase reflected on how her productivity is closely aligned with the weather. On rainy days, she finds herself sleeping in and doing less work, whereas on sunny days she motivated to get work done early so that there is more time to enjoy spending time outside in the sun. For Jody, she feels her mood change instantly when she is out in the sun. Chase always has her blinds wide open to let in the natural light; it makes her feel better to see and feel the warm rays even when she is inside doing her work.

Amanda decided to document the moment with pictures of the sun rising through a series of its progression.
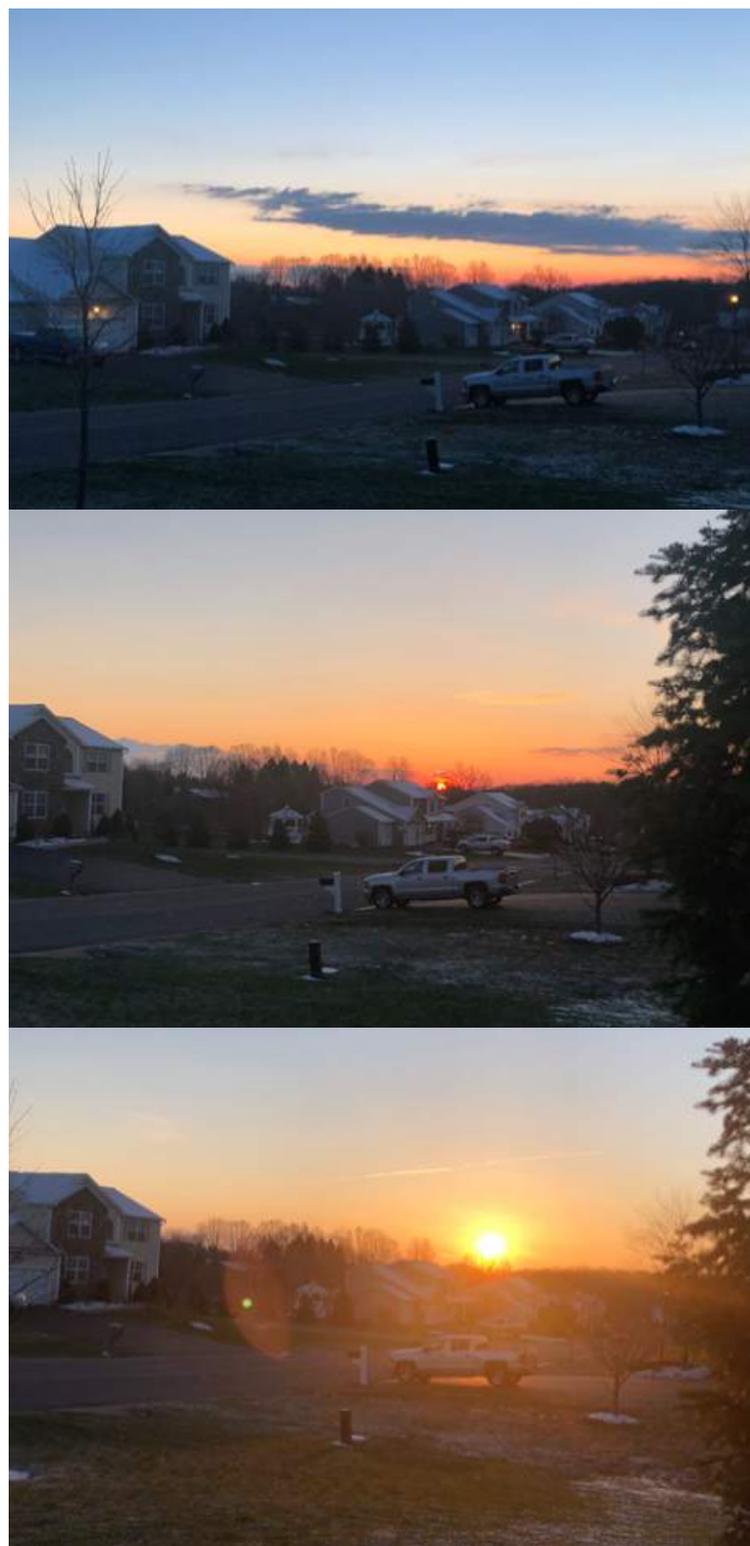
The continuous cycle of nature was mentioned by many while reflecting on seeing both the sunrise and the sunset. I thought Megan beautifully captured the sense of comfort the cycle of the sun brought her in her journal entry when she wrote, "Reflecting on it now, I am awestruck by nature. It is amazing. There are no words that can adequately capture its strength and magnitude. It makes me feel so small, but not in an insignificant way. In this time of great uncertainty, it is comforting to know that the sun still rises and sets. The Earth continues its progression around the sun. Everything will be all right in the end."

In a way to capture the sunrises and sunsets that nature continues to provide us during the pandemic, I collected submissions from various people to create Sun Jars.

It was a symbolic way to capture and bottle up these precious moments that nature provides for us. I also put a few of the quotes that people had about this activity on a sun over the horizon.

During this pandemic, we have lost control of many of life's simple pleasures: getting coffee with a friend, sharing stories at a dinner party, celebrating a birthday. This program has shown me our perseverance during times of uncertainty. Nature provides us with a way to feel grounded and to feel a shred of normalcy in the face of chaos. We can find balance, order and rhythm in nature. Spending time outside is a simple way to deepen our appreciation for nature and a way to find strength. We are resilient.

Peace, Mindfulness, and the Outdoors: Nature as a Refuge from the Stressors of the COVID-19 Pandemic

By Mia DiBattista

Since the beginning of 2020, the COVID-19 pandemic and its repercussions have profoundly changed day-to-day life for individuals around the world (Pew Research Center, 2020). To reduce the number of COVID-19 cases throughout the United States, state and federal governments have laid out guidelines for everyone to stay home (CDC, 2020). While these preventative measures are necessary to protect individuals' physical health, the disruption of daily routine and isolation caused by social distancing can have detrimental impacts on individuals' mental health. For example, individuals may experience stress and anxiety as a result of staying at home throughout the pandemic (Xiao, Zhang, et al., 2020 & CDC, 2020). However, during these difficult and uncertain times, people have been able to find spaces for reflection and restoration within nature.

People within the United States have recognized the threat posed by the COVID-19 pandemic, allowing support networks to develop as citizens comply with stay at home orders. However, these orders have confined people to their homes, hampering their typical daily activities. These orders permit people to go to work if they are considered an essential worker, shop for necessary goods, and allow people to go outside to explore the outdoors, provided they maintain proper social distancing rules such as staying six (6) feet apart and wearing face coverings (CDC, 2020).
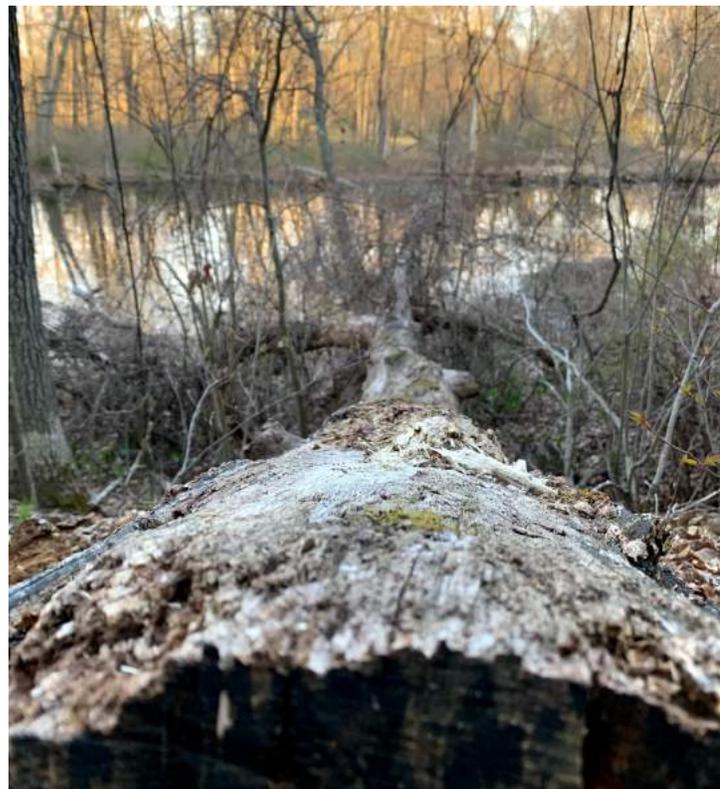
This project investigated the mental benefits and personal experiences while being around plants, animals, and the natural landscape. People can experience natural plants and landscapes by being in their yards, simply walking around their neighborhoods, or being in the woods. All these experiences, and more, are referred to as nature through this project. Using this definition of nature, I sought to identify the benefits and expressions within nature using phone interviews, email chains, and photo submissions.

Nature's Observed Role in Mental Health

The COVID-19 pandemic has created feelings of loneliness and isolation in many people, stemming in part from limited physical activity and social connection (Medaris Miller, 2020). To counter this attitude, people tried to get outdoors. According to the New York Times, on average people in Ohio were taking 2.8 outdoor trips per week, which then grew to 3.2 trips per week two weeks later on April 24, 2020 (Zaveri, 2020). This may be attributed to the physical and mental benefits of being outdoors during uncertain times (Mark, 2020 & Zaveri, 2020).

Interacting with the natural world can create a space that can improve mental health by alleviating stress, anxiety, and depression (Bernstein, Gagne, et al., 2010). A study conducted by Professor Keniger, of University of Brisbane, and her associates investigated the benefits of interacting with nature on an individual level. The research team reviewed 57 academic studies of individuals interacting in nature. In the study, nature was categorized in six ways: as indoor spaces, urban spaces, fringe, production, production landscape, and wilderness. The research team concluded that nature provides physiological benefits such as an increase in self esteem, reduced anxiety, improved behavior, stress reduction, and reduced anger/frustration (Keniger, Gaston, et al., 2013). These findings are supported by a 2017 study that claimed if people spent more time in nature, their mood would be more positive, and they would be less stressed, more connected, and resilient (Weng, Chiang, 2017). Researchers have found that in natural settings, participants experienced lower heart rates and blood pressures, thus further suggesting that spending time

in these environments reduces the symptoms of depression, anxiety, and stress (Jacoby, Kondo, et al., 2018).

While nature provides both physical and mental benefits, people have been drawn to nature to reflect on their lives and to find personal meaning. For centuries landscape artists have used paints and brushes to memorialize nature, but now with the widespread use of smartphones, people are portraying nature and their experiences within nature by taking a picture. Pictures provide a trigger for memory, allowing individuals to remember their mental state and emotions that were felt through the outdoor experiences (Bernheim Brush, Meyers, et al., 2007). Therefore, when an individual engages in an activity such as taking a photograph of their surroundings, they are creating a representation of how they interpreted the world at that particular moment (Ohara, Yasuhiro, et al., 2019).
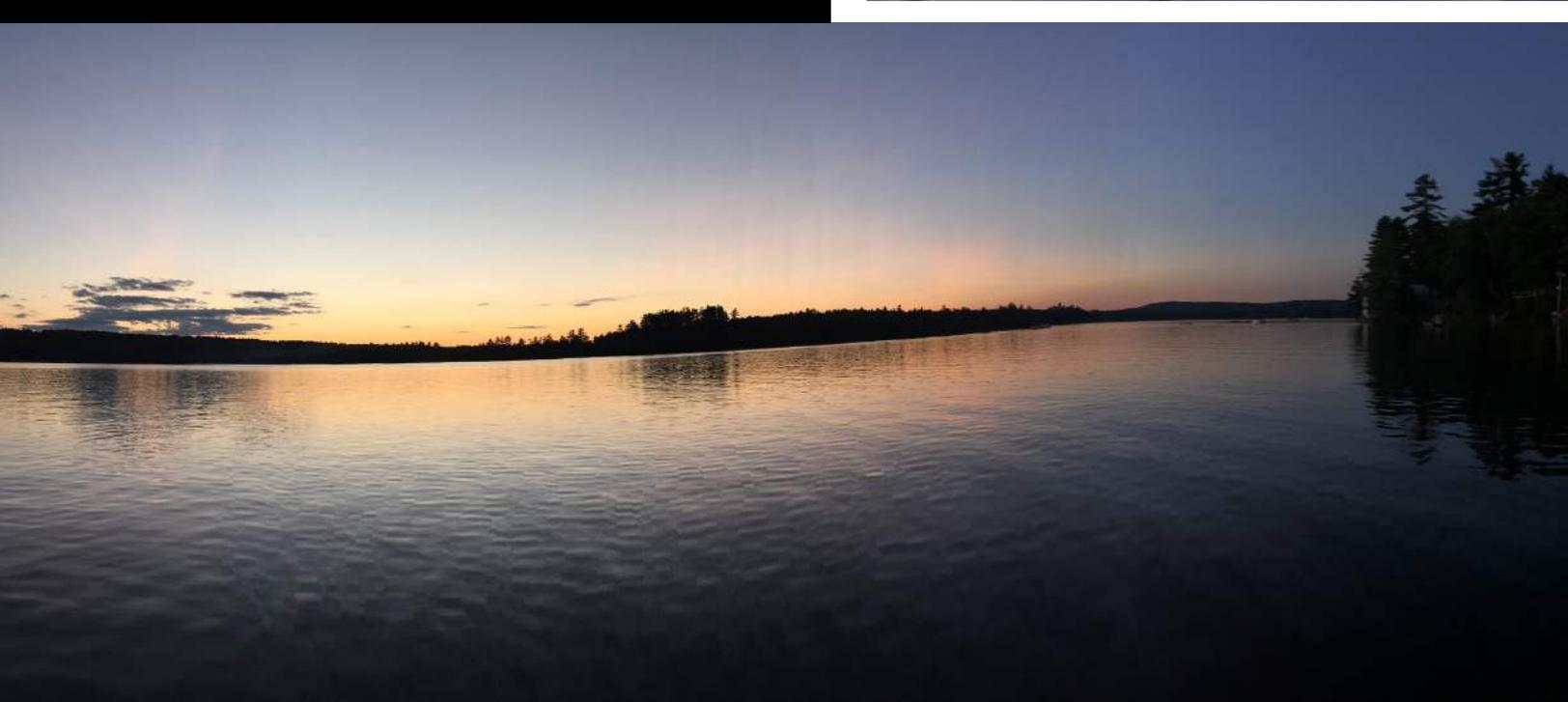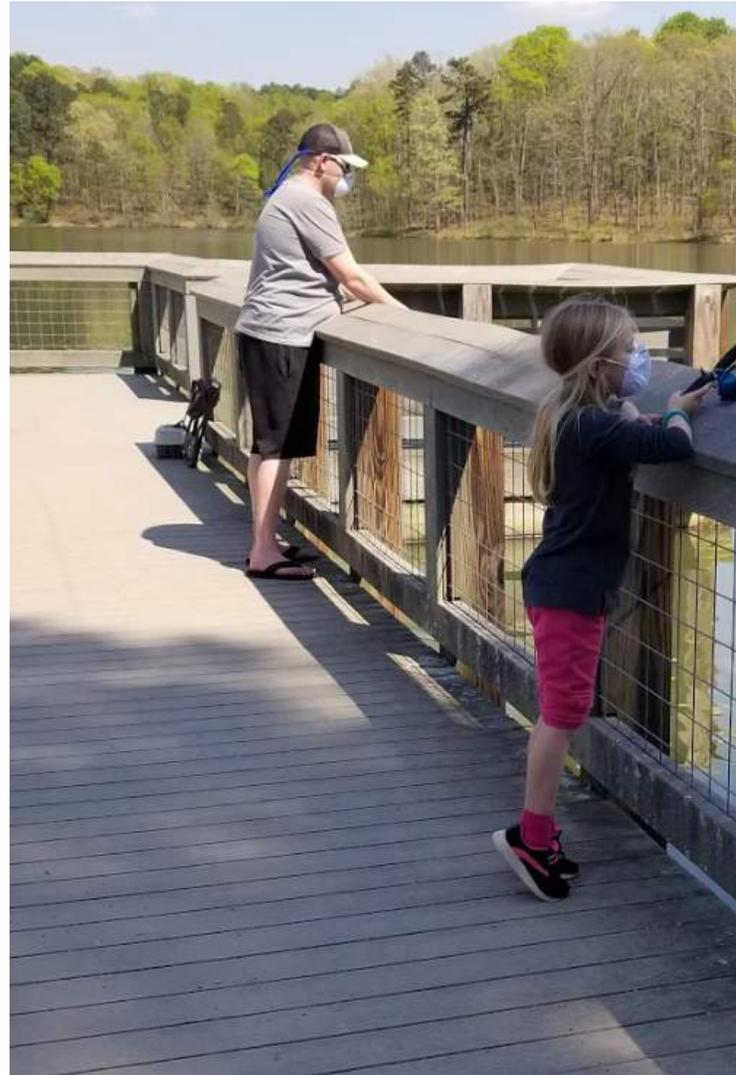
My Approach

The goal of this project was to investigate how people along the east coast in suburbs, like Enfield, Connecticut, interacted with nature during the COVID-19 pandemic. The questions that guided my research included:

1) What outdoor activities do people enjoy during the pandemic?

2) How do people represent nature in pictures while following stay at home guidelines?

3) What do people gain from interacting with nature during stressful situations, both physically and mentally?

To answer these questions, I invited people to participate in this research through the Enfield, Connecticut town email alias, posted it on the Enfield, Connecticut Town Forum, and shared it throughout my other social media platforms, such as Instagram, Snapchat, and Twitter. In the invitation, I included a short description of the project's goals and added a link to a Google Form, which included a file submission for pictures that people wanted to share from their time spent outdoors and social distancing. On the form, participants could include their name, email address, and phone number, if they were willing to participate in an interview to discuss their photographic submissions. After eight people signed up, I began to conduct interviews through email chains, Zoom, and/or FaceTime. These interviews included a brief introduction and questions listed in Appendix A, as well as a discussion of the photograph(s) that they submitted to the Google Form.

With consent from the participant, I recorded each interview via voice recording on my iPhone. If they did not want to be recorded, I wrote down key points and labeled these terms, phrases, and submissions as "Anonymous" in lieu of the participant's name. I partially transcribed the recorded interviews, focusing on the sections of each that emphasized the participant's feelings towards nature. Furthermore, I used a technique called coding to highlight themes that were most common and/or unusual and surprising (Taylor-Powell, Renner, 2003). In addition, I used other photos submitted by participants who I did not interview as additional data. I asked each individual to include a description and reflection on their submissions.

The people I interviewed were college students, employees working from home, or essential workers, as seen in the list below. Despite the variation in occupations, the participants each expressed similar emotions when reflecting on the photos they submitted. However, since each interviewee was unique, there was a difference in how they conveyed their feelings towards nature, though overlapping themes were still present within every discussion.

College Students:
~Ally
~Brandon
~Coulter
~Jacky
~Sofia
Working from Home:
~Freda (Teacher)
~Zach (Engineer)
Essential Workers:
~Michelle (Animal Shelter and Rehabilitation Center)

"Nature is everything to me - it's peace, it's growth, it's hope" - Anonymous

"being outside makes all of the hurting stop and puts all my negative thoughts aside" - Anonymous

"standing tall and firm, showing strength and resilience" - Zach

"Spending time outdoors with the ones I love brings me happiness and makes me appreciate the beauty within the backyard" - Jacky

"Though things are difficult during COVID-19, shadows still show, suns still set, and we still love to see another day" - Anonymous

"With every sunset, comes a sunrise. With every sunrise, comes another day" - Anonymous

"Running outside brings me happiness and reminds me that if we persist, we will get through this as a human race" - Anonymous

"When life comes to a stand still, it's nice to take a step back and appreciate every breeze" - Coulter

"I felt less stressed and like I had nothing else to worry about" - Brandon

"Roaming carefree and serving as the most uplifting sights" - Anonymous

"With restrictions on where I can and can't go, I wanted to discover nature around me that I always have taken for granted" - Coulter

"Nature acts as a vessel to distract us from what is going on in the world" - Michelle

Interpretation of Nature

Since stay at home orders were implemented in almost every state, people could only participate in activities permitted by the state and federal governments. The project participants enjoyed spending periods of time in nature, though the interpretation of activities varied from participant to participant, as depicted in the Polaroid wall above. Michelle believed that sitting on her porch and letting the sun hit her face was being present within nature. Sofia and Brandon believed that gardening within their backyard or fishing on a lake was participating in events in nature. Coulter and Ally interpreted observing wildlife while conducting a hike or a walk around their

neighborhood allowed them to experience nature. An anonymous participant believed that observing the trees and bushes while they walked up and down their driveway was being present within nature. The range of activities make it clear that people define nature in multiple ways and that activities that seem commonplace, such as walking in a driveway, bring the natural world into people's lives during the COVID-19 pandemic.

Sanctuary Found within Nature

While each of the interviewees may have interpreted nature differently, they all felt a sense of sanctuary, or a place of refuge, from the COVID-19 pandemic. For example, one anonymous participant noted that nature could be viewed "from behind the security of the windowpane in [a] bedroom," or being "directly immersed in the beauty of a hike." Another anonymous interviewee felt that nature presents an "alternative reality from the one Coronavirus has brought to our daily lives."

Furthermore, because the stay at home orders have resulted in many individuals interacting with the same group of people each day, nature also provides a private space for people to be completely alone. Brandon used nature as an "escape from the stress of family and coursework by fishing and going on walks." Since he was around his family for long periods of time, he became more stressed and anxious than usual. To address this, Brandon took to walking on a trail that went throughout the town to tamp down his negative thoughts. People can release emotions and thoughts from the pandemic and its consequences through seeking out private, quiet spaces that create a safe sanctuary and allow for reflection in nature.

Nostalgia Caused by Loss

People described how their outdoor activities made them feel nostalgic at times. For example, Jacky, a college junior, reminisced about her IQP in Hawaii. After she completed her project and returned to Connecticut, her family put her into quarantine immediately. Later, the state issued a shelter in place order which further limited the interactions she was accustomed to in Hawaii, where Jacky and her friends "were constantly outside hiking, swimming, shopping". However, during the quarantine, she only walked around her home. She wanted to do more activities outdoors but said "that [it] isn't reachable at the moment." Jacky longed to explore new places and meet new people. To make matters worse, Jacky could not visit parks and hiking trails since her state shut them down, making her quarantine feel more punishing.

Coulter, a 21-year-old college student, also expressed an urge to visit closed trails that he frequently hiked in the past. He believed he was missing out on some of the most beautiful parts of nature around him. The trail closures made the COVID-19 pandemic more of a reality for Coulter and made him miss how everyday life used to be. Zach, an engineer and WPI graduate, recalled a similar experience during his IQP two years before. He completed his research on Nantucket, MA, shown in his photo submission to the right. For him, the photo reminded him "of a simpler time. A time when adult life didn't necessarily seem like a reality… and [he could participate in] more social activities". As the weather began to get warmer, Zach longed for more experiences and time spent outdoors with

friends, which once allowed him to forget the stresses of adult life.

Nostalgia was present in participants who lost out on important social rituals with friends and family, such as birthdays and holidays. Brandon stated that "due to the stay at home orders, there are no social interactions with anyone outside of the people you live with or a brief conversation at the store, [he] has felt more upset than normal, but fishing allows" him to remember the better times like birthdays with his little cousin that he now cannot attend because of the social distancing orders.

Overall, the COVID-19 pandemic and the participants' experiences of loss led to many of them utilizing nature to help recall their past experiences and wishes to return to a normal lifestyle. Nature became a reminder for all that they had lost due to the COVID-19 pandemic and served as a space that reminded the participants of the times they once valued.
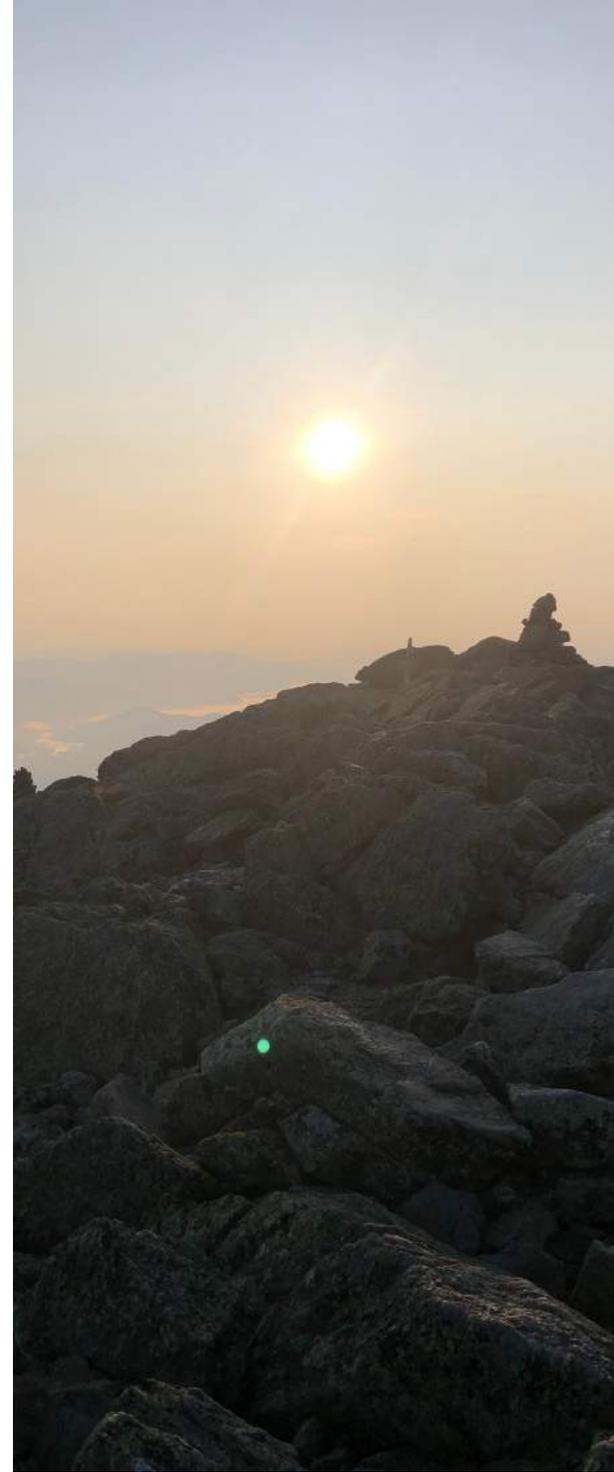
Newfound Value of Nature

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As a result of the stay at home orders, participants found a sense of relief and happiness by exploring or viewing nature. Ally, a college student from Massachusetts, stated that people within her life "required the pandemic to realize how beautiful nature was and participate in physical activity within nature." She personally felt this when she saw the moon and believed that "it was an honor" to experience a full moon and "experience its beauty". Coulter witnessed "other people crowding the trails that [he] normally conducted weekly hikes [on]." He felt that the others were starting "to appreciate every little thing more and more as you have less and less exposure [to it]" when the trails opened back up after the state closed them. Jacky appreciated nature because there is not as much to do like usual" so she started to walk more than normal… and [has] been going outside to [her] yard more often." The participants noticed that, as a result of the decrease in activities that could be conducted under the stay at home orders, people made it a priority to spend time outside. Furthermore, outdoor activities brought people a sense of togetherness, which has made nature an important part of their lifestyle during the COVID-19 pandemic.

Lessons Learned Within Nature Brought Hope and Growth

Participants believed that the world would return to its regular hustle and bustle; however, due to the stay at home orders, they had a hard time keeping that in sight. By going outside and being active, people held on to the sense that the pandemic will pass and in the future will return to normal. Brandon claimed that "looking at the trees growing leaves and grass turning green brings hope that things will go back to normal after the pandemic," conveyed in the photo to the left, taken when he was out fishing with his father. Sofia and her boyfriend's mother both experienced significant mood improvements after they planted "bright pink flowers" in the garden. They were worried that "due to the cold March weather, the flowers wouldn't grow" but they just took longer to bloom. Sofia said, "that when [the flowers] finally bloomed, it was bright and beautiful." This experience taught her the lessons that everything comes back to life and even though people bear hardships, there is always a silver lining. Freda, a teacher, out on a daily walk, spotted a couple who had just been married on the beach alone with a photographer. This made her realize that no matter the situation, people can "come together to share love and passion, even though the virus was raging a couple of miles away in NYC." This experience instilled in her the idea of "hope for a better future" because no matter the situation "people can come together for one thing and work towards forward-thinking and personal growth within nature." Participants were able to hold on to hope through small serendipitous events within their lives.

The Calm Amidst the Storm

The most prominent and important theme I found in the interviews was the idea that nature provides serenity and calmness. Every participant mentioned this, which suggests that being outdoors allows them to clear their heads by conducting activities like fishing, hiking, or watching a sunrise. For Ally "going outside in her neighborhood, walking around, and exploring" made her feel more serene. She believed that "even finding a place to sit down with the sun on your face like a porch or a group of rocks" relaxes you, as can be seen in the picture below. Additionally, Brandon discussed how "he makes an effort to get outside daily no matter the weather …because [he] felt it was important for releasing stressful and anxious thoughts." It was critical for the participants to get outside and take every opportunity they could to relax and destress. To achieve this feeling of calmness and serenity, Freda "prefers quiet walks and time alone outside after work, or during the day to relax and reconnect with nature." She noted that "her work and home life have mixed" which meant she did not have a direct escape from one feeling to another, which she typically had in her usual day-to-day routine. The alone time outdoors allowed her to "complete her best thinking" on these walks by taking her out of the worries of home and finding a more serene place in her imagination. Engaging with the outdoors enabled people to calm their thoughts, get rid of stress, and find serenity within everyday life. This serenity helped them gain the strength to weather this storm.
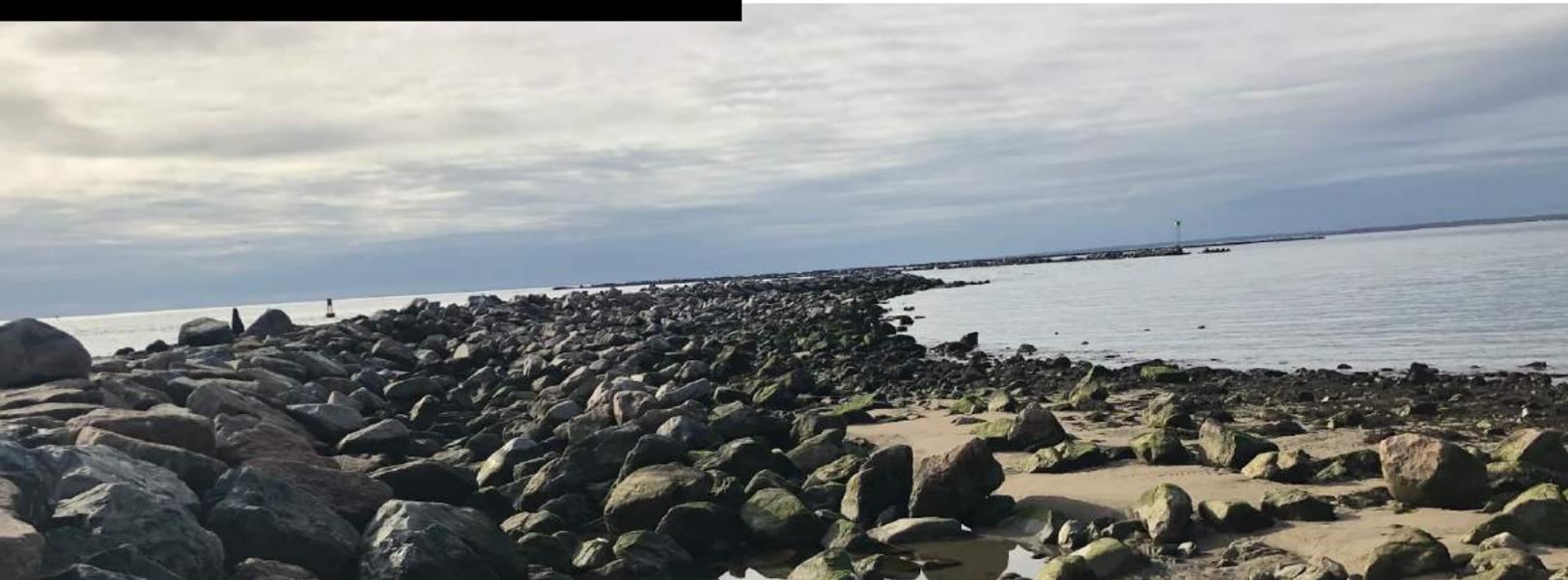
Concluding Thoughts

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Based on my research and findings, I can relate to the themes presented by the participants throughout this research experience. I found sanctuary from the stresses of family life and anxious thoughts by spending time down by the lake I live on. I would sit down and contemplate everything going on and the social interactions that I longed for my life as I watched the waves splash against the shoreline and listen to the wildlife surrounding me. I started to value nature more and became aware of its positive impacts on my mental health, as well as my calm feelings while isolating myself. Nature has always been a place of refuge from the stress and anxieties throughout my life and has become even more important to me during the COVID-19 pandemic.

Furthermore, I can conclude that nature is a powerful tool within the lives of many. It helps improve mental health, by providing a physical and mental refuge for individuals to escape their daily stress, anxiety, and depression. In addition, nature can provide hope and foster growth. Picturesque landscapes and simple outdoor activities have shown to greatly influence our perceptions of life at any given moment, and through simple acts of beauty, nature allows us to hope for a better tomorrow.

MAKING SENSE OF THE PANDEMIC

CHAPTER OUTLINE

UNDERSTANDING OUR NEW NORMAL

Chapter 5

MAKING SENSE OF THE PANDEMIC

The response to the coronavirus outbreak has been widespread as people attempt to understand the situation we are all going through. The federal and state governments have put out different instructions for addressing the spread of the virus, without a clear consensus on the pandemic. Information that is produced at a federal and state level has a trickle down effect that causes doctors to overprescribe medication and causes citizens to panic buy goods like munitions, and toilet paper. Others reactions, a dizzying amount of information, coupled with the lockdown atmosphere has caused stresses on the human condition, making it hard for many to cope. Many of us have turned to social media to share our stories, through humor and creative reflection. In this chapter, we work to understand how we, as government bodies, organizations, families, and individuals, make sense of this pandemic in our daily lives.

Perspectives on Federal Guidelines and New York State Mandates During the Pandemic

Noah Roberts

Due to the quick and easy spread of COVID-19, government organizations worldwide have been implementing guidelines as well as mandates for slowing infection rates. In the United States, the federal government released a set of guidelines they hope the general public will follow but delegated final decisions on legally enforceable mandates to the states. These guidelines include avoiding social gatherings, as well as staying at home if you feel ill. New York, the hardest hit US state with over 342,000 confirmed cases as of May 12th, has implemented mandates through executive orders from Governor Andrew Cuomo (The New York Times, 2020). Some of these mandates include social distancing protocols, with a fine for not following, and shutting down all "non-essential" businesses (Novel Coronavirus (COVID-19)). These guidelines and mandates issued by the federal government and the state have impacted the lives of New York residents, forcing them to stay home to observe social distancing, work from home, and complicate the usual tasks in life like a visit to the grocery store. As a result, this has led many residents to form opinions on how the federal and state government could have worked better to best keep them safe.

The first confirmed coronavirus case in the United States was on January 20th, with a man from Washington state (Bradley, 2020). It wasn't until March 18th when the White House released guidance to the public to help stop the spread of the virus, calling it "15 Days to Slow the Spread." Upon the situation worsening in the latter half of the month, the guidelines were extended to April 30th on March 29th with a new title of "30 Days to Slow the Spread" (CDC, 2019). The federal guidelines consisted mainly of recommendations, such as staying home if you do not feel well, working from home if possible, and avoiding social gatherings of more than 10 people. It stopped short of creating mandates, leaving it in the hands of the state governors and encouraging citizens to "Listen to and follow the directions of your state and local authorities" (CDC, 2019). This approach was taken by the White House due to trust in citizens to follow them, with President Trump saying, "In this time of need, I know that every American will do their patriotic duty and help us to achieve total victory" (CDC, 2019).

Figure 1: President Donald Trump speaks about the coronavirus
in the James Brady Briefing Room, Monday, March 23, 2020, in Washington. (AP Photo/Alex Brandon)

The state of New York was one of the first states to be hit hard with confirmed coronavirus cases. It was also one of the first to implement mandates for residents to prevent the spread of the disease. New York Governor Andrew Cuomo signed the "New York State on PAUSE" executive order on March 20th, which is a "10-point **P**olicy to **A**ssure **U**niform **S**afety for **E**veryone" (Governor Cuomo Signs the 'New York State on PAUSE' Executive Order, 2020). The order included closing schools, non-essential businesses, banning non-essential gatherings, requiring social distancing in all situations possible, and encouraging the practice of good hygiene. Local authorities were informed that they were to enforce the protocols, and lack of adherence to social distancing guidelines would result in a fine of $1,000 (Governor Cuomo Signs the 'New York State on PAUSE' Executive Order, 2020). In addition, Governor Cuomo passed an executive order stating that all New York citizens must wear masks or cloth coverings when out in public, which became effective on Friday, April 17th.

Government guidelines for biological threats or pandemics are not necessarily a new topic. In 2005, President George W. Bush issued a document that established objectives for national strategy in the face of a pandemic influenza (Gingerich, 2006). Due to increasing occurrences of viral strains in humans, it was deemed necessary to prepare for a strain of "pandemic proportions" (Gingerich, 2006, pg. 64). Objectives from President Bush include actions to be taken by the federal and state governments, such as shutting down schools and government buildings, and cancelling public meetings or other events where individuals may gather. The plan was "geared towards preparing for a pandemic and seeking to resolve difficult decisions relative to limited resources for prevention and treatment" (Gingerich, 2006, pg. 65). In addition to this, during the Ebola outbreak in West Africa in 2014, the United States not only led efforts to contain the virus but had measures in place to limit the risk to American citizens (The Obama Administration's Ebola Response, 2014).

Five airports that received travelers coming in from countries affected by the outbreak conducted entry screening to detect signs of Ebola or potential exposure. Following this, each traveler had their contact information sent to state and local public health departments and were subjected to 21 days of monitoring to ensure any signs of the disease would be detected early (The Obama Administration's Ebola Response, 2014). This time around, much of the communication between the federal and state government was less prevalent when the coronavirus outbreak hit New York in 2020, despite the preparation and experiences from previous administrations.

With these federal guidelines and state mandates in place, the majority of citizens have had to change the way they go about their daily lives. A survey from Consumer Reports interviewed American adults about how their jobs, social lives, finances, shopping, and other aspects of their lives had been impacted. In the month of April, 89% of respondents indicated that they avoided public places, and 86% indicated they avoided shaking hands. So, a vast majority are taking more precautions when it comes to personal hygiene and restricting their social engagement. In addition, 29% of those interviewed admitted that they were losing wages as a result of the virus and directives (Bergmann, 2020). With "non-essential" businesses closed in many states, some may have lost the ability to work if their job is unable to be performed remotely.

Due to fear and mandates closing non-essential businesses, much of the travel residents have done is "critical travel" to places like grocery stores or pharmacies . But even visits to these critical places have been altered because of federal and state directives.

Figure 2: A sign at a Whole Foods store in New York encouraging social distancing (Cindy Ord/Getty Images)

Facial coverings of some kind are required in public settings, and many grocery stores in upstate New York have implemented social distancing measures to help keep their customers safe (Hubert, 2020). These measures range from markers on the floor to mandating space between customers in line to checkout, loudspeaker announcements encouraging social distancing, and offering options like curbside pickup and delivery (Hubert, 2020).

These unprecedented federal guidelines and state mandates have drastically changed the way many New Yorkers go about their daily lives. As a result, this has led many to question the way that New York state and the federal government work together to ensure the safety of its citizens during a pandemic.

Methods

The goal of my project was to understand the perspectives of New York residents on the coronavirus prevention guidance provided by both the state and federal agencies, and how they feel about the different directives. In order to realize this goal, I broke it down into multiple learning objectives to focus my research:

- Gather experiences residents had with federal and state guidelines/mandates
  - How federal and state guidelines/mandates have affected their working/school lives
  - How federal and state guidelines/mandates have affected their social lives
  - How federal and state guidelines/mandates have affected their experiences in public
- Obtain opinions on how the directives worked for them to ensure cooperative guidance and citizen safety

To accomplish these individual objectives, I collected resident perspectives through semi-structured online interviews. Conducted via Zoom, a virtual meeting software, the interviews consisted of questions about the experiences residents have had with the federal and state mandates/guidelines, and how it has affected their daily lives. Some of the questions were purposely open-ended to allow for the interview subject to delve into a more personal response. I was able to find nine interview participants through reaching out to some family, peers, and members of my community. The script for the interview questions asked can be found in Appendix A, with transcripts of the interviews in Appendices B-J.

Findings and Results

From the interviews, I was able to gather perspectives from residents on these federal guidelines and state mandates for coronavirus prevention and answer the objective questions that I laid out in my Methods chapter. After completing all of my interviews, I found it more appropriate to break up the residents' experience with the guidelines and mandates into their working or school lives, social lives, and time in public.

Effect of federal and state guidelines/mandates on working or school lives

My interviews allowed me to identify the changes some residents incurred in their professional lives as employees, students, or business owners as a result of these mandates and guidelines. In fact, three of my interview subjects happened to be small business owners. All three of them indicated that their businesses were being economically affected by the directives, despite being considered "essential" businesses. Glenda Salerno indicated that her business of dog boarding has suffered significantly since these mandates have been implemented. She elaborated that her business served mainly those going on vacations, and because people have been at home, the kennel has been pretty quiet. Without dogs to take care of, Glenda said she has "just a lot of cleaning going on." Another business owner, who chose to remain anonymous, expressed a similar sentiment about a decrease in workflow. As an owner of an architectural design firm, they claimed, "75% of my job I still can do from home from computers." This includes site planning, building design, discussing schematics, and meeting with clients, which can all continue in a virtual setting.

The other 25% would be site visits, which cannot be performed since many of the clients are in non-essential construction. As a result, the participant revealed, "that side of the job has ceased since probably mid-March."

The other working residents I spoke to expressed that the changes to their jobs due to these mandates and guidelines were mainly in the way they performed them. First was Lisa Despart, president of a 2nd generation family business which specializes in commercial window cleaning, aerial maintenance, and sanitation services. She said they had to begin reducing shifts to three or four employees at a time to comply with social distancing mandates. Lisa also mentioned that she and her employees had been taking precautionary measures such as wearing masks, taking separate vehicles to job sites, and limiting employee interaction before state mandates were even released. She emphasized her concern for the safety of her employees, stating, "That's just what I think is the right thing to do to keep them safe." Her sense of urgency stemmed from her fear of the spread of the virus, and perceived shortcomings of the state and federal mandates at the time. Another resident, Ryan Carbonara said his job in IT was "chaos" the first few weeks of the mandates, setting up remote work for clients that were deemed essential businesses. However, he spoke of similar cosmetic changes to his job. Along with wearing a mask and gloves while on the job, he mentioned, "…where we used to be touching everyone's mouse and keyboard when we are on site, we have our own personal USB mouse and keyboard so that we're not coming in contact with somebody else's device anymore."

These alterations come from both the federal and state directives, which indicate that essential businesses must implement measures to facilitate social distancing and protect the health of their employees. Eric Mitchell, a Power Systems shift supervisor, revealed that his employer had taken a more extreme approach to the directives as an essential business. He explained, "They took two-thirds of our crew and then locked them in at work. They actually bought campers for us, and the other third is out on standby, so to speak. If they need us, they'll test us and bring us in." As a part of the third on stand-by, Eric is not currently working.

Along with interviewing many workers, I was able to gain the perspectives of those currently enrolled as students: college and high school. The federal government encouraged state governors to close schools if they deemed it necessary, citing that schools were a prime spot for virus transmission. Because of this, all of the students I talked with are currently studying virtually from their homes in New York and a couple of them described their experiences with remote learning with me. Andrew Fleck, a junior at Ithaca college in New York, said most of his lectures are now done virtually through video chat at the same time of day they would be on campus. He expressed that he felt his professors had been "very accommodating," of the changing situation as a result of the mandates, pushing back deadlines, and recording lectures for students that were working or living in different time zones. Jack Sherwood, a high school senior, explained that he also has been learning through video chat, but that his school day looks much different now. He said, "I have one to two classes a day probably for like forty-five minutes to an hour."

This starkly contrasts his usual schedule of four classes a day for eighty minutes each. In addition, Jack mentioned that the change in environment has had an effect on the focus and motivation of many students, himself included. He clarified, "It's kind of hard to teach anything new because it's difficult to get kids to understand it when they're not actually in the classroom." With federal and state directives forcing educational institutions to teach remotely, they are trying to ensure that they are still providing their students with an education they need or are paying for. This has certainly produced a different lifestyle, mindset, and schedule for the students at home.

Effect of federal and state guidelines/mandates on social lives

With guidelines and mandates banning non-essential gatherings, many residents have been closed off from seeing friends and family. Two WPI students I interviewed, both juniors, expressed their longing to return to campus, where much of their social interactions would occur. When asked which part he missed most about his normal life before the mandates and guidelines, Ben Cyran explained, "Definitely my friends. As a college student. I'm still in that glory days part of life, where I'm allowed to go out every weekend and I'm encouraged to go out weekdays even if possible, and so definitely the social life I miss the most. It's certainly a big adjustment going from seeing over 100 plus friends a day to seeing literally only me and my family. I wish I could have more interactions with friends than I do now." Along a similar vein, Amanda Lowther disclosed, "It's simple, but I just miss my friends. I just miss walking on campus and being able to just say hello and talk to people."

She described her experience being at home due to the mandates as "emotionally tough." Amanda also delved a bit into how her social life when she is usually at home in Syracuse has been altered. "I've worked around Syracuse the last few summers, so I've been here for an extended period of time, but when the world was still normal. And you know, I would go to the movie theater with my friends, maybe we'd go out to like a restaurant." The social distancing mandates have prevented her from seeing her friends and having more fun around her hometown. Glenda and Lisa concurred with this point, claiming that they and their families were normally very social people. Glenda explained that her social life had been reduced to going on walks or hikes on trails with her family, and most of the time she is "just hanging out at home and going to the store and getting stuff that you need." She continued that the part she missed most was, "...going out to lunch with my girlfriends and going out to dinner." As for Lisa, she revealed her lack of social interaction also stems from her fear of putting others in danger. "I'm a people person. I miss hanging out with people. I have very limited contact with my mom. Because she is 77 and I'm out and about, if you will, more than she is, even if I just go to the store, I feel like I'm contaminated, and I shouldn't be near her. I haven't seen my niece and nephew in a long time. I haven't hugged them. And it's been a month almost since I've done that and that's it." Others such as Jack have still been able to socialize with friends but put emphasis on taking the necessary precautions for social distancing. He revealed, "I've hung out with my friends a couple times, but it's not like we've been in, you know, in someone's basement hanging out and just, you know, doing nothing and just being really close to each other. Like,

every time we've hung out, it's been like, outside, you know, and we try to keep some distance between us. We're not like hugging or dapping each other up or anything like that."

On the opposite end, Andrew said that being at home hasn't affected his social life a ton, describing himself as usually being a "homebody." Despite this, he continued, "but just the fact that I no longer have the option to really do that, kind of is a claustrophobic feeling….Like before, I would have been like, 'Oh, you know if I can stay inside, just hang out all day, who cares?' But now the fact that I am forced to, and I don't have that option, it's just a very claustrophobic feeling."

Effect of federal and state guidelines/mandates on experiences in public

All of the residents I spoke to commented on their experiences in public, highlighting mainly their time at supermarkets and grocery stores with the social distancing and mask mandates. They commented that most of the stores they visited were taking extra steps to ensure the safety of their customers, such as washing down carts, enforcing the mask mandate, and spraying customers' hands with disinfectant. Glenda commented, "...a lady walked in right behind me and the guy stopped her and said, 'I'm sorry, you can't be in the store without a mask.' So, I was like, 'Wow. They're really not letting people come in without a mask." An anonymous participant praised Hannaford, a local grocery chain, saying "They literally give you a roadmap through the store. So instead of, I don't know if you witnessed this yet, but if you go to the grocery store, you know, it's a free for all. Meaning you got carts going up and down aisles side by side.

All the time because, you know people are going up and down aisles. Well now there's arrows on the floor, green arrows, showing direction. So, it's like a mini subdivision you're going in. So, you go down an aisle, you go up an aisle, and at one of the aisles, they have the green tape showing going up, and at the others it's a stop sign with red tape, so people won't go down. So, they've given you direction to stop the actual passing of people." Some essential businesses have come up with more creative solutions to follow the social distancing guidelines and mandates. Ben commented on his experience with a local liquor store, saying, "People are very careful, store owners have the church baskets that they get the money from. They use that for credit cards to not give hand-to-hand contact, especially in that assumed spread six feet range." He continued that they had a customer-free system in place, where one employee would retrieve whatever the customer asked for in the store, and the other employee would collect the payment via the basket. But despite many businesses adopting social distancing measures, some still fell short of making sure customers felt safe. Glenda explained a negative experience with Walmart, and that she was in awe of the sight she saw when she arrived. "I wouldn't walk into a Walmart in this county if you paid me. The place is packed. Everyone's allowed inside… I walked in, turned around, and walked right back out." Despite federal directives encouraging businesses to develop social distancing measures, lack of rigidity may have caused some to be slow to adopt such policies.

The new normal of people's daily lives is something that they might not have become acclimated to yet. Andrew mentioned that seeing people with masks on in public is almost a "surreal experience."

Citing an experience with his mother at a Walmart, he explained, "I stayed in the car, but there was a loudspeaker in the parking lot, it was very dystopian and apocalyptic. It was this big booming voice that was like, 'Hi, welcome to Walmart. Please stay six feet apart from everyone inside the store,' and they were limiting the amount of people that could go in."

Opinions on how the directives worked for them to ensure cooperative guidance and citizen safety

With all of these experiences they have been living through, residents were able to form perspectives on how the guidelines and mandates from the federal and state governments could have worked for them to be cooperative and ensure the safety of residents. They commented on their overall rigidity of the two directives, and even highlighted the communication between the White House and Governor Cuomo. An anonymous participant spoke of the negative effects of federal versus state politics, and that it can sometimes set up more roadblocks than solutions. He claimed, "I do think that the federal and the states do need to coordinate a little bit better as opposed to bickering. I really don't need it in my life…But sometimes, I guess the polite way to say it is that sometimes politics get in the way. You do what's right for the situation; you don't do what's right to make the headline that day." Glenda concurred with this idea of politics being too much of a player, saying "I love that Cuomo says like, 'this is not about politics.' And I really wish that the federal government would treat this as non-politics and just all across the board. You know, they should have gotten the Defense Act going. And I just wish everybody could be on the same page."

Shortcomings in the responses of the federal and state governments led many to place blame on partisan divides and dig up deeper issues in the way our government operates.

Where I found that residents tended to differ in their opinions on the directives from the federal and state government was the way in which the directives should work together to ensure safety. Some residents claimed that an approach where the federal and state governments were utilizing the same guidelines would have improved the coordination of the response and kept more citizens safe. When asked if this approach should have been taken, Ryan commented, "Definitely. If you had more of a federal shutdown, you would have had more uniformity. You also would have had things done; I think a little faster as opposed to a state sort of shutdown. A state shutdown has a lot more politics." Andrew held a similar opinion, stating "I don't really know how effective guidelines can be just because if they are guidelines, then it's up to the state to put them into effect…So I just think that had the federal government said, you know, 'public beaches are closed, all these non-essential businesses have to be closed' earlier and in a more sweeping manner across all 50 states, I think that the curve would have been flattened faster." Lisa compared the situation with the federal guidelines and state mandates to when restaurants had smoking and non-smoking sides to their dining areas. "Basically, one side of the room was smoking. The other side was non-smoking. That's just stupid, you can't do that. You have to be all in or not. Because if you're going to have half of us doing the masks and social distancing, and the other half of us like 'eh,' well, it's not gonna work, it has to be all or why bother?"

This desire for uniformity in federal and state directives expressed by these residents partly stems from their daily experiences with them. To them, more of a blanket policy for the nation may have made the implementation smoother, along with providing a clearer narrative for residents to follow. For example, Glenda, who had both positive and negative experiences with grocery stores, might not have had a negative experience if stores nationwide were under more rigid regulations from the federal government. In addition, not being able to see friends and loved ones as often as a result of these directives had a hand in manifesting this opinion of federal and state unity. Lisa, who mentioned her fear of spreading the disease to her mother, may have felt safer if there were a more sweeping change at the federal level to encourage social distancing. With their daily experiences and safety of their families in mind, these residents saw playing it safe as their first choice.

Contrary to this, the other residents I spoke to indicated that the federal and state directives should be different because not every state is experiencing the same level of outbreak. Amanda explained, "I think the US is just fundamentally always gonna have to be a little bit less cohesive, just because obviously, New York is still a huge state that encompasses a lot of different situations, but we're a lot more similar as a state maybe than we are similar as a country as to what we're dealing with. So, it makes sense that the United States response would be a little bit less coordinated." Ben concurred with this idea, pointing out that New York has had a significantly greater outbreak of the coronavirus when compared to states in the southwest, or non-continental states like Alaska and Hawaii.

Eric used some unique analogies to describe his opinions on the issue, but still aligned with statements from Amanda and Ben. "Arizona isn't getting affected the way New York is. New York City being the hotbed. New York's got to take more drastic actions. And if the President was going to try to do this, there's no way for him to do it on a federal level that doesn't affect everybody. Then you're really not taking a baseball bat to swat a fly on a wall ya'no? Versus taking a fly swatter. So, it's something a little more precise. Or doing surgery with a Mack truck instead of a scalpel."

Alternative to the previous group, the experiences these residents had led to a different mindset when it came to the directives. Their opinions lied in ensuring that the response was more targeted in nature, therefore having only as large of an effect as necessary. Multiple of them brought up topics such as population density and understanding how it would be foolish to treat the United States the same as a European country. With mandates on a more state-by-state basis, residents in low-risk areas might see friends and family sooner, along with having less of an economic impact.

Finally, Jack took a more hybrid approach to the question. He explained that a federally based mandate approach would be safer for residents, but that after a certain amount of time, it should be up to the states. Jack stated, "I would say that they should be federally mandated with an asterix where they're like, 'you haven't had X amount of cases in so many days, and you continue to practice social distancing as much as you can during these businesses.' A state like Vermont, or I don't know, like Montana that doesn't have that many people so close together."

This opinion takes both of the previous perspectives in mind, and Jack's experience with the objectives convinces him that going all out in one direction may not be the best way to solve the problem. With this, public health would still be a topic priority, but it may have also salvaged what he had left of his senior year.

Conclusion

From my interviews with New York residents, I was able to gather a lot of information about the way these directives have shaped their daily lives. Hearing about the way careers, shopping trips, and social interactions changed goes to show how massive of an event this pandemic is, and how it will be a significant point in the history of our society. In addition to this, I learned how the lack of coordination of the directives by the state and federal governments, along with the experiences residents have had with the directives, allowed residents to produce different perspectives on how they worked for them to best ensure citizen safety.

Assessing the Efficacy of State Governors in Following Risk Communication Guidelines

Ryan Michaud

President Donald Trump officially declared a national emergency on March 13 (Taylor, 2020). Since then, the federal government has provided many recommendations for people to keep themselves safe while also passing legislation to provide large-scale economic relief to many in the country. Legally enforceable mandates to slow the spread of the virus, however, have been implemented on a state by state basis. As of April 7, 42 different states had issued statewide orders urging residents to not leave their houses unless they absolutely have to (Mervosh et al., 2020). Essentially, all public gatherings have been canceled, and restaurants have been ordered to offer their menu on a takeout basis only, if they even choose to remain open, not allowing for the consumption of any food within the establishment. Schools have closed, moving classes to a remote delivery format online, and all non-essential businesses have been asked to close, urging all people to work from home if possible.

The way in which this information is communicated to the public is nearly as important as the information itself. Effective communication has been a constant topic throughout this public health crisis. The Centers for Disease Control and Prevention (CDC) publishes guidelines online for effective risk communication in public health emergencies. These guidelines laid out by the CDC include clear and concise rules and tips to follow for any official or spokesperson that may have to

communicate risk regarding a health emergency to an audience (Center for Preparedness and Response, 2018). A number of scholars also have published works that define guidelines for and components of effective risk communication (Covello, 2003; Glik, 2007; Vaughan & Tinker 2009). The goal of my project was to bring these sources of guidance together to create a framework for analyzing risk communication and determine how effectively the governors in eight different states followed these risk communication guidelines in press conferences when declaring stay-at-home orders. To add greater context in regard to what the situation was like surrounding the spread of the virus in each state both before and after stay-at-home orders were announced, I investigated the growth rate of COVID-19 cases within those states following the implementation of such orders. In determining the efficacy of state governors in communicating health risks to their residents, I brought together two main topics: state government orders for residents to stay at home during the COVID-19 pandemic and pre-established guidelines for risk communication, published by both the CDC and scholars in the field of risk communication.

Stay-at-Home Orders

As the United States continues to fight its way through this global pandemic, individual states have taken action to curb the spread of the virus in an attempt to "flatten the curve" within their state. While these actions take on a wide

variety of names that include "stay at home," "shelter in place," "healthy at home," "safer at home," and others along these lines, the underlying premise is the same (Lee, 2020). In addition to urging residents to stay home, states have also mandated the closure of all non-essential businesses. The definition of an essential business fluctuates between different states, but generally, places such as health care facilities, grocery stores, transit, gas stations, pharmacies, restaurants, and other businesses that provide goods or services essential to people's health and well-being are allowed to remain open and have employees coming to work, while all other businesses that do not fit this description need to close their physical location to customers and operate online only, if possible (Lee, 2020; Mervosh et al., 2020).

Policies vary widely from state to state in regard to enforcement. However, most states have expressed that the primary goal of law enforcement when dealing with violators will be to take an educational approach and encourage voluntary social compliance with the orders to remain at home (Mazziotta, 2020). As Los Angeles mayor Eric Garcetti put it, "99.99% of this can be done without any criminal penalty" (Mazziotta, 2020, para. 12). The stance of taking an educational approach rather than a punitive one is critically important to the underlying goal of getting the public to comply with state mandates. Punishing people will only serve to push them further from wanting to comply with the orders. Helping people understand why things are being done and why we all need to work together in curtailing the spread of the virus is the best chance we have in making that happen. In part, this understanding of why certain directives are being given and why it is important to follow them stems from the way in which state governments are communicating with their residents.

Risk Communication Guidelines

So, why is risk communication important? According to Harvard's School of Public Health, "risk communication is an invaluable tool for engendering trust … and helping the public make informed decisions" (Harvard T.H. Chan School of Public Health, 2020, para. 6). With the COVID-19 pandemic unfolding in this modern digital age, the majority of people have instant access to an enormous array of information, and this is bound to result in differing messages and facts being put out there. Consequently, "there's the very real danger that people may miss critical facts to guide their decision making, or may take specific actions based on misinformation" (Ellis, 2018, para. 5). In making addresses to their residents, governors of different states need to ensure that they are building trust and credibility with the residents in order for the information they present to stand out over the misinformation people may be receiving from alternative sources. The most effective way for this to happen is through an "an open and empathetic style of communication," which is exactly what many of the aforementioned guidelines and tips published by Covello and the CDC embody (Reynolds & Quinn, 2008, p. 13S). Risk communication scholars Michael Palenchar and Robert Heath (2007) conducted an analysis of risk communication studies published over the course of ten years and concluded that it had become "increasingly clear that the main product of risk communication is not informed understanding as such, but the quality of the social relationship it supports" (Palenchar & Heath, 2007, p. 127). For governors during this current pandemic, developing that social relationship with their residents is paramount, because that is what will promote people buying into the directives being issued by the governor in order to preserve the well-being of all people in the state.

For times of public health emergencies, like the pandemic we are experiencing now, the CDC maintains a section of its website dedicated to crisis and emergency risk communication (CERC). The goal of the CDC's CERC program is to provide "trainings, tools, and resources" that will help leaders communicate effectively in times of crisis (Center for Preparedness and Response, 2018, para. 1). Two resources within this collection of CERC resources can be particularly useful and applicable as references for leaders like governors and state officials who must communicate with the public during the COVID-19 pandemic. The first of these is the CERC wallet card, a simple summary of CERC guidelines and tips that can serve as a quick and easy reference. On this card, the CDC lists its top tips for effective risk communication, which, among others, includes acknowledging people's fear, acknowledging uncertainty, explaining the process in place to find answers, and maintaining consistent messages (Centers for Disease Control and Prevention [CDC], n.d.). The second resource is the CDC's published guide on risk communication in an infectious disease outbreak, focusing specifically on the type of issues and concerns that would arise during the outbreak of an infectious disease (i.e. COVID-19). This document lays out the CDC's six principles of CERC, which are "be first," "be right," "be credible," "express empathy," "promote action," and "show respect" (CDC, 2020). "Be first" means that officials should communicate what is known about an outbreak as soon as possible to avoid rumors spreading and to share important information regarding signs, symptoms, treatment, care, and who is at risk as soon as these things are known. "Be right" boils down to showing only accurate information that is known and has been confirmed with experts while also acknowledging things that are unknown and

what is being done to change that. "Be credible" includes always having medical experts available at press conferences or events to answer questions with accurate information and not making promises about anything that is uncertain. "Express empathy" means acknowledging the fears, anxiety, and challenges that are being faced by the public and ensuring that these things are taken into consideration when recommendations are made on courses of action. "Promote action" focuses on the fact that public action on disease prevention is critically important in stopping the spread, and as such, action messages need to be short and simple (like "don't touch your face" or "wash your hands often" for today's pandemic) while also being promoted in a variety of ways to reach as many people as possible. Lastly, "show respect" simply focuses on promoting cooperation and a rapport with the public by giving people a chance to be heard, ask questions, and express concerns, not dismissing the fears or concerns being felt (CDC, 2020).

Build Trust and Credibility by Expressing:
- Empathy and caring.
- Competence and expertise.
- Honesty and openness.
- Commitment and dedication.

Top Tips:
- Consistent messages are vital.
- Don't over-reassure.
- Acknowledge uncertainty.
- Express wishes. ("I wish I had answers.")
- Explain the process in place to find answers.
- Acknowledge people's fear.
- Give people things to do.
- Ask more of people (share risk).

As a Spokesperson:
- Know your organization's policies.
- Stay within the scope of responsibilities.
- Tell the truth. Be transparent.
- Embody your agency's identity.

In addition to the work done by the CDC, risk communication scholars have spent considerable time and effort developing effective risk communication strategies for practitioners. The strategies developed by scholars can be quite useful in combination with CDC guidelines, as they tend to discuss the aspects of risk communication in more detail. Vincent Covello, in particular, provides useful insight beyond that of the CDC. Covello's "Best Practices in Public Health Risk and Crisis Communication" (2003) identifies seven "best practices that should be included in any public health risk and crisis communication plan" (Covello, 2003, p. 5). These seven practices are "Accept and Involve Stakeholders as Legitimate Partners," "Listen to People," "Be Truthful, Honest, Frank, and Open," "Coordinate, Collaborate, and Partner with Other Credible Sources," "Meet the Needs of the Media," "Communicate Clearly and with Compassion," and "Plan Thoroughly and Carefully" (Covello, 2003, pp. 5-7). Each of these seven practices has a bulleted list of guidelines to go in-depth in the description of what specific things should be done to successfully follow that practice. As can be seen in the statement of each of the seven practices, they largely focus on openness, honesty, active collaboration, compassion, and empathy towards everyone involved in a public health crisis in order to establish a real connection with the intended audience. Governors and health officials in every state have needed to interpret guidelines and protocols like these set forth by Covell and those from the CDC in order to develop and execute strategies for effectively communicating with their residents during this public health emergency.

The Process

The overarching goal of my research was to create a framework for analyzing risk communication and determine how effectively the governors in eight different states followed these risk communication guidelines in press conferences when declaring stay-at-home orders. I decided to focus on coastal states, both east and west, where the virus had the highest number of confirmed cases early on. These states would all be within the highest tier (5001 or more cases) on the CDC's map of reported COVID-19 cases in the US (National Center for Immunization and Respiratory Diseases, Division of Viral Diseases, 2020). These were the places with case numbers high enough to give way to widespread community transmission. As of April 7, the states that met these criteria and that I selected for this project were Massachusetts, Connecticut, New York, New Jersey, Georgia, Florida, Washington, and California. With these states selected, I analyzed the video of the governor's press conference on the day that they announced a stay-at-home order for each state, watching each one at least twice. The corresponding written statements to announce stay-at-home orders by each state were largely written as direct statements of what the order was and the details of it. The majority of the risk communication guidelines discussed above, however, would mainly pertain to communication in the first person, where the governor or state official is speaking to and addressing the residents of the state. As such, I decided that using just the governor's press conference was the most effective way to determine the extent to which they were following proper risk communication guidelines when announcing their stay-at-home orders. In this analysis, I determined whether or not the governor followed each of the six principles of CERC laid out by the CDC in its guide for risk communication in an infectious disease outbreak, whether or not the tips on the CERC wallet reference card were being followed, and whether or not the seven best practices laid out by Covello were being followed. I considered the inclusion of other scholarly works on risk

communication, such as those by Glik, Vaughan, and Tinker, but these largely fell under the umbrella of guidelines already laid out by Covello and the CDC. Accordingly, these two sources served as the basis upon which my analysis would be made. I performed the analysis on both the opening remarks that were prepared by the governor as well as their answers to questions from reporters afterward if there were any. The table I used to record the results of my analysis is shown in Figure 1. For each state, the press conference was evaluated for whether or not the governor followed each CERC principle, tip, and Covello best practice with the result being recorded as yes, no, or N/A if for some reason a tip/practice was not applicable to the situation, such as the tip to keep messaging consistent as only one instance in time for each state was being looked at. There were certainly situations where a yes or a no was not an easy, clear cut decision, and in these cases, I rewatched the portions of the press conference in question as many times as needed until I was able to reach a decision of which side the governor fell closer to, yes or no, and had that ultimately end up as their result for the given guideline. From here, the governor's press conference was given an overall score to show compliance with risk communication guidelines by dividing yes's by total yes's and no's.

My secondary objective was to investigate the COVID-19 confirmed case counts and growth rates in the eight selected states following the announcement of a stay-at-home order. I began with the initial number of reported COVID-19 cases on the day before the stay-at-home orders went into effect in each state and continued to keep a record of the total number of cases and the number of new cases each day thereafter. Due to the fact that people who have COVID-19 could possibly take multiple weeks to show any signs and have the case officially

Principle	Yes	No	N/A
Be First:			
Be Right:			
Be Credible:			
Express Empathy:			
Promote Action:			
Show Respect:			
Consistent messages are vital			
Don't over-reassure			
Acknowledge uncertainty			
Express wishes ("I wish I had answers")			
Explain the process in place to find answers			
Acknowledge people's fear			
Give people things to do			
Ask more of people (share risk)			
Accept and Involve Stakeholders as Legitimate Partners			
Listen to People			
Be Truthful, Honest, Frank, and Open			
Coordinate, Collaborate, and Partner with Other Credible Sources			
Meet the Needs of the Media			
Communicate Clearly and with Compassion			
Plan Thoroughly and Carefully			

Figure 1: Analysis Record Sheet. This is where the yes/no/N/A will be recorded for each risk communication principle when analyzing each governor's press conference.

reported, the data on case counts and growth rates needed to be collected for 4 weeks following the day when the stay-at-home orders went into effect, as the week to two-week range directly after the order takes effect would contain cases being confirmed in many people who got the virus before the order was even announced. The data for total and new case counts each day were found on each of the eight states' websites. I stored the data on case counts and new cases per day in Excel and made graphs to show the trend line of each over time. The goal of this data collection was to be able to observe the greater context surrounding the risk communication in each state. No direct correlation was not expected to be present between the extent to which governors follow risk communication guidelines and the rates at which COVID-19 has spread in their state, as there are numerous factors that play into how the case numbers for the virus have grown and changed over time.

Results

Through my analysis of each of the videos of the eight governors' press conferences, I observed varying degrees of efficacy incorporating the principles and best practices of effective risk communication in a public health crisis. Overall, the states I selected did a good job of following the guidelines for effective risk communication, as all but two states, Florida and Washington, scored over 90%. The state by state scores are shown in the graph in Figure 2. The governors of Georgia, Connecticut, and New York all received perfect scores, as each one of them incorporated in their press conference all of the risk communication guidelines that I had brought together for this analysis. Out of the 21 principles and guidelines included in the table for analysis shown in the previous section, two were marked N/A for each press conference, because they did not pertain contextually to the specific situation. For this reason, all of the percentages reflected in Figure 2 are representative of scores out of 19. If one principle was not followed, the score 18/19 yielded a score of 94.7%, which was the result for three different states. Washington at 89.5% received a score of 17/19, and Florida at 68.4% received a score of 13/19. The record sheets with a table for each of the eight states that indicate their full scoring from the analysis can be found in Appendix A.

eight states that indicate their full scoring from the analysis can be found in Appendix A.

Within these results, there were different places where the states not receiving perfect scores missed out and failed to incorporate a guideline or principle of effective risk communication. These areas where states were lacking are shown in Figure 3, not on a state-by-state basis, but rather by the number of times each principle or guideline was left out overall. This means that in some instances, more than one of the guidelines missed that are shown in the figure correspond to the same state. As can be seen, the CERC guideline "Be First" that was discussed by the CDC was the principle most commonly missing in the governors' press conferences, with three different governors (Washington, California, and New Jersey) falling short in this area. The "Be First" guideline was about the timeliness of releasing information to the public as well as the communication of information regarding at-risk groups and options for treatment/care. As it pertained to this analysis of press conferences to announce Stay-at-Home orders, I interpreted the important piece of the "Be First" principle to be the discussion of at-risk groups, options for care, and when/how to seek medical care. The public will have already been told plenty of times the facts about the outbreak and what the signs and symptoms are. The options for care

Figure 2: Graph of Analysis Results. This graph shows the score received by each state in the analysis of how well each governor followed risk communication guidelines.

State Governor Risk Communication Grades

- GA — 100%
- FL — 68.40%
- NJ — 94.70%
- CT — 100%
- WA — 89.50%
- CA — 94.70%
- NY — 100%
- MA — 94.70%
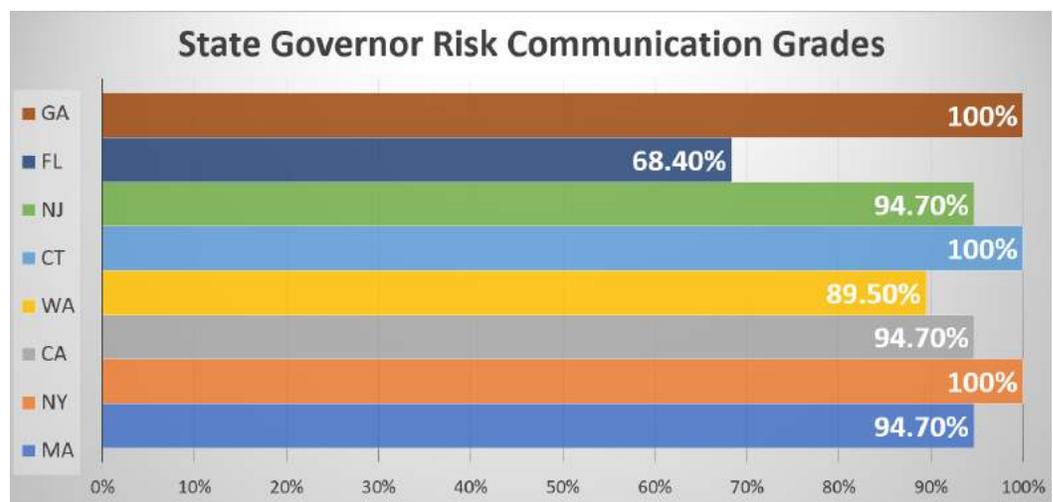
and when/how to seek medical help are critically important things to discuss with the public when beginning a Stay-at-Home order specifically, because states will not want large numbers of residents converging on medical facilities that are already being pushed to their limit. Discussing the appropriate course of action when someone suspects they may have the virus is key to ensuring that everyone is able to effectively keep themselves and others safe. Beyond this principle, the rest of the places where governors were lacking were all unique to the individual states and not repeated between states. Aside from "Meet the Needs of the Media," which was a piece left out by Washington's Governor Inslee due to the fact that no media were present to ask questions when he announced Washington's Stay-at-Home order, the rest of the guidelines or principles that were missing in different governors' press conferences all pretty much pertained to making a connection with the audience in one way or another. The states that did this effectively were the ones where governors discussed the difficulties of this time both for them personally and for the residents of their states, showing empathy and letting residents know that their struggles were not unnoticed. This was the one minor markdown for Massachusetts governor Charlie Baker, who did not meet the

guideline of "Express Wishes," as he did not talk much at any point about himself personally and his feelings and wishes moving forward in the fight against the pandemic. From here, Florida, which was the lowest scoring state, accounts for the final six principles/guidelines moving left to right in Figure 3. These all tie together into the broader issue of connecting with and acknowledging the feelings of residents in Florida. Governor DeSantis did well in communicating updates on the current situation to Floridians and telling them what was going to be done across the state to curtail the spread of the virus, but that was all it was, just a statement of information and facts. That is where Governor DeSantis fell short. Communicating the critical information to residents is important, but as discussed before, so is the way in which that information is communicated. In order to develop the social relationship that is one of the main reasons risk communication is important, the state residents need to hear that their struggles are being felt and understood by the governor. The research alluded to earlier showed that this is what builds trust and credibility, and in the end, that is what will lead to residents buying in and adhering to state guidance in order to achieve the best health outcomes for the state.
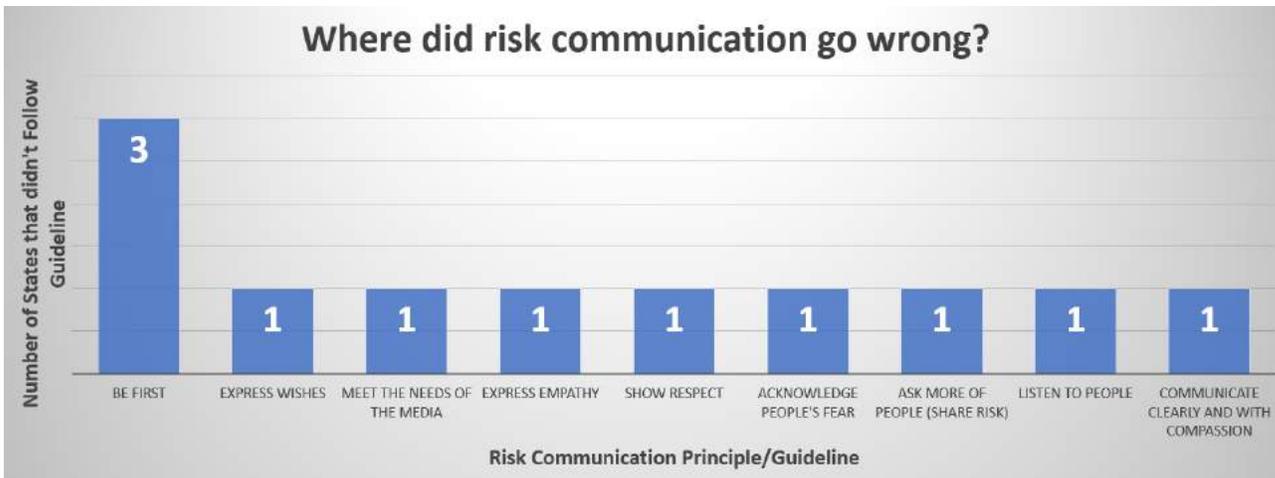

Figure 3: Chart of Missed Risk Communication Principles. This chart shows the principles or guidelines left out by governors in the press conferences and shows the number of different governors that failed to follow each.
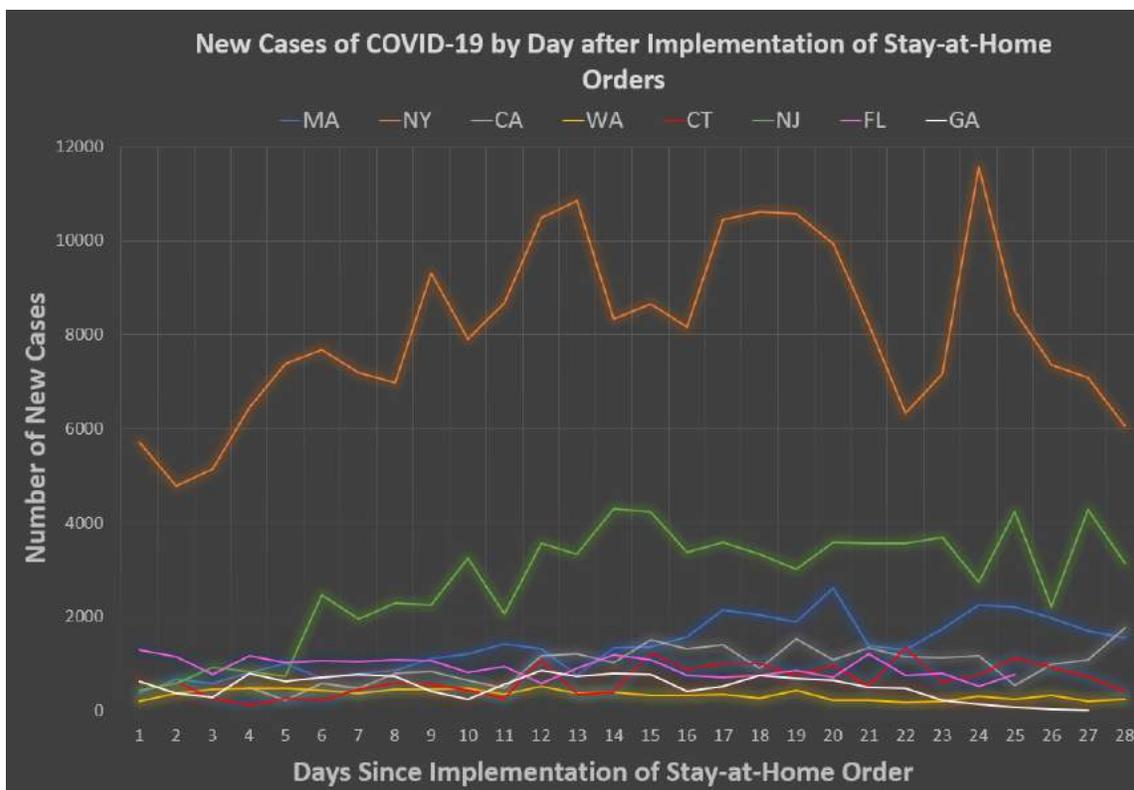
Figure 4: Graph of New Cases by Day. This graph shows the number of new cases of COVID-19 confirmed each day for 28 days following the implementation of stay-at-home orders in the eight states selected.

In the secondary portion of my research, I tracked the case numbers in the eight states I was analyzing for four weeks after the Stay-at-Home orders were implemented. The graph in Figure 4 depicts the number of new cases each day for 28 days after the Stay-at-Home orders went into effect. Even though state grades were high and good for the most part, case numbers in the US are still high due to the fact that numerous outside factors including the sheer size and population of the country are going to contribute to higher case counts and deaths than there are in some other countries. While overall numbers in states such as New York and New Jersey, which are at the epicenter of this pandemic in the United States, were expectedly higher than the rest, it is more the overall trends that are of interest. The majority of the states saw a relatively steady rate of new cases each day, with some states like New York, New Jersey, and Massachusetts, experiencing bigger rises in the number of new cases per day over the first two or so weeks of stay-at-home orders being in place. These changes, of

course, are not directly attributed to any one cause, as there are a wide variety of factors that contribute to the change in the number of new cases each day, not to mention the fact that as time has gone on, states have experienced a growing capacity to test more people each day for the virus. In addition to differences among each state in diverse population demographics and population density distributions that have certainly affected the spread of COVID-19, there are random events, termed "superspreading events," that have led to large numbers of infections all stemming from one singular event (Stockman & Barker, 2020). These type of events, leading to a large cluster of coronavirus cases, have occurred in many of the states selected for this project, including the Biogen conference in Massachusetts, an outbreak at a nursing home in Washington, a funeral in Georgia, and 40th birthday party in Connecticut (Barry, 2020; Stockman & Barker, 2020; Williamson & Hussey, 2020). Each of these events, which began as nothing more than a normal gather of people led to the breakout of

large clusters of cases. An additional aspect that also affected the case counts for some of the states selected was the frequency of international flights, particularly from China, landing in the state. A recent ABC News investigation found that California and New York, significantly more so than any other states, had large amounts of flights landing from China continually from December through March (Kelly & Thomas, 2020). These are all factors outside of stay-at-home orders and risk communication that have led to changes in the extent to which COVID-19 has spread in the different states included. For the graph in Figure 4, a main point of interest comes at the very end of the graph, in the final days of the four weeks. A number of the states included show the beginning of a downward trend in new cases during the latter days of the four weeks for which data was collected. While many factors can affect this, as stated, and the graph shows some fluctuation up and down throughout the period recorded, the beginnings of a downward trend are a sign of hope for all. The communication of stay-at-home orders has been a large part of the broader overall fight against this pandemic, and as we enter May now, the risk communication strategies of governors across the country are up for another test. We are embarking on a new period in this pandemic. States across the nation are beginning to reopen and allow people back into non-essential businesses and public settings. There have been concerns that this may lead to the breakout of a second wave of infections as we enter summer. The risk communication strategies of governors are about to face a very stiff test of the competing desires in getting people back to work and preserving public health. The way that governors communicate with their residents and the way residents respond to this as states

begin to reopen will play a critical role in determining whether society is able to continue to flatten the curve or if a second wave of infections will hit us this summer.

The Dangers of Promoting Hydroxychloroquine

By Samuel Furtado

The emergence of a novel coronavirus, called SARS-CoV-2, in Wuhan China, has triggered a worldwide scientific collaboration to study the virus and find potential solutions (UNESCO, 2020). This collaboration has brought scientific literature from around the world to doctors and researchers as well as the general public to support open access to information surrounding the virus (UNESCO, 2020). Among this information was an open letter written by Chinese scientists to the editors of the journal Cell Research on February 4, 2020 (Wang, 2020). This open letter contained results from a research experiment to test the effects of possible drugs to combat coronavirus disease (COVID-19) along with their toxicity to cells (Wang, 2020). The researchers found two already known drugs that worked to reduce the amount of virus in cultured cells: Remdesivir and Chloroquine (Wang, 2020).

After this letter was published, Chinese researchers conducted early clinical trials on people which found chloroquine phosphate to be an effective treatment for COVID-19 related pneumonia (Gao, 2020). However, this study does not use the scientific method and just came to the conclusion that chloroquine worked because some people got better (Gao, 2020). Then there was the release of a highly contentious study by French doctors, which used hydroxychloroquine and in some cases, hydroxychloroquine combined with azithromycin, a well-known antibacterial (Gautret, 2020).

From there, Dr. Mehmet Oz found the study and started to promote the drug on news outlets such as Fox News (Hamblin, 2020). Eventually, President Donald Trump found out about the putative cure leading to his endorsement on March 19, 2020, during a white house press briefing (Erman, 2020). Dr. Anthony Fauci, head of the National Institute of Allergy and Infectious Disease, tried to elaborate that hydroxychloroquine was among a handful of drugs currently under investigation to identify previously identified drugs that might help COVID-19 patients (Crowley, 2020).

For this project, I intend to explore how the medical community feels about hydroxychloroquine and whether or not they would prescribe it in the United States. I also want to explore how doctors view the FDA and its promotion of hydroxychloroquine.

Hydroxychloroquine Background

Hydroxychloroquine is a drug used to treat a variety of illnesses such as malaria, rheumatoid arthritis, and the auto-immune disease lupus erythematosus (Medline-plus). The drug is prescription only, meaning it cannot be purchased without a doctor's consent. The mechanism of action for the drug is still unknown and even more so, the proposed mechanisms are different for each disease. For lupus erythematosus, hydroxychloroquine is thought to interfere with the body's processing of immune system signals (Fox,1993). For rheumatoid arthritis, hydroxychloroquine might prevent the body's inflammatory response inside joints (Fox, 1993). For malaria, the drug is thought to prevent malaria parasites from breaking down hemoglobin, which they use as a food source (MedicineNet).

The potential mechanism of action is unknown for COVID-19 since doctors do not know for sure what is killing patients (Vincent, 2020). The most likely cause of death is Acute Respiratory Distress Syndrome (ARDS), but blood clotting, septic shock, and multiple organ failure might also cause death (Estes, 2020; Vincent, 2020). ARDS occurs when fluid accumulates in the lungs and prevents a patient from getting oxygen into their blood because of a "cytokine storm" (mayoclinic, 2018). A cytokine storm occurs when the immune system goes rogue and starts attacking infected cells as well as healthy cells (George, 2020; Estes, 2020). This means that healthy cells are dying much faster since both the virus and the rogue immune system are killing cells.

Apart from the disease being dangerous, hydroxychloroquine has its own dangerous side effects. The drug is an immunosuppressant, so common side effects include nausea, vomiting, weakness, and muscle pain (MedicineNet). There are also more severe side effects such as color blindness and an irregular heartbeat (MedicineNet; Simpson, 2020). While these symptoms have been documented as a result of hydroxychloroquine, doctors are still unsure if the irregular heartbeat increases the risk of dying (Simpson, 2020; Lowe, 2020). Several Swedish hospitals stopped administering chloroquine to COVID-19 patients because it was causing partial blindness and the drug is still unknown to be effective (WebMD, 2020).

Medical community perspectives

Three major medical groups support the use of hydroxychloroquine for patients with COVID-19: the current FDA administration, the American Thoracic Society, and the Association of American Physicians and Surgeons (Kim, 2020; Campanile, 2020; Kaplan, 2020; Robb, 2020). On March 28 the FDA released an Emergency Use Act that allowed adults and children to be given the drug even if they were not a part of a clinical trial (Kim, 2020). On April 24, the FDA released a statement that contradicted its original EUA. They warned physicians not to use hydroxychloroquine or chloroquine for COVID-19 outside of the hospital setting because doctors were reporting deaths and poisonings associated with the drug (Lovelace, 2020). This would still allow clinical trials to carry on in hospitals under constant surveillance from doctors.

The American Thoracic Society (ATS) issued guidelines on April 6th that suggest that doctors should prescribe hydroxychloroquine only to patients who are hospitalized because of COVID-19. They state that the patients should meet certain prerequisites to take the drug: The patients currently exhibit symptoms of pneumonia, data can be collected to test the drug's efficacy, the illness is severe enough to warrant unconfirmed drugs, and the drug is not in short supply (Campanile, 2020). The chief of guidelines at the ATS, Dr. Kevin Wilson, said that this measure was prompted because of anecdotal evidence that the drug works and that they can "learn while treating patients" because of the desperate situation (Campanile, 2020). The ATS wanted to state that this guidance is only an interim until more evidence comes out from better trials (Wilson, 2020). On April 27, Michael J. Robb M.D. with the AAPS sent a letter to Governor Ducey of Arizona asking him to repeal his executive order ban of chloroquine for COVID prevention (Robb, 2020). The AAPS reasoned that there is not enough time to get vaccines and randomized drug trials out so hydroxychloroquine should be available right away (AAPS, 2020). However, the governor issued the executive order because one woman was hospitalized and one man died after trying to treat themselves with chloroquine phosphate (Cronkite, 2020).

In contrast, Dr. Anthony Fauci, along with Dr. Luciana Borio, former chief scientist of the FDA, are very cautious about the drug (Crowley, 2020; advisory.com, 2020). In particular, Dr. Fauci says that the French study that found the drug being useful (Gautret, 2020) could only be considered anecdotal because there were only 36 individuals involved in the study and the participants knew they were getting hydroxychloroquine so it was not blind (Crowley, 2020; Lowe, 2020).

Dr. Borio has gone on record noting that hydroxychloroquine has been studied as an antiviral for decades; it has tested positive against several viruses, but the drug has never been successful once in randomized, double-blind clinical trials (advisory.com), which are considered the "gold standard" of clinical trials (Hariton, 2020). In double-blind, randomized trials, participants are randomly split up into two groups: those that get the drug and those that are given a placebo. A double-blind study means that both the participants and the researchers do not know who gets the drug and who does not. These trials are meant to measure differences between the two groups to determine if giving the drug actually makes a difference (Hariton, 2020).

In addition to Dr. Fauci and Dr. Borio, leaders of the FDA during the Obama administration said that the FDA's Emergency Use Authorization undermined its scientific authority (Piller, 2020). They said that the decision was highly influenced by President Trump and other political leaders instead of being based on scientific data (Piller, 2020).

Hydroxychloroquine Backorders

Even before the FDA announced it would allow doctors to administer hydroxychloroquine to COVID-19 patients, shortages started to appear. On March 19th, the same day that Trump first started promoting hydroxychloroquine, the American Society of Health-System Pharmacists (ASHSP) added the drug to its own list of drug shortages, separate from the FDA (Erman, 2020). Almost two weeks later, the FDA finally recognized the drug shortages, however, it had already allowed the drug to be removed from the Strategic National Stockpile (Kim, 2020).

Recently, the US Department of Human Health Services (HHS) has received over 30 million doses of hydroxychloroquine sulfate from a Swiss-based company and 1 million doses of chloroquine phosphate from Bayer (Farber, 2020; Kim, 2020).

These backorders do not only affect the patients with COVID-19; the patients with lupus erythematosus and rheumatoid arthritis are also affected (Bella, 2020; Farber, 2020; Stone, 2020). Anecdotal evidence from news sources such as Fox News and NPR shows how people with these diseases are unable to get their prescriptions refilled (Farber, 2020; Stone, 2020). In the NPR article, one woman tried to get more hydroxychloroquine right after Trump had made the announcement about the drug. She ran out right around that time and had to wait for three weeks before a doctor was able to get her a one-month supply of the drug, during which time her symptoms worsened (Stone, 2020). Some pharmacies in LA even required doctors to write a note confirming the patient has lupus (Farber, 2020).

After the FDA issued a EUA, doctors were given an ethical dilemma. They could either side with the ATS, AAPS, and FDA and give the drug to hospital patients or side with the NIAID and previous FDA leaders who are waiting until more evidence comes out to support using hydroxychloroquine. If doctors choose to give out the medication to COVID patients, they might cause more problems with heart arrhythmia or even having the heart stop (Yazdany, 2020). Doctors might also contribute to a major shortage of hydroxychloroquine, which would prevent patients with lupus or rheumatoid arthritis from getting their medications (Bella, 2020).

On the other hand, if doctors do not give their patients the drug and it turns out to be effective against COVID-19 they could cause more unnecessary deaths to the virus.

Methods: Consultation with Doctors and Lupus Patient

The purpose of these interviews were to better understand the opinions of doctors about the FDA and whether they would prescribe the medication. I also interviewed a patient with lupus in order to see if they had any trouble acquiring their medication. I conducted interviews with one person who has lupus as well as three medical professionals: a nurse and two doctors who can prescribe medications. I interviewed medical professionals in order to get their perspective on how the government has handled the promotion of hydroxychloroquine and whether they would prescribe the drug if they had the chance. Then I asked the medical professionals what they thought about the FDA's Emergency Use Authorization for hydroxychloroquine. Some of the questions I asked the medical professionals include:

- Have you had any previous experiences with hydroxychloroquine?
- Do you think the drug is dangerous to COVID patients?
- Do you agree with the FDA's release of a EUA for hydroxychloroquine?
- If you were an ER doctor, would you administer the drug to your patients?
- How does the body react to COVID-19?

These questions helped me to better understand what someone in the medical community would do for a patient with COVID-19 and whether they think administering the drug would be a good idea.

Another thing I hoped to accomplish from this project was to better understand the consequences brought on by the promotion of the drug for people with lupus erythematosus. In order to do this, I interviewed someone that currently has lupus and takes medication for it. Some of the questions I asked are:

- Have you had any trouble refilling your prescription?
- How does the medication help you and how severe is your lupus?
- Do you notice any side effects while on the drug?
- How does your lupus affect you without hydroxychloroquine?

Results: Interview with Medical Professionals and Lupus patient

After consulting with the medical professionals, I had a better understanding of the virus as well as what they think about hydroxychloroquine. My first interview was with a married couple: Dr. Douglas Jicha M.D., a cardiovascular surgeon, and Debora Jicha, a nurse anesthetist both living in California. My second interview with a medical doctor was with a neurologist named Dr. David Chen, M.D. from Boston, Massachusetts.

There were a lot of similarities between what the medical professionals said, most notably that neither one would prescribe hydroxychloroquine as a treatment for any severity of COVID-19. As justification, they said that the current tests did not provide enough evidence to support the use of the drug. All of the medical professionals stated that they would only consider the drug after a randomized clinical trial found that hydroxychloroquine benefitted patients.

This makes sense because a randomized controlled trial (RCT) shows a much clearer correlation than a non-randomized study since it will minimize bias from the patients as well as bias from the providers (Hariton, 2018). Even more concerning, Dr. Jicha stated that doctors still do not know the potential mechanism of action for the drug. They know that the drug works as an antimalarial medication possibly by preventing the parasites from metabolizing (Fox, 1993), but all they have seen for COVID was that the drug killed some of the SARS-CoV-2 virus in vitro meaning in lab conditions and not in the body.

To further this point, more studies have shown hydroxychloroquine to be detrimental to the health and safety of patients. Debora Jicha stated that hydroxychloroquine and azithromycin might have a greater chance to stop the heart when working together. Upon further investigation, I found that the drug combination increased the QT interval of patients, which is how long it takes for the heart to contract and relax (Cox, 2011). A QT prolongation with this drug combination greatly increases a patient's risk of developing a heart arrhythmia (Lowe, 2020), which can be very bad for the COVID patients that already have heart issues.

When asked about the Emergency Use Authorization, Douglas Jicha M.D. said it was odd that the FDA gave out a recommended dose for hydroxychloroquine since there is no evidence to support the drug even works against COVID-19. Both of the medical doctors talked about how the FDA usually needs a lot of evidence to prove that a drug will work and it will usually cost a lot of money for a company to get the adequate testing done to get their drug approved.

Also, just because a drug is on the market does not make it the best and most effective drug. Comments made by the doctors suggested that they will do research on a drug and use their own judgment to think about whether or not they would prescribe it to a patient.

After talking with medical professionals, I decided to talk to someone who has lupus erythematosus named Elizabeth Pecka. I asked her about what her condition is like when she is not on hydroxychloroquine. She said that she has a general feeling of pain when she moves around, but she also gets flare-ups about four times per year where she is in a lot more pain. She said these flare-ups cause a lot of pain in her chest and joints and she needs to lie down for the day. She also gets sores and blisters across her skin that erupt. With the medication, there is much less general pain, and she only has about one or two flare-ups per year, but they are weaker than when she is not on medication.

When asked about side effects to the drug she said that she doesn't feel any side effects now, but when she got back on it after being pregnant, she felt nauseous for several weeks. She also said that nausea from getting back on the drug was better than the regular pain she had from her condition.

I also asked her about whether she has had trouble getting a refill of her prescription. She said that when she went to her closest pharmacy, they tried to give her a 14-day refill because they thought she was a new customer. She told them to look her up in the logs and they eventually gave her enough hydroxychloroquine for 30 days even though she should be getting enough for three months. The pharmacist said that she would have to come back in a month if they still had enough of the drug to give out.

Conclusions

From my interviews with medical professionals to the research on hydroxychloroquine and the backorder of the drug, I think that the FDA's promotion of the drug is dangerous. When I started researching hydroxychloroquine in March, there seemed to be a much stronger case that the drug might work for COVID-19 and that it might be safe since the drug had already been FDA approved as an anti-malarial. As more studies came out over the next couple of months, reports started to come in that showed some of the more dangerous side effects of the drug and more evidence that the drug was ineffective against COVID-19. When I started to do interviews in late April, clinical evidence was already pointing doctors away from prescribing the medicine and the FDA had retracted its original promotion of the drug.

Right now, in early May, we can look at the promotion of hydroxychloroquine as an example of what not to do in the future. With the government looking into other potential drugs such as Remdesivir, it is important to look back on previous mistakes and figure out how to change them in the future. Although the situation was dire, hydroxychloroquine did not have enough evidence supporting its usefulness as a treatment to COVID-19 and the FDA should not have issued a EUA so early on in clinical trials. This action caused a large backorder of the medication and may have caused more unnecessary deaths due to complications with the drug.

An Investigation of Panic Purchasing During the Pandemic

By Connor Craigie

Due to the pandemic's high rate of infection, residents across the country, even in relatively unaffected areas, are urged to stay in their homes and have restricted access to local businesses that continue to operate. With the economy cratering and disruptions to supply chains, people have found grocery store shelves empty of necessities such as disinfectant, flour, and toilet paper (Lewis, 2020). These shelves have been emptied through the actions of everyday consumers I wish to investigate. I have attempted to uncover the factors the drive mass purchasing and how the unfolding disaster of the pandemic influenced consumers to change their purchasing habits.

Humanity has a long-recorded history of hoarding valuable goods. Tens of thousands of years ago, "Upper Paleolithic humans, much like arctic jays and squirrels, began to cache food systematically so as to serve as a buffer against uncertainty. In the ninth and tenth centuries, northern Europeans cached coins to preserve them from the ravages of Viking raids" (Smail, 2014, p. 9). The act of hoarding has been built into our survival DNA. It has been crucial to our success as a species and is becoming ever more relevant in our actions concerning the Covid-19 pandemic.

Many citizens are fearful of an uncertain future and turn to tactics of panic purchasing and hoarding. (Smail, 2014, p. 9) argues that the action of panic purchasing "arises from the overactivation of the adaptive instinct to save things". In the case of the coronavirus, the sudden scarcity of items such as toiletries and cleaning supplies have sent many of us to supermarkets and grocery stores to collect whatever is available.

This panic buying, according to researchers (Novemsky, 2020), is driven by our need to exert control and to avoid the regret we would experience going without these common items (Novemsky, 2020).

Unforeseen Demand

It is not uncommon to see the public stock up heavily on canned goods, batteries, bottled waters, and other nonperishables in the face of a looming hurricane or blizzard. However, the Covid-19 pandemic is different from these natural hazards it has no predicted end. In the face of these extreme weather events, food distributors will typically ship more product to those select stores to meet an expected surge in demand (Kluger, 2020). By contrast, in the case of the coronavirus, consumer purchasing spiked suddenly, to an excessive amount (Carufel, 2020).

The consequences of panic buying are exacerbated because many stores rely on a business strategy known as just-in-time ordering, where ordering schedules are "tailored precisely to demand, so that unused stock does not sit in warehouses or go to waste" (Lewis, 2020). Many supermarkets and small groceries have run out of toiletries, canned goods, cleaning supplies, and many other products. In many cases people are forced to temporarily go without these common household items (Lewis, 2020). Empty shelves in supermarkets for weeks on end suggests that supermarkets and their suppliers did not expect a surge and sustained level of panic buying (Lewis, 2020). Commentators claim that the imbalance between supply and demand is less about production capacity and more related to supply chain operations (Lewis, 2020).

The scarcity in supply of toilet paper is an example of an underperforming supply chain. Not for the first time, markets around the United States were unprepared for sudden spikes in demand (Barufaldi, 2020). In 1973, Gas prices skyrocketed to an unprecedented high, unemployment reached 8.8%, and the nationwide GDP dropped a total of 3.6% (Barufaldi, 2020).

Later that year on December 19, 1973, Late Night host Johnny Carson made the joking claim that "You can laugh now, but there is an acute shortage of toilet paper" (Buder, 2020). This claim, although untrue, sent an already nervous America scrambling for toilet paper.

This occurrence labeled as the great toilet paper shortage of 1973 holds recognizable similarities to the current situation of COVID-19. In both past and present day, the public is noticeably worried. They are stressed about the situation enveloping their everyday lives and are fighting to gain control of their situation (Huntley, 1973). When people are uneasy, it is very easy for rumors to spread like wildfire and even escalate in severity. Marketing professor Steuart Henderson Britt wrote that "One person says there could be a problem. The next person says there probably is a problem. The next person says there is a problem" (Buder, 2020). Our digital age only increases the speed by which rumors spread (Garza, 2020).

The Psychology of Panic Purchasing

Panic buying can be understood, at least in part, through the lens of psychology. Humans' reactions differ depending on the environment they find themselves in. In the case of COVID-19, the situation poses a danger to an individual or those around them. The part of the brain that processes this fear is known as the amygdala (Whitehead, 2020). Typically, if an individual is consistently stressed or worried, their amygdala is in constant action. When this portion of the brain is stimulated consistently, "the heightened activation temporarily shuts off rational thinking" (Whitehead, 2020).

Dr Shahram Heshmat, an associate professor at the University of Illinois, separates brain activity into two forms: logical and emotional. Our logical thoughts often assure us that we have enough supplies to last a significant and certainly reassuring amount of time. However, emotional thought often overshadows our logic (Heshmat, 2020). For example, a person may know they have enough toilet paper to last them months.

However, the known shortage of this item and visual imagery associated with cleared shelves triggers an emotional response. This response easily overshadows logical thought and usually would lead us to buy the toilet paper accessible to us immediately. We do this to be 'better safe than sorry' which directly stems from our natural fear of missing out. It is expected that a human would still purchase the product to avoid any future regret they may have if this item is passed up (Heshmat, 2020).

It is also important to understand the effects of others on an individual's action. Dr Heshmat discusses how fear can act as a contagious entity. Similar to viruses, fear has the ability to transfer across hosts. "This may occur even though there was initially no rational basis for fear. As a result, a group of people unknown to one another may spontaneously come to adopt emotional unity" (Heshmat, 2020). In the case of the pandemic, emotionally unified people are more likely to follow the actions of others. It is this emotional unity that fuels the herd mentality often associated with recent purchasing behavior (Heshmat, 2020).

Nathan Novemsky, a professor of marketing at Yale University, states that consumers panic buy to assure they and their families are safe. Panic purchasing, in the case of Covid-19, helps consumers assert control of their uncertain situation. He claims that a major driving force in consumer purchasing is the anticipation of regret. After seeing empty shelves, consumers are afraid of running out or missing the chance to purchase high demand items (Novemsky, 2020). Dr Sara Houshmand, an active counselling psychologist says that "in extreme forms, these seemingly protective behaviors often suggest a misappraisal or exaggeration of an anticipated threat" (Whitehead, 2020).

Another way people have sought control during the pandemic is through the purchase of firearms. Psychologists categorize self-defense firearm ownership into two major distinctions; 1) People purchase firearms and feel comforted by owning a weapon, not to quell a fear, but rather because they feel it is good to have a firearm (Dowd-Arrow, 2019); 2) People purchase self-defense weapons due to fear and uncertainty of the future (Dowd-Arrow, 2019). As Novemsky, (2020) notes purchases motivated by fear can be attributed to those seek to gain a sense of control (Novemsky, 2020).

In many areas of the country, there has been a surge in the sales of guns and ammunition. The online gun and ammunition distributor Ammo.com experienced a major sales surge between late February and early March. During this time period the site reportedly saw a 68% increase in their overall sales of both guns and ammunition (Brown, 2020). Individuals interviewed by reporters while purchasing a firearm expressed concerns. However, these concerns were not about getting ill from the virus but for the violent actions that could result from the pandemic. Seventy-one-year-old veteran Ralph Charette spent $1500 on firearm paraphernalia after being shoved by crowds of people in a local supermarket. Mr. Charette stated that, "Now, if looters come knocking, I'll be ready" (Brown, 2020). In cases like Ralph Charette, people imagine the worst outcomes unfolding---chaos, a breakdown of social order, vigilantism. In response, people have tried to navigate this uncertainty and from the outset of the pandemic have started hoarding toilet paper and ammo.

The goal of this project was to document how the pandemic has affected people's buying behavior. I conducted a series of personal interviews with people who have been affected by the stress of the COVID-19 pandemic. I have selected modern consumers who have lived through this strange time. I have interviewed multiple people who shop for their entire household such as Ilona Sobkowiak, Diana Craigie, and Dale Publicover. I have also interviewed Bill Publicover, Joe Bonnell, and Ryan Colombie, who did little to no shopping in the past. I have attempted to identify whether their habits have changed due to Covid-19. Finally, I have interviewed Genavieve Lombara and gained her perspective as a grocery worker dealing with the complex purchasing driven by the virus. My overall goal was to document people's purchasing decisions, uncover their associated thought process when purchasing for the pandemic, and identify the differences between buying in bulk and panic purchasing.

I developed two sets of interview questions which can be seen in the appendix. One question set was tailored specifically to residents currently staying home.

In these consumer interviews I identified participants recent purchasing history, and assessed how these purchases were influenced by social media and traditional news outlets. I covered the following topics: how they experienced the stress of the pandemic, how that influenced panic purchasing, and how they saw the consequences of bulk buying on others.

The purpose of the second set of interview questions was to gain the perspective of the vendors. The questions aimed to understand how vendors adapted to higher demand than usual and gained their perspective as to why people were engaged in panic buying. To analyze the collected data, I coded the interviews to reduce the large amount of information collected from the interviews, news articles, and podcasts. I identified emergent thematic categories in the data (Bryman, 2004). This thematic analysis defined the impact of Covid-19 on consumer purchasing.

The Common Trend of Anticipated Regret:

In many disasters, anticipated regret plays a large role in consumer purchasing. As items began disappearing from stores, many of the interviewees reported feeling distressed or unnerved. The purchasing habits of others suddenly fueled their desire to buy similar items, such as toilet paper, paper towels, guns, and ammunition. Ilona Sobkowiak reported it as the "night before the snowstorm effect". She mentioned that she "felt the urge to buy whatever [she] could". She noted that "when [she] saw things were flying off the shelves, [she had] started freaking out a bit". At home, Ilona has two refrigerators to store extra food for her family. However, due to recent shortages she has had the urge to purchase even more items to provide a safety net for her family. She is currently using her two freezers and filling them with sought after meats such as chicken, pork, and beef, both ground and in the form of steaks.

Ilona is not alone. Joe Bonnell, Dale Publicover, and the Colombie family have all acted on emotions fueled by anticipated regret. They said that in the moment, highly desirable items, such as? are hard to pass up when you see them on shelves. In the case of Dale Publicover, she commonly collected a surplus of items even before the virus outbreak. In light of the recent toilet paper frenzy, she felt she should stock up even more items just to be safe. Bill and Dale Publicover both reported that Walmart was well prepared to deal with the circumstances of coronavirus. The couple often shops at the Rochester Walmart when it opens at 6:00am. Due to the virus they noted that the hours had been reduced and they waited until the doors opened at 7:00. As the time approached, nearly one hundred shoppers lined up 6' apart with carts in hand. The line extended nearly two football fields in length. The couple realized that a new toilet paper shipment must have just come in and word had probably gotten out. Once the store finally opened, "people were standing with carriages lined up all the way out the door. The whole line went through the store going right to the paper aisle".

Walmart stationed two employees at the ends of the aisle to assure everyone followed the rules. They would only let "one or two people down [the aisle] at time, and when you went down the paper towel aisle you were only allowed to get one [item] because, at that time, the frenzy had already happened". Dale understood that she already had a sufficient quantity of toilet paper but felt that purchasing another set of rolls would make her feel more comfortable. To avoid these crowds and acquire toilet paper, Dale attempted to contact her toilet paper brand directly via phone call. When no one answered she eventually found their website where she proceeded to purchase $55 worth of toilet paper. Given the scarcity of the item she eventually gave a package to their neighbors and even gave a package to me as a birthday gift.

The Impact of Fear on Our Purchases

Each interviewee reflected on the uncertainty posed by the coronavirus. The unanticipated shortages made these consumers fear missing out. This fear is exemplified through the words of Joe Bonnell. Joe, speaking about the recent shortages of guns and toilet paper, states that it is easy to suddenly want these items.

In his case he "doesn't want to be the one who doesn't have it". This mentality is shared amongst the interviewees, and it is this mentality that drives them to purchase extra products when they are seemly near out of stock. Joe says that his mom kept trying to buy whatever she could get at the store. She attempted to purchase any highly valued items she could get her hands on. Joe noted that "if everybody is doing it, you have to". In addition to purchasing food items, Joe also purchased a handgun. After reading that guns were being bought out across New Hampshire, Joe decided to purchase a weapon for self-defense. He felt hat "if everybody else was buying guns, then why would [he] not want to have a gun if everybody else had one". In the past Joe had wanted to purchase a firearm and described the coronavirus pandemic as his tipping point. The severity of the situation and the actions of others drove him to make his purchase.

Kelly and Ryan Colombie experienced feelings of anticipated regret when shopping at a hunting and fishing retailer named Cabela's in early March of 2020. The couple unexpectedly entered during the first major spike in ammunition sales. Ryan noticed that the gun counters were flooded with customers and that the common ammo calibers were nearly sold out. Entering the store, neither Kelly or Ryan were expecting to purchase ammunition, but after seeing others rush to purchase common calibers like 9mm and 30-06. Kelly said that she "was scared when [they] got there, because [they] saw everyone else stocking up". To avoid the regret of not purchasing ammunition, Ryan decided to purchase 2000 rounds of live ammunition. This quantity, at the time, was allowed because ammunition had not yet been regulated by many stores. Ryan was already interested in eventually purchasing more ammo in the future.

However, he said that once they noticed it was all sold out, they "felt there was some reason to buy it right then". After returning home, they came to notice a slew of Facebook posts warning others to purchase guns immediately, fearing that the governor would shut down many gun shops by labeling them "non-essential". This further exemplifies the consumers fear of missing out.

Gaining a Sense of Control

Those who have anticipated regret typically alter their purchasing patterns to gain a sense of control. In the case of Joe Bonnell, his family collected tens of pounds of meat over the course of April. Joe reflected by saying "it makes everybody feel a little bit better about the situation, if they have something to fall back on. Like if they have a safety net of food so they know they could get through a certain amount of time with it". By purchasing an effective safety net of food, Joe's family was able to gain a sense of certainty in highly uncertain times. A surplus of food assures the family will be able to eat for the foreseeable future and therefore gives them a sense of control and security.

After Ryan purchased his ammunition, he too felt a sense of control over his situation. He reportedly feels much safer now that he has the ammunition in house. Ryan decided that he would like to consistently keep 1000 rounds on hand from now on. Additionally, Joe Bonnell reportedly felt safer after purchasing his handgun. Joe was afraid that people may react with violence because it's the easiest way to react in a bad situation. He notes that people in disaster situations "act drastically and do stuff that [they] normally would never do". Joe purchased the gun because he was just nervous of an uncertain future.

His family doesn't own a gun and he "wanted some sort of means to defend [himself] and [his] family". Joe's purchase, driven by fear and uncertainty, shows that he has actively sought out control of the situation.

Experiences in Retail

Most consumers are worried for the health and safety of themselves and their family. However, retail stores are forced to take action to protect their workforce, as well as their customer base. Genavieve Lombara is a supervisor cashier working at Price Chopper on Park Avenue. She has reported that in response to the pandemic Price Chopper has made numerous efforts to protect her, and their countless customers. Genavieve and her coworkers are supplied with as many gloves as necessary and are required to wear them throughout the day. Additionally, during the months of March and April masks were also a requirement. However due to massive shortages, they cannot be supplied. Workers in Price Chopper are forced either acquire their own or make a mask using internet tutorials. Genavieve has expressed that these items give her a sense of security in her potentially hazardous work environment.

However, Genavieve notes that few people follow store guidelines put in place for safety purposes. Directional aisle markings are often completely ignored, and customers regularly attempt to purchase too many items. The store has failed to regulate entrance and exit traffic through specified doors.

Genavieve explains that almost every day she has customers asking for masks, gloves, and even flour. Without knowing any shipment information, she has no way of informing customers when the next shipment will arrive. She notes that the supply chain cannot keep up with demand for these items. She claimed her store has recently sold months' worth of products in just a few weeks. To her, the first month or so was "insane". People had come out in mass to buy whatever they could. She said that at the checkout counter order after order went by and not a single one dipped below $100. The items in demand are so random, that it becomes difficult to order the right quantities from distributors before they run out.. Recently, one customer collected all the diced tomatoes they had in her store. She said the cart was absolutely filled with cans of diced tomatoes. She of course had to ask her to purchase fewer cans. This niche item, along with constant crowds purchasing ludicrous amounts, makes it impossible to properly plan for shortages while using "just in time" ordering.

Conclusion

In summary, the purchasing habits of many have been severely altered since the start of the pandemic. Our psychological makeup makes it challenging to risk the temptation of hoarding items in stressful or uncertain situations. This natural tendency paired with highly unprepared supply chains has left stores across the country with bare shelves, whose emptiness only worries the greater population and further fuels their need to panic purchase.

Many interviewees felt vulnerable and afraid throughout the pandemic for a multitude of reasons. Some had reduced pay, lost their jobs, or even been forced to quarantine for extended periods of time. With looming rumors of impending doom and violence, some altered their purchasing habits to protect themselves and their families.

The Multiple participants expressed feelings of anticipated regret even though they would not be particularly at risk by passing up an item. It is our nature to reach for a sense of control. In the case of many, they have gained this sense through purchasing. Sadly, this means others will need to temporarily go without important items in their daily lives. It was clear that interviewees understood that others could be affected through their actions, but with the uncertainty of the situation, these consumers tended to purchase items to protect themselves and their family first. Although this activity further fuels the problem that is panic purchasing in America, their actions are understood. They are living through a dangerous time and only wish for the safety of their loved ones.

May 2020

One Family's Response to the COVID-19 Pandemic

By Robert L. Peralta

Introduction

COVID-19 at one time was unheard of and now it is the most spoken phrase throughout the world. Few Americans feared reports of a virus in Wuhan, China. For 'us' it felt too far away to be a threat. Now America, particularly the New York metropolitan area, has become the epicenter of the disease; a place where more cases exist and deaths have occurred than anywhere in the world (CDC, 2020). This fact cannot be overlooked because Americans have been bombarded with it in the media. And yet, in America discussions about the pandemic have been fraught with a lack of useful information, a good dose of misinformation and evolving and sometimes contradictory protocols from medical and governmental leaders (Downs, 2020; Rochwerg, et al., 2020). Several of the criteria for an epic fear producing pandemic are in place. Shifting narratives about the virus from the medical community and false assertions by our political leaders have caused confusion. How is this air of anxiety, nervousness, and fear affecting those less able to understand the complexities of what is happening? Why is documenting the impact of the current Covid-19 health crisis on the American family important?

The pandemic has brought unpredictability and insecurity to almost every institution in the US, including the most fundamental unit of society: the family. Reactions to the spreading virus are as varied in American society as they are within families. Emotions have ranged from boredom, due to reduced availability of leisure pursuits, to joy, in favor of opportunities with family and time away from work and school (Audra, 2020). Protests in several states have occurred over state governments' stay at home restrictions, aimed at slowing the spread of the disease, demonstrating some people's reckless indifference (Graves, 2020). Fear has prompted others to hoard life sustaining supplies and stay shuttered at home. In this project, I explore the perspectives of a New Jersey family in isolation, to capture how stay at home orders became part of the life of this family.

Life Changing Stay at Home Orders

For most Americans life changed significantly and abruptly at the onset of the pandemic in their state. Young adults and children can no longer attend large organized gatherings including church or school. Malls and virtually all retailers have shut their doors with the exception of services deemed 'essential.' Children can no longer see friends in homes and parks even closed for some. Many families cut off visits to extended family members especially grandparents. Virtual schooling commenced for those who have the technological means, and life for most children became limited to home. Older siblings at college came home to be included in this new reality.

Daily routines have changed for American children since the start of state stay at home orders. Some of these changes can be both physically and psychologically damaging for youth. They no longer spend time with peers which is necessary to "advance healthy academic, emotional, social, and physical development" (Office of Population Affairs, 2019; Ungar, 2020). Among child psychologists wide agreement exists that structure in the lives of children and teens is important (Ungar, 2020). "Especially the weekdays when they would have been in school," in order to maintain behavioral health (NYU Langone Health, 2020). Exercise is also a key component of what is most likely missing and "by keeping active each day," kids sleep better and feel calmer. Revised daily schedules need to provide for the particular needs of children if their physical and emotional health is to be maintained (NYU Langone Health, 2020). Remote schooling adds to time in front of screens compiling time spent watching television and playing video games. The "American Association of Pediatrics recognizes that additional screen time may be unavoidable" during the pandemic (Terada, 2020). More screen time makes it harder for kids to sleep (Hale, Kirschen, et al. 2018). Parents face a dilemma limiting screen time because "distractions can be a powerful tool for reducing the impact of painful or negative experiences" (Eyal, 2017).

> ## Being at Home
>
> "American Association of Pediatrics recognizes that additional screen time may be unavoidable."

How Children Get Their Information

Individual family dynamics dictate if and how information about the crisis will be relayed to children within a family (Dalton, Rapa, & Stein, 2020). Children are especially susceptible to the influence of those who are older, in particular to their parents, and are highly impressionable (Dalton, Rapa, & Stein, 2020). Most will learn about the crisis through what they hear and see from friends, family members, and the media (Remmerswaal & Muris, 2010). Kids are also keenly aware of cues they take from parents' behavior. (Dalton, Rapa, & Stein, 2020). The CDC advises that fear in children can be mitigated by certain adult behaviors. One is to convey facts "honestly and accurately" in a calm manner. Another is to "pay attention to what children" hear and see in the media (CDC, 2020).

In spite of best efforts of parents to avoid provoking anxieties about the pandemic in their children, it is likely that children will be affected by their parent's emotional state (CDC, 2020). For example, many families are experiencing increased stress levels when "parents cannot work and children are at home" having a dual negative impact of financial and physical entrapment (Stevenson, et al., 2009). Recent reports claim that moms have felt as if they now have to assume the role of teacher, entertainer, covid explainer, and "germ police" for their families (Bennett, 2020). The CDC has a page on their website devoted to the

> **"... moms have felt as if they now have to assume the role of teacher, entertainer, covid explainer, and "germ police" for their families."**

stress of coping for parents and children during the Coronavirus crisis. They state, "children react to stress" in a variety of ways. Among the long list of signs suggested for parents to look out for is, "poor school performance." The CDC recommends, "children and teens," who, "may respond more strongly to the stress of a crisis," should try "to keep up with regular routines" as a combatant to the stress. Another list of recommendations by experts at the CDC suggest limiting "family exposure to the news" and tell parents to "lead by example" (CDC, 2020). The pandemic has shown itself to be a formidable adversary, not only to the health of Americans, but to their psyche. By exploring the nature of an individual family these relationships to emotions and household dynamics can be further delineated.

Exploration of an Individual Family

To understand youth perceptions of the current pandemic and the role family plays in shaping these perceptions, I conducted a series of interviews with a neighboring family of 7 people. This clan of 7 are my next-door neighbors, the Stevens. The family consists of five brothers, ranging in age from 8 to 22 years old, a mother, and a father. I have known the Stevens for my entire life. Through the interviews I wanted to learn how children of suburban New Jersey were affected by the COVID-19 crisis and if it altered their perception of each other, their family, and their own safety. I interviewed each family member three times over a two and a half week period, documenting the views and reflections of the family members, how they interacted, and how they handled the

uncertainties and emotions amid an evolving epidemic.

To give me an idea of how the family operates, communicates, and obtains information about the current pandemic, I began my interviews with the parents. I conducted two semi-structured interviews with each parent.

With the brothers (Michael 22, Connor 18, Tyler 16, Jack 12 and Brogan 8) my interviews considered such topics as reactions to the stay at home orders, the absence of non-family social relationships, staying informed about the pandemic, anxiety and fears about the spread of the virus, how the family dynamic had changed, and how the pandemic has shaped their "new normal."

I immersed myself in the Stevens's house and participated in backyard sports, meals around the family table, and frequent video gaming. Anthropologist Clifford Geertz refers to this participatory observation as "deep hanging out" (Simon, 2018). I was interested in learning how the parents communicated with their children about the pandemic, how the brothers interacted away from their parents, and levels of anxiety and apprehensions about getting sick from the virus. I also documented the Stevens's humor, affections, and their typical domestic rituals.

"Deep hanging out"

A Story

Life of the Stevens Family in Lockdown

I stand beneath the large cherry tree as the narrow beams of sunlight pierce the dense, pink flowered canopy. I watch and listen to the basketball bounce off the hard plastic of the outdoor half-court and to the yells of disagreement intertwined with playful laughter. I walk down the narrow steps to the low, wood stained, picket fence that ties the two yards together. As I unlatch the gate I am met by a red-headed boy, or two, who might be mistaken for hobbits, given the combination of their stature and eloquence of speech that exceeds their age. Jack and Brogan look at me grinning with their bare feet, homegrown haircuts, and gym short pockets stuffed with candy wrappers.

Coaxed by competition on the court I become winded faster than I am willing to admit. The banter is brotherly, as jabs and trivial conversation are shared. A tall, thin teenager shoots the basketball, mumbling and taunting the other brothers. Standing here in the Stevens's small but well used yard, shaded by immense Norway maples, you would never think there to be a world crippling pandemic just beyond the cedar slats of the fence.

Jack

"With a shark I've heard you're supposed to punch it in the nose, but that's not something you can do with the coronavirus," Jack tells me when I ask him which he thinks is more frightening. He continues by adding that COVID is, "a lot more common," than a shark attack, and that, "we know how to avoid it as much as possible, but we can't really fight it off." For Jack this is what causes him to worry about his "friends and stuff." Jack is 12 years old and the second youngest of the five Stevens brothers.

When I ask him to explain the predominant feelings he has being stuck at home, he talks about a long break that has made school easier and "a lot more likable." He shows me pictures of his electric guitar which he's been "playing a lot recently," and the PC built exclusively for, "playing video games."

I ask Jack what he knows about the coronavirus. He says he tries to avoid learning anything and hearing the news, but he does know that it's, "kind of like the flu because older people and people with bad health, when they get the flu have a higher risk/ chance of dying." He nervously reveals that his family has recently been exposed to the virus when a neighbor came to have a drink in the backyard.

"I kind of panicked because she had been over, like recently, within the week. So, we're all scared that like my mom got it." He went on to explain, "I am definitely more afraid for my mom's health." He says from what he hears kids like him are not so gravely affected. Jack's concerns are for those he loves and the fear of losing them.

"With a shark I've heard you're supposed to punch it in the nose, but that's not something you can do with the coronavirus,"
- Jack Stevens

Distractions like playing outside, running around barefoot, video games, and music reminds me of our joint family trips to the Outer Banks in North Carolina. At the beach we were distracted from the concern of sharks, by the sand, the warm sun, the waves, and maybe some of the girls walking up and down the beach. Jack and I don't think of the sharks in the water, mainly because they don't feel like a real threat. For Jack there is danger with the coronavirus or a shark attack, but he feels it is better to ignore the fear in order not to miss out on enjoying what is around him. Jack immerses himself in the fun to be had rather than think about the risk.

Brogan

"Want a Starburst?" Brogan whispers to me as I settle into the large, red, recliner adjacent to the gaming chair. Brogan and I sit smirking at each other as the TV flashes on and the Nintendo Switch and Xbox start up. He operates on a quid pro quo basis and in exchange for an interview I am roped into a few rounds of "Fortnite." He is comfortable around me, but when I turn on the recorder, he is as shy as he is around strangers.

"I have no clue what's going to happen," he says softly as I ask him what he thinks about the pandemic. He shifts around in his chair, which I can't be sure if it's sugar induced or related to the nature of the questions. "It's been a tiny bit harder every week" he tells me seemingly to appease me and my inquisitions. "I'm getting pretty tired of this but not extremely," as he pops another starburst in and tries to bring his concentration back to his video games.

Earlier, I had asked Brogan to send me pictures which capture his feelings about the current world crisis. He showed me a picture of himself in bed and explained that he "sleep[s] a lot… well not a ton," but he says at least an extra two hours a day. The next photograph we talk about shows Brogan slumped in his gaming chair, controller in hand. He admits video games make-up a lot of his free time, until he is forced to finish his homework or go outside to play. With more of a focus on candy, Brogan abstractly talks about numbers when I ask him what he knows about the coronavirus. I ask him if he knows how many people have been infected, and he thinks for a moment and replies, "like 400,000 in the whole world."

"Where did you get that number?" I ask.

His answer is actually just to "one-up" Jack who earlier said he thought it was about, "170,000."

Brogan clarifies by adding, "I think I have been hearing a lot of people have died already." Brogan is not so mindfully affected by the idea of this pandemic. He thinks mostly in terms of something that is distantly removed and just a series of unclear calculations and is happy to be immersed in sugar and video games.

"Want a Starburst?"
—*Brogan Stevens*

Connor

Connor is a freshman at the University of Southern Florida. He is the quieter and more academic of the two older brothers. He says he felt the pandemic was still, "foreign on March 14th. It felt like people were over exaggerating and panicking." He adds that he felt that way until he got to the airport to head home. He says, it was, "crazy going through the airport. The airport was empty, got through TSA in like five minutes and you could tell everyone was just scared."

"The house was on edge a little seeing that there was a chance that we had been infected."

- Connor Stevens

I asked him what he thinks the emotional state of his house is. Because Connor often quietly observes the chaos, he is a good witness to reality. Referring back to the infected neighbor, he says, "the house was on edge a little seeing that there was a chance that we had been infected. There was definitely a lot of fear in the house, everyone was worried, not so much for ourselves, but for the older members of our extended family who had been in close contact with them as a result of our gatherings." I know he is thinking about his mother and grandmother when he tells me this.

Connor tells me that he feels he was a little more responsible for potentially bringing the virus into the house because he had had repeated close contact with his high school buddy, whose mother has COVID-19. His older and more verbose brother, Michael, was angered by this and when the call came that the neighbor tested positive, "Michael was screaming at me and saying, 'you're such an idiot.'"

Michael needs distraction the most, Connor admits. He says, "Michael hears the most of anyone in the house about the pandemic and all the information surrounding it" because of his interest in the news. Having Michael's girlfriend living here is strange, Connor adds, "but at the same time she has quelled some of the hostility. Her keeping Michael in check helps keep me in check and prevents it [the arguing and fighting] from rolling down," onto the other brothers. Connor says he welcomes Larissa because she, "prevents Michael from starting the brotherly fighting," which helps, "keep the peace here." Connor and I pass the afternoons in the backyard lifting weights and reminiscing about college life.

Tyler - The Green Kangaroo

"What's up pleb?" Tyler calls to me as I enter the backdoor slipping off my untied sneakers.

"Sup plop," I quip before he slinks noiselessly into the basement. By the time I come down the stairs I am amid a lively disagreement between Connor and Tyler on the pros and cons of War Zone and Valerant (video games). Tyler prods him smiling and Connor is more than happy to argue back. The disagreement dissipates with my arrival and a change of subject. Tyler is, "the middle child, the best," but I call him the "Green Kangaroo." He is lanky, and as a 16 year old, he is the only high schooler in the house at the moment. Eager for his birthday and a driver's license that presents freedom and independent mobility he tells me he is worried, "the DMV may not be open by then."

"We have been holding it together mostly," he replies to my question about the family's mental resilience being trapped at home together. He is notably the most relaxed Stevens to be interviewed, and he slumps further in the office chair stationed at the computer as if to prove it. "I've been able to just like chill at home and it hasn't been a big difference from going to school." Tyler tells me he notices some of the other brothers struggling with it. As far as worry goes, "I was worried about it for myself, my mom, and my Great Gram because my Great Gram is 97 and me and my mom have asthma." Tyler explains that he and his mother have been on a visit to their homeopathic doctor, and, "the doctor said we have already had the virus."

"I don't know if we're immune to it now?" Tyler adds.

When I ask how sure he is that they all had it, he remarks, "I'm pretty certain because we all got sick and our [homeopathic] doctor said we had COVID-19 antibodies or something, and our immune systems were good." I had originally heard this from Maureen and later Michael, showing me the source of this statement. Most of the brothers particularly the younger ones believe they have also been sick already and share the immunity their mom talks about. It becomes more evident why, when Tyler goes on to say, "but still thinking about it and getting it now with asthma and thinking about how badly we could react is scary."

I ask if thinking about the possibility of already having had it helps him worry less. "Yeah," he responds, "it's nice because they say if you get it once you can't get it again." The notion of already having been sick is relaxing for him. While he could possibly have had it, it seems equally likely that he may not have, but feeling he is immune has soothed Tyler's underlying worries that otherwise may have been at the forefront of his mind. His brothers worry about him and their mother because of their asthma.

As far as learning about the virus goes Tyler says he watches, "A bunch of crap on YouTube. I have definitely formulated my own thoughts based on what they're saying." Connor, Michael and his parents say, "being young helps, and if I get sick, it won't affect me as badly as them."

"I don't know if we're immune to it now?"
- Tyler Stevens

He tells me after he has, "tried to get all [his] schoolwork done for the day," he will go into the backyard to, "play basketball mostly." Tyler says the family has been, "holding it together mostly."

The Factory

The Stevens house is a not-so-easily-navigated factory, if you are a visitor. The currency is video games and candy with conversation and alliances as a byproduct. Each room holds its own significance, power dynamic, and flow of conversation. Ideas travel differently depending on where you are in the house or the time of day. Coronavirus information has displayed itself to be a unique aspect in the conversation that flits through the air, intended for one, and heard by all. The worry that lays deep below the surface for the brothers stems from what they hear from their parents, each other, and the outside world. Jack says he, "tries to stay away from it as much as possible," but if, "I am in the kitchen or the family room I hear bits of COVID-19 information involuntarily."

"Since we've been home, we've basically chilled down here every single night," Tyler says as an explanation for the increased basement usage. The basement is "boys only" and over the years the use of the space has transitioned from playing childhood tactile games to an atmosphere where video game competition is rampant and language is rather adult. Conversations about the pandemic are few and far between in this area of the house.

In the kitchen, Tyler tells me referring to his brothers Michael and Connor, "I don't know what they are saying," he seems pretty uninterested in their argument, except when he pauses and adds, "what they are saying is actually scary." Meanwhile Michael and Connor do not even notice Tyler's presence as he is making a sandwich.

Connor compares his household to a dysfunctional company. Everyone plays a role Connor tells me, and everyone has to do their jobs (chores) so the "higher-ups" do not have to get involved. Tyler sees himself as, "the funny ass salesman," and this is pretty appropriate for the company metaphor. Connor says the first rule of this corporation is, "the best way to keep peace in the house is to keep mom happy."

"Dad has got to be CEO," Tyler tells me when I ask him how he can relate the household to a company. This idea of father as "head" seems to be the common consensus.

Connor tells me, "there is a chain of command in our house," and if the CEO, "has to step in you know you have really messed up." He continues, "the supervisor is probably Michael and mom is probably the co-founder." When the other brothers are asked the same question, there is a clear agreement; however, they deem each of their own roles to be equally as important, even when they acknowledge they rank lower on the totem pole.
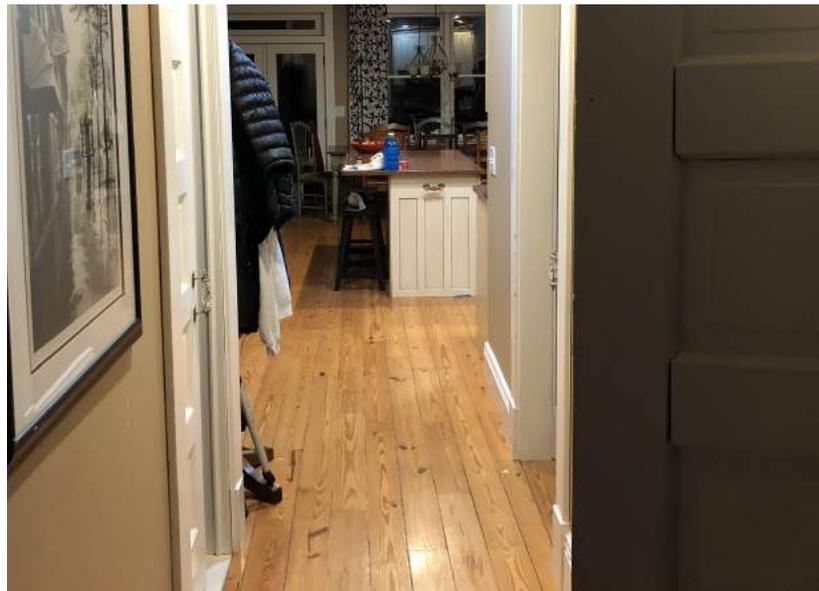
"Dude this was my territory before you were born!" Connor interjects as he tries to claim the basement as his.

When I ask about my effect on the house Michael says, "you're the comedic relief." Even though the younger brothers had not given much thought to the pandemic prior to my interviews, my presence for Jack during this time has eased his worry about becoming sick. I know when I am around, they feel safe. I am the "brother" who has no investment in causing them discomfort by means of an insult or slap in the face. They see me as more of a protector.

Every brother has an opinion on each of the other brothers. They all know where they rank, how good they are at video games, who is most athletic, etc., and they rarely agree on the little things.

The main TV room is Michael's space - Larissa sleeps there and has been for the last month or two. The basement is the community room. The connected kitchen and family room are the media center - the hub of conversation according to the brothers. Since, "everyone needs to eat, you are bound to pick up some of the conversation even if you don't want to," Jack says. Maureen's room is Maureen's room and no one else's. She lets Mike stay there. According to Connor, Brogan frequently pesters their mom, Maureen.

"I often bring him into my room, so he doesn't bother mom too much." The brothers have their own rooms when they want space, but lately, Michael spends most of his time with Larissa and doesn't have much personal time.
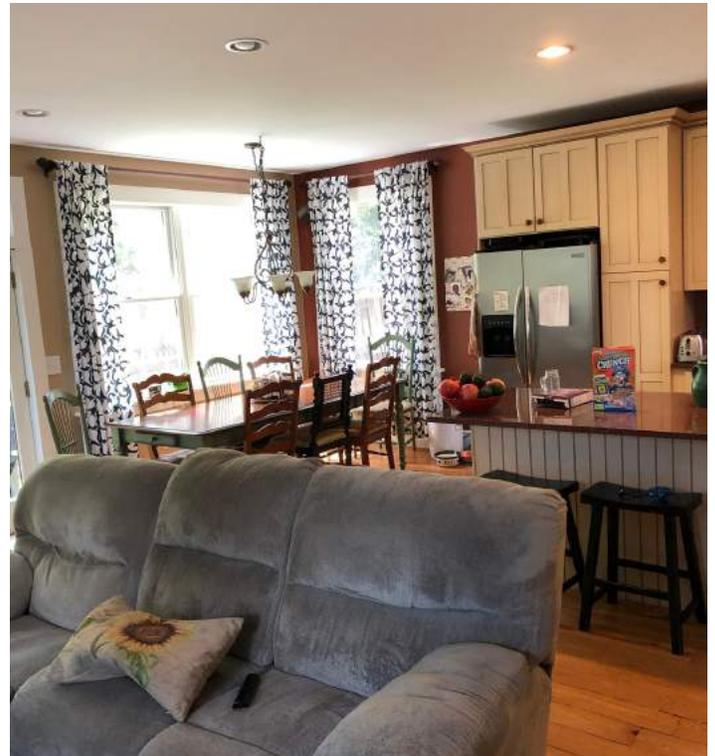
Queen Maureen

Maureen gives me a warm welcome as I walk in the house to find her making her famous apple French toast. When I ask her to introduce herself for the purpose of the interview, she jokingly identifies herself by saying, "I am the mother of five boys and one perfect dog." When asked about this stay at home order, she answers, "I don't mind it that much." She tells me there "has been a lot of family time," for her to be with all the boys, and the dog.

Maureen tells me she has been "walking a lot," and trying to "keep everyone in a positive place," but that she has felt worried about the gravity of the situation. "We try not to watch too much TV when it comes to the news." She "feels this has been keeping the morale high." She tells me that for her the pandemic first felt real, "when I was in Shoprite, I felt a little panicked, when I saw everyone wearing masks."

"I am the mother of five boys and one perfect dog."

- Maureen Stevens

What brings Maureen peace, is the notion that she has already had COVID-19. Sitting next to me in a lush, oversized chair, she calmly tells me, "As soon as my acupuncturist said I had antibodies, I was much less fearful. I'm not so worried anymore," adding "we were very anxious about it before we knew that." This has helped quell many of the anxieties the members of the family have had about the more vulnerable extended family and for Maureen and Tyler. However, she sees that Brogan still, "seems to get nervous. Recently my father, Papa, was having some memory issues and [Brogan] thought it was the coronavirus." Mike enters the room.

Mike

At six feet tall, bald and bearded, Mike sits as still as a great blue heron. Mike is the head of the house and has said that he, for the most part, left his kids "to come to their own conclusions about the state of the world in this pandemic." He tells me, "I tell them what they need to know, and let them find out what they want to know." He goes on to say, "I'm worried most about Maureen. I think the rest of us would be fine." Mike tells me, "none of us have been officially tested." Although he says he does not see the holistic doctor as "wholly nonsensical," he does not fully agree with Maureen about the acupuncturist's testing methods or accuracy.

Although Maureen and Mike disagree about the "doctor," they do agree that the media does not do the family any good. He expresses his annoyance with the political nature of the media, "It's sad that each station tells a different story." Mike says he finds it, "ridiculous how much work you have to do to find the truth."

Mike is fairly relaxed about the situation and takes advantage of the extra time maintaining the hot tub or playing badminton with his sons. He has always been the calm, levelheaded neighbor, even when so many are panicked. Mike does not seem to worry about getting the virus. He does not, "think [he's] been sick," and seems to be the only one in the house that feels that way. Mike does not feel the same need to suppress the underlying worry about getting sick,

simply because he has confidence in his own health. He ventures out to the grocery store without a hesitation.

In addition, he does not feel the need to get the antibody test unless it is, "for a benefit to the greater good." His only worry is about what will happen when school comes to an end and there are five boys with even less to do. "They will have nothing to distract them," he laughs with anxiety at the thought. He tells me how grateful he is that they completed the addition on their house just two years ago. "Now, the house is finally big enough that we can kind of spread out."

The Lion's Den

At last, I enter the lion's den. "Tanto," Michael calls to me as I walk in. The room is dark and warm as Michael sits fixed on the makeshift setup, organized to optimize his performance at his online game of choice. I sit down. Next to Michael is a quiet girl curled up under blankets, half engaged in an online class and the other half on her phone. Brogan follows and sits close to me to listen in on the conversation. Jack creeps in

around the corner knowing my presence makes it safe for him to enter. At twenty-two, Michael is the oldest brother. He is in the Army Reserves and attends a local community college where he and Larissa met.

When I ask how Larissa ended up in quarantine here, she says, "we thought it was best not to go back and forth to each other's houses, so I've been staying." I can tell she enjoys being around Michael, but he is clearly adjusting to having less of his own space.

"F***," Michael screams at the game as he moves toward a larger space on the couch. Although Michael is in the Army what comes out of his mouth is truer of a sailor. "I have never lived through anything f***ing like this, but I'm not freaking out about it."

Larissa says to Michael, "the only reason you wear a mask in the stores now, is because you have to."

"The law is the law, and that's that. And if you don't [wear a mask] you're a jackass." Michael adds, "I'm listening to the professionals and whatever they say, goes."

> ### "The only reason you wear a mask in the stores now, is because you have to."
>
> *- Larissa*

Larissa lifts her head from her phone and, just as quick, she is back to her work. Larissa is a freshman, with hope of becoming a nurse. The soldier and the nurse show some of the differences the nation faces in the form of Michael's pugnaciousness and Larissas cautiousness. Their disagreements like the virus is a hurdle that they are steadily working over. They find their own distractions and the distraction of each other through a late night in the hot tub or a movie on the couch.

The Stevens family shows how they get through the pandemic utilizing the space they know best. There is solace in one another, keeping order in the house, distractions, and staying out of trouble. Each day presents a change but for now the methods the family has formulated work to keep the worry quelled and spirits high.

I sit alongside Jack and Brogan at the long kitchen table. The news chirps quietly on the family room TV but no one is watching. We eat the French toast as Maureen asks me how my project is going, and I attempt an explanation with a mouth full of food. The brothers and I sit talking about video games and movies we should watch this weekend while jousting each other. The wind dances along the windows, and we retire like old men to the sanctuary of the basement. There is no room for the coronavirus in the openness of the span between the soft carpet and the white drop ceiling tiles. Consumed by the millions of pixels on the screen, our minds sink further into the game pushing thoughts of the pandemic into the distance.

The Five Stevens Brothers (Brogan, Jack, Tyler, Connor, Michael)

May 2020

Separation From Older Loved Ones During the Pandemic

By Louis Duh

Effect of the Pandemic on the Elderly

As of April 11, 45 of the 50 US states as well as territories like Puerto Rico and Guam have declared stay at home guidelines (Nuyen et. al., 2020). These orders present many challenges that stretch beyond simply not being able to live as normal including feelings of isolation or loneliness as well as limiting ability to go to appointments. The social isolation that many are feeling has been linked to depression, poor sleep, decreased cognitive ability, and many more serious health conditions (Girdhar et. al., 2020). Many people, particularly the elderly are not going to doctor's appointments for checkups or treatment of ongoing conditions due to the threat of COVID-19, which doctors speculate will lead to higher mortality rates (Novotney, 2019). These risks are especially prevalent in the elderly due in some cases to preexisting feelings of isolation or not being a valued part of the community (Novotney, 2019).

The issue of senior loneliness is exacerbated in the current pandemic as older adults are forced to take the self isolation measures extra seriously because they are more at risk than the younger population (CDC, 2020). Due to their heightened risk of adverse emotional and mental effects, researchers stress the importance of lessening the feelings of social isolation among the elderly (Girdhar et. al., 2020).

However, during this pandemic, it has become more difficult than ever to maintain social connection with elderly relatives or community members while upholding the physical distancing guidelines. The increased isolation has proved stressful and emotionally taxing not only on the elderly, but on their family members that worry and care about them (Vieira et. al., 2020). The emotions caused by this need for distancing affects not only the elderly, but other at risk groups as well including the immunocompromised and those with underlying medical conditions. For my project, I conducted interviews to understand the ways in which people are trying to stay connected with at risk loved ones in the face of COVID-19, and the challenges that the pandemic has presented for them.

Elderly People are More Vulnerable to COVID-19

The elderly population is the group with the highest risk of severe illness due to the coronavirus (CDC, 2020). Moreover, the elderly are also the group most at risk of suffering loneliness and various fears (Vieira et. al., 2020).

The forced social isolation due to the required stay at home guidelines causes the elderly and other at risk groups to experience depression and anxiety (Girdhar et. al., 2020). These feelings are brought about by the inability to connect with those that they care about.

Seniors are also struggling with completing formerly normal activities such as going to the store as a result of the social isolation caused by the need to stay at home (Vieira et. al., 2020). Quarantine worsens these problems due to, "separation from loved ones, the loss of freedom, uncertainty over disease status, and boredom" (Girdhar et. al., 2020, p. 30). The effect of social isolation, especially on the elderly, is not limited to the emotional damages. The impact of social isolation and loneliness also takes a great toll on an individual's physical health by aggravating cardiovascular diseases or hypertension, angina, or diabetes due to increased strain on organs and systems (Singer, 2018). Due to these factors there is also thought to be a correlation between social exclusion for any individual and a risk of early mortality. Isolation also impacts an individual's mental state. The Florida State University College of Medicine found that, "loneliness is associated with a 40 percent increase in a person's risk of dementia" (Novotney, 2019, para 19). Researchers found that social isolation during pandemics can trigger memories of past tragedies and ignite Post Traumatic Stress Disorder or other mental illnesses among all people, but especially the elderly (Girdhar et. al., 2020).

Helping the Elderly Remain Connected with Family and Community

Due to the harmful health consequences that can result from feelings of social isolation or loneliness in elderly individuals, experts stress the importance of reducing social exclusion. Under normal circumstances, there are many ways to lessen the pains of social isolation, including downsizing to a close-knit senior community, giving them a sense of purpose, and social dining (American Senior Communities, 2016). These options, however, are limited during the stay at home orders of the pandemic, but there are still ways to help seniors feel less isolated. Studies show that it is critical to help senior citizens to feel like valuable members of the community. One way to do this is to encourage elderly relatives to join community and social groups, as this has shown to improve mental health and reduce loneliness (Novotney, 2020). During these present times, this sense of community would have to be done through online groups or outlets, which presents additional challenges to seniors who are not well versed in technology. In this pandemic, online support groups have been formed for seniors in addition to programs through senior centers for chatting and getting meals to the elderly (Colorado Springs Senior Center, 2020).

There are also ways in which family members of the elderly are remaining connected and assisting them at this time. During the COVID-19 pandemic, the fear of going out and contracting the virus can be so stressful for the elderly, that one way to help their mental health is to deliver their necessities such as groceries and medication (Gridhar et.al., 2020).

In addition to small actions like this, there is also a recommendation to connect with elderly relatives and community members on a personal level (Girdhar et. al., 2020). One form of action could be through phone or internet communication as, " regularly scheduled phone calls and video conferences along with texting and emails can help compensate for a lack of in-person contact" (AARP, 2020). To supplement family calls to relatives, there are volunteer run programs, such as A Call in Time, which operates in the United Kingdom. The program is described as a free telephone friendship service for older individuals and pairs callers with volunteers, who often end up becoming phone friends who talk regularly (AgeUK, 2020).

How Personal Connections Impact Experiences During COVID-19

The coronavirus pandemic has taken an emotional toll both on the elderly and on their family members who want to help them feel less isolated. The elderly, in many cases, have been prevented from engaging in activities that make them feel like part of the community, especially those who rely on closed senior centers for social interaction (Leland, 2020). The New York Times, for example, published a story about Anna Reifman, a 69 year old woman in Manhattan. When she was told her senior center closed, she told the reporter, "I'm really isolated now. This isn't just about lunch. I come here to talk to people other than my cat" (Leland, 2020). Another article from US News told the story of Fred Davis, a retired mortgage broker and part-time minister. He has received phone calls from seniors who are looking for someone to talk to (Williams, 2020).

Many feel that the most important thing for the elderly at this time is to stay connected with them and let them know they are not alone (Vieira et. al., 2020). There are numerous ways to do this and to keep the elderly feeling cared for and loved. These could, "simply involve more frequent telephone contact with significant others, close family and friends, voluntary organizations, or health-care professionals, or community outreach projects providing peer support throughout the enforced isolation" (Armitage, 2020, p. e256).

These emotions and difficulties do not end with the elderly and their relatives. The isolation and stress are also felt by all other at risk populations like those with existing illnesses or medical conditions. For example, Courtney Lynn is a mother who lives with her immuno-compromised son during this pandemic and has had to cancel both medical and therapy appointments due to fear of the repercussions if her son is exposed to the virus in the office. She states, "This crisis has made things so much worse… while I have never suffered from depression before, I can feel myself becoming more and more hopeless as time goes on" (Wallis, 2020). This quote displays fear and the intensity of the emotions felt by those who are close to at risk individuals at this time. If they are able to live together there is still pressure of infection. But if elderly or health compromised loved ones live separately, isolation and sadness are added to the stress of the pandemic.

Methods

The goal of this project was to understand how people are trying to stay connected with at risk relatives during the COVID-19 pandemic and the challenges they are facing. The method I used to collect data was interviewing residents of my town and the WPI community that responded to my requests for participants to interview. My first few interview participants were people who responded to my invitation to be interviewed. There was no set criteria for their personal relationships because my project was initially designed to examine risk perception and understanding of the virus based on how people collect their media and cognitive biases they may have. However, from my first couple of interviews, the most interesting and compelling information was the way people were emotionally affected by having personal relationships with at risk individuals during this pandemic. I then shifted the scope of my project to the effects on the elderly and at-risk individuals, which resulted in shifting my target interview participants to those with elderly or at-risk individuals.

The first step in the process of gathering data was to find participants that were willing to be interviewed for this project. I reached out to a couple of people in my hometown community that I knew had elderly relatives or ties to at-risk individuals to request interviews. For my other interviews, I created a request for an interview and sent it out in my town's residents' Facebook group.

I conducted interviews via zoom or through a phone call. With permission from the participant, I recorded the interviews and if permission was not granted, I took notes. I conducted semi-structured interviews, using a standard set of questions that I would adapt in the course of the interviews. The topics I covered in my interview were: the emotions of having elderly in-laws with Noreen, having an elderly mother in a nursing facility with Vic, and missing elderly or compromised relatives with Cristina and Matt. Initially, I hoped to understand their attitudes and the way they understand the virus, but this later transformed into how they feel not being able to see at risk relatives and how they are staying connected. I transcribed the interview and used a thematic code to analyze the interview. The principle behind this method is called coding and is performed by assigning a keyword or phrase to represent the interviewee's attitudes or feelings to a particular subject or question (Beebe, 2014).

Personal Accounts from People with At-risk Loved Ones

The effects of the COVID-19 pandemic are far reaching and impacted the participants differently depending on personal connections to at risk individuals. Those with older or medically at-risk relatives generally seem to be experiencing great sorrow, anxiety, and uncertainty, as it has isolated the relatives and made seeing or caring for them increasingly difficult. In contrast, those that do not have close personal connections with older or medically at-risk individuals are more likely to view the virus for how it impacts themselves or their lives. Those with numerous or deep emotional connections to individuals that are at risk are struggling because they want to care for their at risk and/or elderly loved ones, but cannot be there in person because they would risk transmitting the disease. For example Vic C. has a mother in a nursing home while Cristina E. and Noreen B. have elderly loved ones that live alone. Across the board, from my interviews, I felt all participants with personal connections were worried for their loved ones more than for themselves, both for them contracting the virus, but also because of the loneliness and confusion that the elderly may be feeling.

One conversation that highlighted this notion was with Noreen B. Noreen is 60 years old and has elderly in-laws who are 88 and 90 years old, that she normally sees quite frequently. One has COPD, an inflammatory disease in the lungs that restricts air flow, while the other is on oxygen. Their age and pre-existing respiratory conditions make them greatly at risk if they were to contract the virus.

Noreen plus her husband and kids typically see her in-laws for weekly dinners as well as all celebrations and holidays and not being able to see them has deeply impacted Noreen. She stated, "It definitely impacted [me]. I mean, I'm heartbroken. I can't go and see them. We didn't celebrate their birthdays, which are big birthdays, their anniversary, I think 69 years is this coming Saturday? Can't do that. You know, they say they understand. But I know that they don't truly understand how bad it is. So, it is very upsetting to know they're, they're really alone. They're so alone. They have each other but still. You know, without human contact, what are we? Nothing, you know, and it's very hard to wave from the driveway" (Noreen B., Personal Communication, April 19, 2020). The older couple is living alone, so outside of Noreen and her immediate family, they don't get to interact with many people during this time. Due to the sharp decrease in people they are able to see, Noreen is trying to find ways to safely connect with her family members to provide relief to the anxiety or loneliness they are likely feeling. For example, Noreen and her husband travel forty minutes to see her in-laws once per week to bring groceries and a couple of meals so that they do not have to go to the store. However, they only visit from the driveway and do not go into the house (Noreen B. Personal Communication, April 19, 2020). They are doing everything they can to care for their relatives while still staying physically distant.

Another interview that showed a lot of personal connections and emotion was my conversation with Cristina. Cristina is 21 years old and has numerous personal connections to both older and at-risk people. These connections have each impacted her in a different way. Three of her relatives live in the Bronx, including her aunt who is over 60. They were all infected with the virus. Speaking about her aunt Cristina said, "We're all very worried about her. You know, she had it. It was really bad for like a couple weeks. But she got it mid-March and now it's like the end of April and she still feels it in her lungs a little bit. So between her and my two cousins who had it, it just showed me how really widespread it is and how it really can affect anybody. It proved to me just how severe the situation is" (Cristina E., Personal Communication, April 21, 2020). Cristina went on to share that she is making frequent phone calls to her aunt to keep her connected with the family and raise her spirits. Cristina's cousin is also at risk and she used to see her once per week. Sharing how her relationship with her cousin has shifted Cristina said, "She has Cystic Fibrosis, which affects the lungs, as could COVID-19. She can't leave the house at all, not even to get groceries. So I can't see her, honestly, probably until there is a vaccine… having her in my family has made me take it more seriously, because I see how terrifying this can be for someone who's at high risk because she's obviously nervous even though she's not leaving her house" (Cristina E., Personal Communication, April 21, 2020).

Her cousin lives about 45 minutes away and they usually stay in touch by seeing each other in person and text messaging. In a follow up conversation, she informed me that she is keeping up with her cousins, especially the one that is at high risk. They are all staying connected by having weekly virtual game nights and zoom calls (Cristina E., Personal Connection, April 28, 2020). Her final connection highlights an at-risk individual who is dealing with isolation. Her other, older aunt lives alone in Connecticut and loves to be around her family. Talking about her aunt, Cristina said, "She lives by herself and she had been totally alone for over a month now. And I know she's really starting to feel it, she's getting pretty sick of it like she has a little dog but that's it. Even the dog is starting to miss people. So she's being hit pretty hard by it. It's really difficult for her" (Cristina E., Personal Communication, April 21, 2020). Cristina has, however, found ways to stay connected with this aunt and relieve some of the emotional strains this isolation has caused her. She shared that she has visited with the aunt from a distance in her driveway and helped bring her groceries and supplies. I really saw how much strain and emotion the pandemic has caused for Cristina and her family, especially through not being able to physically visit with those relatives due to having to keep distant to keep them safe. Explaining how not being able to see those close to her has impacted her, Cristina said, "My cousin is especially tough because I don't know when I might be able to see her. It might not even be this year. We don't know when that's gonna happen. So that's a very sad reality of things because, again, we're really close" (Cristina E., Personal Communication, April 21, 2020).

I also spoke with Vic, who is also struggling with not being able to see older family members. Vic shared that he has a 90 year old mother that is unable to live alone, so she is in a nursing facility in New York. It has been tough on Vic and his family to not be able to see his mother for this extended period of time. Vic described his relationship with his mother as being very close although she lived out of state. Even before she entered the nursing facility, he always visited frequently in person. Describing how this pattern has changed in the face of the pandemic, he shared, "The nursing home has requested that no visitors be allowed for now. And this has been going on since early March. So that's a family dynamic which has affected all of us. Not being able to visit her at her age, just knowing that she's taken care of but alone, that's been difficult" (Vic C., Personal Connection, April 19, 2020). This shows that a large area of concern is how the lack of visitation and familial connection impacts his elderly mother.

This was expanded on by Vic who shared that his mother has struggled with the lack of connection. Although he cannot see his mother in person, he is still finding ways to communicate with her and try to make her feel like she has company. Vic said, "All of our communication is by phone or a FaceTime. We do FaceTime with her, but that's the only way we can see her and so that's been difficult" (Vic C., Personal Connection, April 19, 2020).

These virtual communications help his mother to feel connected to him and the family during these troubling times. Speaking on the difficulties for the elderly more generally Vic said, "it's clearly hard on elderly. It's hard enough being in these facilities, let alone not having any family visit for extended periods" (Vic C., Personal Connection, April 19, 2020). The mental and physical health risks generated by senior isolation and loneliness are the forefront of concern for many when thinking about their relatives during this pandemic.

An interview that showed a unique personal connection to someone elderly was my interview with Pam. Pam is 55 years old and shared that she has an 85 year old mother in-law that is unable to live by herself because she has a progressing disease. Her mother in-law lives at home with 24-hour care. I asked Pam to describe some of the challenges presented by having 24-hour caregivers during this pandemic Pam said, "There's usually two to three different caregivers per week. Most recently, we've had an issue with one caregiver. So, we had to get rid of her and have a couple of other people involved. And yes, there's actually a risk because we don't know when they're not with her where they are, what their family life is or where they have been. So, they could be a carrier and you're not really sure. And also, you have to make sure they are doing what they're supposed to do for her while trying to still isolate as a family from her. So, I'm the one who usually goes and her daughter as well. The rest of the family is staying away. So, there's a lot of extra stress on us to make sure that everything's getting done that needs to get done for her. Bringing her food and making sure she's eating and making sure she's okay and ensuring they are doing what they need to do" (Pam D., Personal Communication, May 5, 2020).

Pam went on to share that her mother-in-law has begun to feel the impacts of isolation and although she experiences some level of isolation usually, not being able to have many different visitors has been tough on her. I asked Pam to describe how she is staying connected with her mother-in-law to reduce some of those feelings. She shared, "I go to visit briefly and stay far away from her. And I do make sure that her son, my husband, calls her and her other sons make sure that they reach out and they periodically call in. So since they're not going in person to talk and check up on her at least, she gets a variety of people talking to her as opposed to just the same people" (Pam D., Personal Communication, May 5, 2020). Pam discussed how the most important thing is to make sure her mother-in-law is comfortable and happy. She stated that she sometimes has to, "sacrifice time with my family or alter my work schedule to take care of her but that's important because her health is a higher priority right now. It's important to find a balance" (Pam D., Personal Communication, May 5, 2020).

In summation, I had four unique interviews with individuals with largely different personal connections to at risk people during this pandemic. Noreen and Pam both have elderly in-laws, although Noreen's live alone while Pam's has 24-hour caregivers. Vic has an elderly mother in a nursing home and Cristina has numerous personal connections including a medically compromised cousin and two older aunts, one of which had the virus.

These interviews all conveyed emotional strain and displayed the sadness and anxiety shared by these individuals at having to be kept away from their loved ones. These feelings are caused by both the interview participants missing their loved ones and by the fact that their elderly relatives are struggling with isolation and dealing with the circumstances of the pandemic. After hearing how deeply their feelings and their relatives' feelings impacted each one of them, it was apparent that all four interview participants wanted to try their best to stay connected and ensure that their relatives feel loved. They did this in a variety of ways from zoom calls, to phone calls, to meal deliveries. No matter what manner the participants chose to use to stay connected, they showed how much they care about their family members and how emotion plays into their actions during this pandemic.
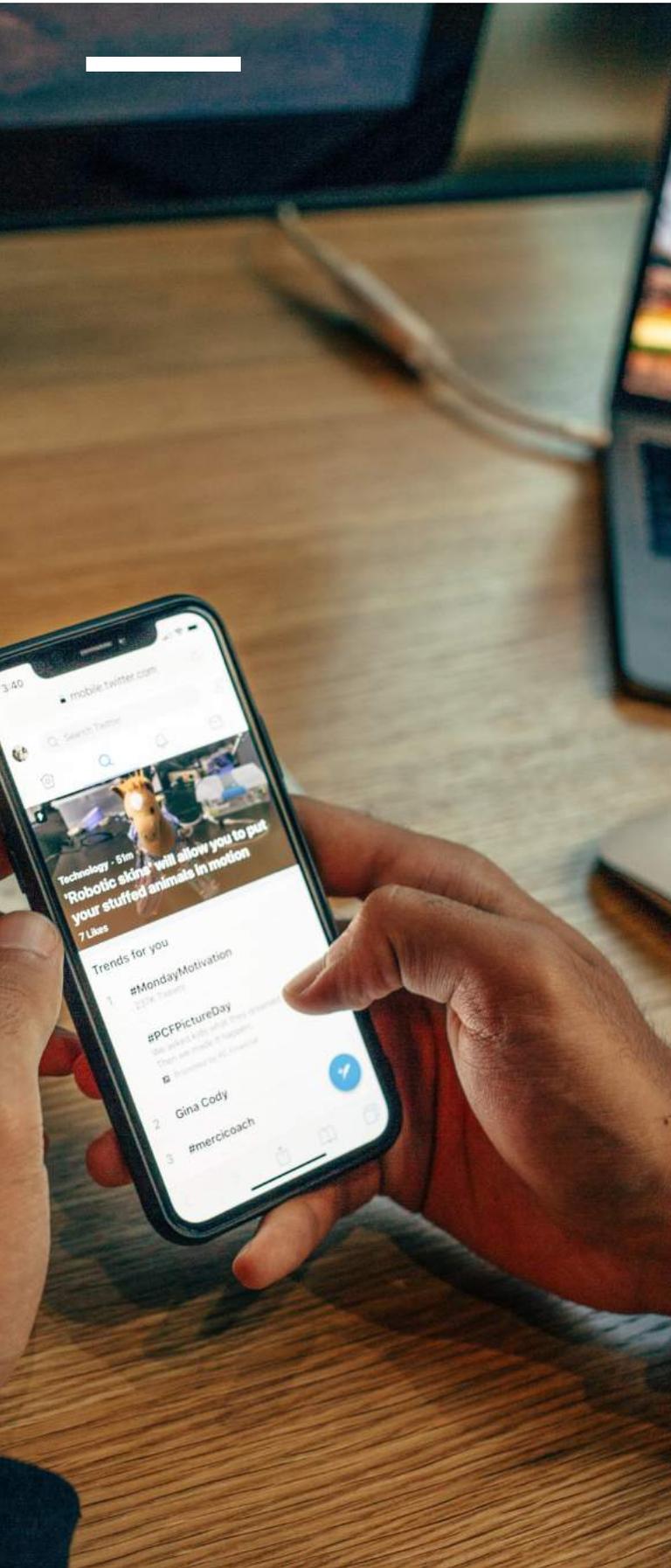
May 2020　　　　　　　　　　　　　　*Kyria Nelson*

The Role of Memes as Coping Mechanisms for the Covid-19 Pandemic

Modern memes are a method of visual communication and expression common across the internet. Spread across nearly every social platform, they are used to document nearly every aspect of life, generally in a humorous way. This includes disasters and pandemics, such as the current, widespread pandemic of the Coronavirus outbreak. Memes can be a coping mechanism; used to combat stress and emotional turmoil by spreading opinions, both positive and negative.

The psychological aspects of the pandemic—fear, dread, helplessness—can be just as impactful as the pandemic's physical aspects on the public's outlook and perspective of the situation (Ellis, 2020). Therefore, the focus of my project is to examine the use of humor, especially through memes distributed on the internet, in discussing or relieving stress caused by the coronavirus pandemic. I hope to uncover the emotional impact of memes in our current culture; both their consumption and their creation.

The Prevalence of Coronavirus Memes

It is early 2020; the working world is almost at a standstill. Major employers, including Oracle, Apple, Google, Microsoft, and Amazon, have asked employees to work from home (Hadden, 2020). Thousands of other companies have fired, laid off, or furloughed employees, since it is no longer safe for many to come to work (Long, 2020). Schools and universities have changed their class structures to be entirely online, some even barring students from coming to campus (Hadden, 2020). The cause; the 2019 novel coronavirus, a virus which rapidly spread from Wuhan, China, to more than 148 countries in the span of months.

With nearly two million cases and over a hundred thousand deaths as of April 20th, 2020, it has become a global effort to slow the spread of the virus (Coronavirus Cases, 2020). Spread through person-to-person contact through droplets from coughs, sneezes, or even mere talking, the CDC has pushed "social distancing" as an effective method of virus protection (How Coronavirus Spreads, 2020). The effect: millions of people practicing social distancing from others by "self-quarantining" in their homes. Whether by choice or forced to by their place of work, people are now restricted to the indoors, socializing only on the internet (Coronavirus Cases, 2020).

This global-scale pandemic is causing widespread emotional distress. Psychiatrists Betty Pfefferbaum and Carol North state that "public health emergencies may affect the health, safety, and well-being of ... individuals (causing, for example, insecurity, confusion, emotional isolation, and stigma)", which may lead to "a range of emotional reactions (such as distress or psychiatric conditions), unhealthy behaviors (such as excessive substance use), and noncompliance with public health directives" (Pfefferbaum et. al., 2020, pg. 1). Emotional distress is "ubiquitous" in populations threatened by the outbreak, which she assumes will be the same for those affected by the Covid-19 pandemic and its effects (Pfefferbaum et. al., 2020, pg. 1).

Public health crises such as these are not unprecedented, though certainly no recent outbreak (consider SARS, H1N1, H5N1, and others) has had such a global effect as the Covid-19 pandemic. Where these previous pandemics had press coverage and restriction efforts, efforts to contain COVID-19 has led to worldwide quarantines, new legislation, and equipment shortages (Nkengasong, 2020, pg. 311). Despite the frightening nature of diseases, illness, and death, the social responses to the previous pandemics have resulted in some curiously humorous internet content. Discussions of diseases often take the form of memes. Take for example "Ebola-chan", an anime girl with pigtails that end in the shape of the ebola virus (Marcus & Singer, 2016).

FIGURE 2   "Ebola-chan" as she originated on 4chan, an anonymous image-based bulletin board.

Ebola-chan is explored as a manifestation of "disaster humor" and disease "coping mechanisms" for dealing with the stress brought on by public health emergencies (Marcus & Singer, 2016). "[Ebola-chan] came to embody some of the complex social and political issues provoked by an infectious disease outbreak." Ebola-chan is just one example of a common coping mechanism used across the internet today: the humble meme (Marcus & Singer, 2016).

Memes: "They're like a tune that you whistle, then you get it on the brain, then someone else hears it and gets in on the brain"

RICHARD DAWKINS

The term "meme" is used to describe nearly any form of humorous content, ranging from images, texts, tweets, videos, and more (Börzsei, 2013, pg. 5). The word traces back to 1976, when Richard Dawkins created the word meme in his book, The Selfish Gene, as a word to describe elements of culture that were passed from one individual to another by imitation. "They're like a tune that you whistle, then you get it on the brain, then someone else hears it and gets in on the brain," he says in an interview with Sophie Elmhirst of the New Statesman (Elmhirst, 2012). Nowadays, "meme has spread, meme-like, to encompass any kind of trend" (Elmhirst, 2012). It is no surprise that in our modern, technology-dominated era, browsing any sort of social media platform may cause you to stumble upon a number of memes. These snippets of jokes, however presented, are manifest essentially everywhere, describing and detailing everyday problems and even remarking on today's news. Indeed, according to Dawkins, referring to something as a meme is shorthand for saying something has "gone viral", since memes spread and "mutate" rather like viruses (Elmhirst, 2020).
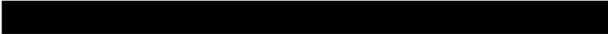
It would be no surprise then that the pandemic outbreak of the coronavirus has been covered extensively by memes (Haasch, 2020). And it is no surprise either, with the massive population of people now stuck indoors, the internet has now become the only social outlet for many (Reardon, 2020). The prevalence of coronavirus memes makes sense; they serve as a coping mechanism, just as Ebola-chan did for the Ebola crisis. Stanford psychologists have found that making jokes about depressing topics causes "increases in positive emotions and decreases in negative emotions" (McClure, 2011). In fact, humor has served as a means by which people have eased suffering for hundreds of years. German "gallows humor" dates back to 1848 and refers to cynical humor that derives from stressful or traumatic situations (Force, 2018). Nichole Force, author of Humor's Hidden Power: Weapon, Shield & Psychological Salve, claims that humor made in difficult times has the "power to soothe suffering".

Extensive research has been done on the topic of humor as a coping mechanism. Martin and Dobbin examined the physical effects of humor on the body's stress response by comparing the number of antibodies in several subject's saliva after asking them about their daily "hassles" (Martin et. al., 1989). The findings suggested that greater levels of humor may benefit the body's capability of warding off possible viral and bacterial infections (Martin et. al., 1989).

Martin et. al. of the University of Western Ontario studied the effects of humor on self-worth and psychological well-being. "...individuals with a greater sense of humor revealed a greater congruence between the way they actually viewed themselves and the way they would ideally like to be" (Martin et. al., 1993, pg. 4). "Individuals reporting higher levels of coping humour also perceived themselves as having more control over their own lives, felt less overwhelmed and anxious, and less stressed, than those individuals scoring low on the Coping Humour scale." (Martin et. al., 1993, pg. 5). Given that humor is a valid coping mechanism for both the body's physical and psychological stability, one could argue this explains the surge of coronavirus memes we are seeing—people are seeking to ease their suffering and anxieties by spreading some old-fashioned "gallows humor" (Haasch, 2020).

The Covid-19 pandemic is unprecedented in its scale and emotional effects. Therefore, recording the impact of memes and their value in relieving the emotional stress of Covid-19 is important as a means to document and analyze the online crisis response. Memes are a unique snapshot of the emotional state of the people experiencing the crisis—their concerns, struggles, and unique discoveries regarding the unusual situation this pandemic has placed us in. It is my goal to analyze how people impacted by this find memes benefit them in their "battles" with the coronavirus pandemic.

The Road Map for Discovering the Impact of Memes

I conducted seven long, in-depth interviews through Zoom or in person following social distancing protocols to probe a handful of individuals on how coronavirus humor has impacted them personally. These interviews were consensually recorded and between fifteen and forty minutes long, using the interview found in Appendix A. During the interviews I asked people about how the virus had impacted them personally and how they felt it had affected their emotions. With this baseline information about coronavirus-related stresses, I then asked about memes or humorous content they had come across during the pandemic. I asked them about how this content had affected their emotional disposition or outlook on the crisis. Participants were encouraged to fully explain their perspectives of the crisis, memes, and humor, and I asked follow-up questions as necessary.

The interviews then progressed to a "meme-viewing" portion. I showed the individuals five coronavirus memes which I gathered from the internet, each with a different kind of humor and/or structure. Seen in Figure 3, the memes I chose were meant to cover a broad range of coronavirus memes: different formats, different platforms, and most importantly, different topics. They were found by browsing websites, such as Reddit, Vox, Facebook, and others, specifically on articles or forums with the express purpose of distributing coronavirus memes.

From here, I traced the memes back to the websites they originated on. Two of the memes are single, unique coronavirus-related images. Two of the memes are "template" memes, featuring images not explicitly related to the coronavirus, but with captions that relate to the coronavirus. One meme is text-only.

I selected individual memes to illustrate different aspects of the coronavirus pandemic in order to gauge the subjects' reactions to as many coronavirus related topics as possible. The first meme, "The Battle of Costco", appears to touch on problematic hoarding behaviors, or perhaps how difficult shopping has become under quarantine. The second appears to jest that the apocalypse has struck. The third makes an obviously outrageous conjecture about a law by applying it to the family setting, where it clearly would not apply. Leaving aside the fourth meme for the moment, the fifth ashamedly admits that "quarantine"—that is, staying inside and not interacting socially—describes the posters' daily life regardless of the coronavirus pandemic.

These four memes do not have overtly political agendas and were specifically chosen to encourage wide-ranging interpretations.

Additionally, the memes cover a variety of pandemic related topics in the hopes that the subjects have personally encountered at least one of the topics of the memes, be it hoarding, changes in stores, exaggeration, or otherwise.

The fourth meme is unique in several ways. It is the only text-based meme and also the only meme that has a "political agenda", taking a position against the group known as "anti-vaxxers". I believe having a controversial, pointed meme such as this is necessary as it represents a much larger body of coronavirus memes which also have political context. This "antivax" meme was an especially good candidate for filling the role of a "politically charged meme" as the controversial subject is one which has significant scientific evidence refuting the stance of "antivaxxers". While the "antivaxxer" movement represents a minority opinion (9% of Americans claimed vaccinations were unsafe in 2015), it is well known and inflammatory subject (Blake, 2015). For this reason—that it was unlikely I would interview someone who would be offended by the meme, but very likely that I would receive a heavily opinionated response—I chose this "antivax" meme to explore the responses to political memes.

FIGURE 3   The memes in the order they were shown to interviewees, from left to right.

Through screen-sharing, I had the subjects view the memes and report back on how the memes made them feel. I also asked why they felt each meme was funny (or not), allowing them to elaborate on what specifically made them react to the meme. Finally, I asked if they could conjecture about why the meme was made. From these questions I was mostly able to tell the immediate impacts of the memes, and what makes memes in general funny, relevant, and helpful, or otherwise. These meme viewing sessions were recorded via camera to record the unique expressions of the subjects reacting to the memes.

I also reached out to "meme-makers" to gain their opinions on the stress-relief they gain through meme creation. The interview followed the format found in Appendix B. "Meme-makers" were asked about how they came to create memes, if memes help them convey their emotions in ways other communication cannot, and if they feel memes help them relieve stress due to the coronavirus pandemic.
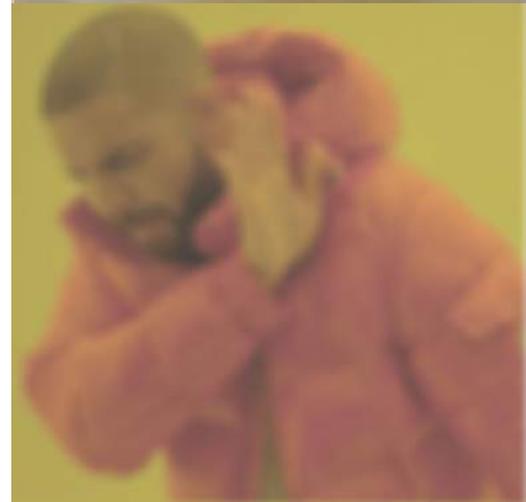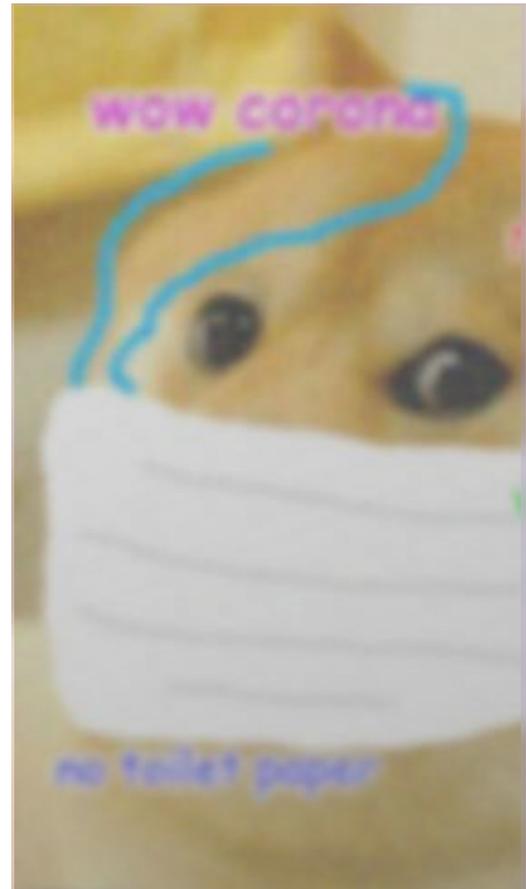
MOST USED
Social Media Platforms by Participants

INSTAGRAM

4/7 Participants

FACEBOOK

4/7 Participants

YOUTUBE

3/7 Participants

SNAPCHAT

3/7 Participants

TWITTER

2/7 Participants

REDDIT

2/7 Participants

The Impact of Coronavirus Memes

It was curious how variable people's perceptions and reactions to the coronavirus were. An astonishing number of adults I talked to were still employed, deemed essential workers, and operating outside their homes during the pandemic. For people such as Samantha "Samm" Robie-Klindt, Lynn Langton, and William "Bill" Klindt (two medical technologists and a tech business owner respectively), work life is presently just as demanding, if not more so, than before the pandemic. Although I assumed most people had more time at home, in quarantine, to peruse social media, it seems as though the opposite is true for essential workers like these. However, the stressful effects of the coronavirus pandemic are not lost on these three. Bill, who employs two additional technicians to help with his business, B.K. Specialties Inc., worries "I am more stressed because… I don't want to lay off my guys."

The other major group of adults I interviewed were college-age students and workers, between 20 and 22 years old. Jeremy Tingdahl, Jacob "Jake" Bissonette, and Jonathan "Jon" Mackinnon all attested to social media usage of more than five hours a day and agreed that they came across memes often. These three were totally homebound, each saying that the quarantine had a major effect on their lives and livelihood. When asked if the pandemic had affected his mood at all, Jon offered "…it's hard to not be at least a little bit concerned about what's going on right now. I wouldn't quite put it at like, panic mode, but it's just kind of always there in the back of the mind." Jake was even more vocal, saying "I lose my sanity more and more each day".

Despite not consuming as much social media as the homebound college students, all three essential workers noted that traditional media, such as the news, can be too negative as a daily source of information. "All the headlines are every morning when you look at the news reports is 'number of cases', 'number in the hospital', 'number of deaths.' You have to search for 'number of recovered', 'number who have been released from the hospital', 'number of people who are not infected and thought they were.'" says Bill. "They are doing their best to crush everybody's spirit." Samm believes that perhaps the coronavirus "panic" has stretched too far. "…people are calling … [the pandemic] apocalyptical… it's a little crazy because it's actually not. People are asked to stay home, that's all. No one's being bombed."

Both Samm and Bill use social media to learn about the pandemic and spread their opinions on it, believing it to be the more "positive" option. "I'm finding social media more for memes and positive sharing than anything else" says Samm. Bill says he prefers Twitter to the news because he "strive[s] to read media that isn't so negative." On the other end of the proverbial spectrum, Lynn states that she does not really use social media at all, "not even an hour" a day, explaining that she feels it is a waste of her time. Instead, she gets her information from the daily news or the radio.

One of the primary uses of memes that the interviewees identified and appreciated was the ability of memes to shed light on potentially problematic behavior.
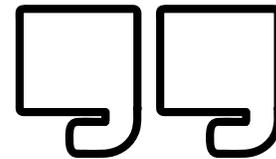
I'M FINDING SOCIAL MEDIA MORE FOR MEMES AND POSITIVE SHARING THAN ANYTHING ELSE

Samantha Robie-Klindt

Take for example the meme in *Figure 4*, which has been spread far and wide on Facebook. This meme targets the group known as "anti-vaxxers", which believe that vaccines are poisonous and cause diseases such as autism. The meme claims that "anti-vaxxers" should also exempt themselves from the possible future coronavirus vaccine. Samm, Lynn, and Bill alike appreciated this meme for its pointed nature, especially because they agreed with the message. "…all they've done is create situations that put the rest of us in danger… all these diseases that we wiped out with vaccines, and they're coming back, because so many of these people are making these false truths about things." says Bill, explaining why he agreed with the image. Jake was not as amused, saying the meme remined him of "… middle aged moms [who] are like, 'Oh my god, I have to share this! So true!'" implying that it was unoriginal and catered towards finding agreement with a specific audience.

Perhaps the most interesting aspect of the reaction to this text meme was the volatile emotions connected with it. Although most of the adults laughed after reading the image, probing further into their reasoning often brought the mood down, revealing the anger and tension present in the subject. "Anti-vaxxers, I don't even want to fucking hear it" snapped Samm, after explaining her issues with their logic. Jon, although he agreed, didn't think the meme was very funny. "…it doesn't seem like it's trying to be as funny as it is just trying to be aggressive or offensive to this type of person" he said. Easily, this meme garnered the most extreme responses from the adults, both positive and negative.

Although memes like this are certainly not the norm, as most memes feature some picture element, text-based memes like this are prevalent on some platforms (Facebook especially, which offers the tool to make posts like this). Additionally, this meme represents the body of coronavirus memes that have a political agenda. Although the meme had the potential to be polarizing during my interviews, I deemed it necessary to include, as many interviewees indicated that the memes they consumed and spread were almost entirely political in nature. Samm especially noted that she enjoyed memes that were pro- "science", that is, memes that affirmed the reality of coronavirus and that promoted social distancing. She also gave some insight into what it was like to consume memes that didn't align with her political views.

FIGURE 4   A text-based meme circulated on Facebook.

"The ones that upset me are the really right wing 'Trumpers', who are very anti-corona, [saying] 'it's a big hoax'. It's the politics versus scientists. That's the only thing I'm struggling with right now." This implied that memes made by people which featured opinions she disagreed with affected her mood quite negatively. The college-age adults were much more neutral on the subject of political memes. "…people can think what they think, it's fine. …Not gonna change my viewpoint on it" concluded Jake.

Interestingly, Bill and Samm believed that posts like these probably wouldn't make a change in the mindset of "anti-vaxxers". As Samm put it, "I believe the anti-vaxxers won't get it. …this is not going to change anything for them." Bill went even further in his prediction of an "anti-vaxxer's" reaction, claiming "they'll just cry that you're making fun of them." However, both believed memes like these were important for their cause. "I hope things like this [meme], just make people think, just for a second about… the stand they're taking and why" says Samm. "And I can't live in anger. …if you need to live that way [as an anti-vaxxer]… I need to be amused by it, …because there's nothing that I can do to change it."

Another common thread was the ability of memes to help make light of dark situations. The meme in *Figure 5* shows a notice on a bookstore, stating that "post-apocalyptical fiction" has been moved to "current affairs". Although the implications of this meme are dark—that we are living after the apocalypse—all my interviewees' found the image humorous.

When asked why the meme elicited a laugh, Lynn explained "…people are getting really too serious about it [the pandemic]. Then it [the meme] kind of pulls you back like, you know, okay, you're breathing, you're here, you know, you're able to read this message, my store's not bombed, so." Samm adds, "things like memes are an escape. They're a window, another way of looking at things and not taking things too seriously… [like] what you have to see every single day of the week…", implying that humorous content is a refreshing break from the stressful realities she has to face in a medical setting. "I admire people that are clever that can do something like that [make a meme]" Lynn says. "It's nice to have that kind of community…that sense of reassurance that yes, stuff that's going on right now is actually insane… and other people are going through it as well" remarked Jon.

FIGURE 5   A photo-based meme circulated on Reddit.

There are limitations to the "goodness" of memes, however, which I ran into as I interviewed the subjects. Some memes did not garner any response at all. *Figure 6* illustrates a meme I chose that I thought was self-explanatory, illuminating the problematic, warlike tone that shopping has taken on recently. I intended that the Greek-style stone might make people consider perhaps how ancient and barbaric our actions have become, or perhaps that we, like the ancient Greeks in stone, are making history. Most interviewees found the image humorous and related it to panic buying. However, when presented with this meme, Lynn was rather baffled. "I'm not really sure if I get it." she mused. "I actually didn't know what the definition of a meme was until recently." It's likely the misunderstanding was an individual difference, but it should be noted that those who consume memes regularly may be more accustomed to dissecting the images to find the humor hidden within. However, I found the interaction noteworthy. If memes cannot be understood, their effect on the intended audience is null.

Another reaction I did not anticipate was that of outrage. As it turns out, memes can certainly be offensive, even those you didn't intend to be so. The third meme in *Figure 3* is one such meme, displaying a common "meme template"—that is, a set of photographs commonly paired with a caption to create meme. The template is that of a young child holding a gun, apparently contemplating the gravity of whatever actions he is about to take, although he is clearly too young to be doing so. The negative connotations of the image never occurred to me as I chose the image; I have seen the same template so many times that I have become completely desensitized to it. However, when I showed the meme to Lynn, the response was immediately and vehemently negative. "Ew, I do not like that one at all," she exclaimed, as she gestured to me to scroll past the meme. "A child holding a gun… it's terrible." I was taken aback and felt guilty for subjecting her to something she would dislike so much. The only upside to the interaction was that it opened up a line of dialogue about how some memes are the opposite of stress-relieving. Lynn remarked on how the effecacy and emotional effect of memes varies greatly on a case-by-case basis. "I'm like okay, this is why I don't do this… this is why I don't look at social media." she concluded.

FIGURE 6
A captioned photo
meme, circulated on Reddit.

The college age students, on the other hand, reacted exclusively positively to this meme. Jeremy was particularly outspoken, saying "I love the picture of the baby with the gun. I think that's a fun template." When asked why the meme was funny, he added, "It's absurd. And absurdity is where humor comes from." After my interactions with Lynn, I purposely opened a line of dialogue about offensive memes with subsequent interviewees in order to get some insight on the phenomena. Jake and Jeremy both pointed to anonymity as a major reason that memes get away with traditionally "offensive" content. "…you can't really catch them [offensive meme makers]" notes Jeremy. Jake also hypothesized that taboo subjects can inherently be funnier. "…you can't say that stuff out in the open [so] people get another thrill out of it other than the humor."

What are the effects of memes on those who are not preoccupied with jobs or schoolwork? Jack Klindt, a high school student, has spent the last month or so entirely indoors. He conceded that he consumes social media and memes for hours and hours every day, to the point where he almost seemed jaded to the idea of memes. "Usually it's just quick, short bursts of, "Oh that's funny." Or just quick releases of laughter or something. … I like them, you know? I come across them … I move on, I save it. That's really it" he said, when I asked about the lasting emotional effects of memes. Regardless of the apparent mediocrity of most memes by his standards, Jack consumes and redistributes memes at the pace of an addict. "It's a good distraction, but it's a distraction. As soon as the feed of it cuts, you're just kind of sitting there," he said, rather despondently.

"…when that [consuming digital media] becomes your main activity instead of work or school… it's just kind of well, yeah, pointless."

Jack and Jeremy represented the "meme-creator" demographic that I also looked to interview. Both were adamant that they created memes primarily for themselves, rather than to amuse other people. "It's a 'for-me' thing, not for other people", said Jeremy. "I decided that I wanted to do things for me … instead of trying to appeal to a bunch of people who don't care about me." However, Jeremy noted that he also enjoyed the effects his memes had on other people. "You know, being funny, making people laugh, it's fun. It makes me feel good, makes them feel good. Sounds like a win-win to me." When asked why he made memes, he offered this insight: "It's just how my brain processes things. You know, humor is not only a great medicine, it's a great medium for thoughts to enter the world. Because if you can make a person laugh that idea will stick with them."

When asked about the benefits of the coronavirus memes, Jack replied, "…it's like a translator sometimes … it's taking it [the negative topic], and it's making it so you can understand it in a way that yes, this is a real problem … but it's not shoving it down your throat or making you feel bad." This was consistent with the opinions of the older crowd, who agreed that the lighthearted nature of memes was an alternative avenue to exploring otherwise depressing information.

Whether working or stuck at home, older or younger, memes have potential to be a positive source of entertainment, a way to frame negative aspects in a better light. "…when it hits the spot, then it's like, oh [smiling], you know?" Lynn explained to me. Some particularly inflammatory topics are even unbearable if not in meme form, according to Samm. "I have to keep it in the level of amusement or I get really angry," she explained. Memes also have the potential to be negative or even offensive, as with Lynn's response to Figure 6. Regardless of the reaction, it is clear that memes are a prominent form of socialization today. I believe Samm sums up the role of memes concisely: "I think it [memes] should be a supplement. I think you should be getting your information from reputable sources. …But I think memes as an escape is essential, absolutely essential, because sometimes you can have these deep dark anger feelings that can eat away at you. But if you have the right meme faced in the right way, you can almost make light of it. And in a sense, you can take a step back and kind of look at both sides of what's going on and get an idea of what's real and what's emotion. So I think memes are a great escape."

May 2020

Pandemic Perspectives: Healing through Storytelling

By Alia Brown

Telling personal stories is a tried and true method of offering emotional healing to victims of traumatic events (Lindhal, 2012; Adelson and Olding, 2012, Moors, 2018). While the world's current state of chaos is much slower-moving than a natural disaster or a war, it seems to be just as traumatic. People all over the world are taking to social media to share their stories and reflect on how their lives and the world are changing. Misinformation and negativity are rife, but inspirational and uplifting stories of everyday heroes and miraculous acts of camaraderie surface every so often (de la Garza, 2020). Storytelling has a healing quality that comes from communicating experiences (Mohammed, 2018).

For this project, I created an Instagram account, @pandemic.perspectives, in order to understand how telling everyday stories can heal people. It provides a safe space for people to share their personal, everyday stories of the COVID-19 pandemic through weekly creative responses. This account is not beautiful, professional, or perfect, but rather a snapshot of different lives in this time of chaos.
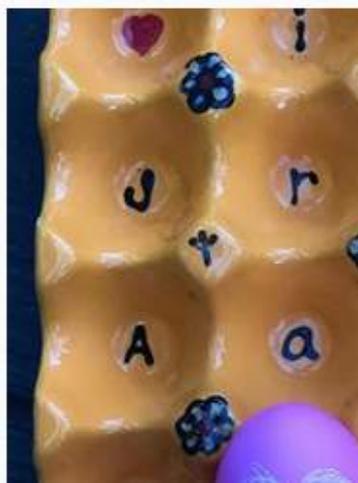
The Healing Qualities of Storytelling

Dr. Thomas Houston of UMass Medical School described telling and listening to stories as "the way we make sense of our lives" (Chen, 2011). It is important for us to share our personal experiences because it allows us to process them and make connections in order to better understand ourselves (Carter, 2017). Regarding traumatic events, sharing stories is a vital means of coming to terms with trauma and establishing beneficial relationships with those who hear the stories (Blanch, Filson, and Penney, 2012).

In a study conducted by Houston et. al., patients with hypertension watched videos of people with similar conditions and experiences sharing their stories. Many of the patients experienced a significant drop in blood pressure over the period of the study, which attests to storytelling's ability to help us come to terms with our own experiences (Houston et. al., 2011). In their guidebook for peer-supporters of women who have

experienced trauma, Blanch, Filson, and Penney of the National Center for Trauma-Informed Care, describe how sharing experiences of trauma creates a beneficial relationship between the storyteller and the listener. In this relationship, "both people benefit and both explore how they have come to know what they know based on what they have lived" (Blanch, Filson, and Penney, 2012, p.p.76).

Storytelling Through Social Media

Stories have long been told through literature, performance, and art, but in recent decades a new storytelling medium has emerged: social media. With social media, our stories are accessible to a much wider audience, and there is much more competition for our stories to be heard (Vaynerchuk, 2019). However, social media invites much more collaborative responses to stories and can be very effective in stirring emotion in people (Gupta-Carlson, 2016). A large portion of the world is incredibly connected through social media, and the stories we share on it allow us to create

"We are alone in this experience together and will remember it always."
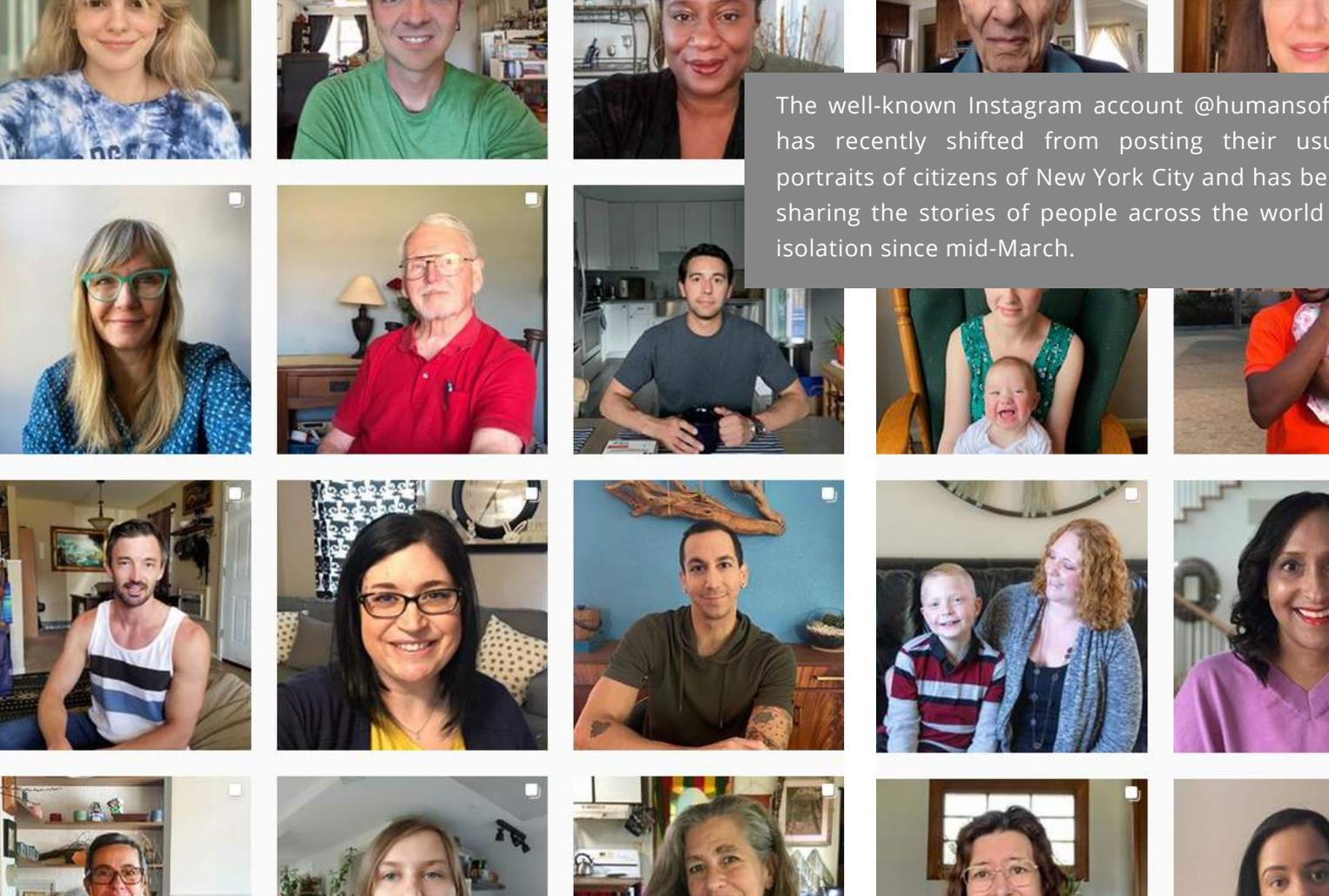
@beccadawley

support groups, foster new relationships and maintain old ones, and build our personal identities (King University, 2019). While many of us are stuck at home practicing social distancing, social media has become an even more important player in our daily lives. It fulfills our need to socialize when we can't see each other in person and allows us to share stories and start conversations about COVID-19 that may help us navigate this crisis (de la Garza, 2020).

A wonderful example of sharing stories on social media through the current pandemic is the Humans of New York Instagram page, @humansofny. This page has been documenting the fascinating stories of everyday residents of New York City for years. A typical post consists of a casual

portrait of the subject somewhere in the city, followed by a caption that includes the subject's personal story in their own voice. On March 15, Brandon Stanton, the creator behind Humans of New York, posted a long message asking people around the world to send in their stories, Coronavirus related or not. Since then, @humansofny has been sharing these narratives. Posts have been selfies of the storytellers social distancing in their homes, along with photos of them during happier times. The captions are uplifting stories of humanity, from a little girl's "Quarantine Art Club" finger paintings to three sisters honoring their mother's memory. All the posts end with #quarantinestories. It's a beautiful example of the power of social media as a platform for healing through storytelling (@humansofny, 2020).

Successful Storytelling Projects

Naomi Adelson of York University and Michelle Olding of McGill University describe digital storytelling methods as "creatively engaged tools of healing and empowerment," and explore the effectiveness of these methods for the indigenous peoples of Canada. They cite the healing effects of creating narratives as remedies for the psychological and cultural damage colonization and racism have left on many indigenous communities. Several digital storytelling projects created by these communities are discussed by Adelson and Olding. They describe these projects as "more than an affirmation of silenced and marginalized voices and practices." Making these projects has allowed the creators and participants to actively build environments where their cultural repression can be discussed and repaired. Adelson and Olding cite this as one of the most important benefits of digital storytelling, stating that "being able to participate meaningfully in a far-reaching initiative has inherent value" (Adelson and Olding, 2012).

Another powerful example of the healing effects of storytelling is the Surviving Katrina and Rita in Houston project, founded by Professor Carl Lindhal of the University of Houston. Surviving Katrina and Rita in Houston is a project that aims to alleviate the psychological damage suffered by survivors of Hurricane Katrina and Rita in 2005 through sharing stories. In this project, survivors were organized and sent out to document the stories of other survivors (Lindhal & Jasper, 2009). In a paper describing the project and its effects on Katrina survivors, Professor Lindhal describes how the survivors' stories were mostly overshadowed in the media by more violent and attention-grabbing urban legends. Lindhal observed the desperate need of these people to have some sort of psychological healing and to process their trauma. Surviving Katrina and Rita in Houston allowed survivors to open up about their traumatic experiences, and in doing so provided healing and created communities for the survivors on both sides of the interviews. He notes that disaster survivors are "the people best equipped to aid their fellow survivors, through compassionate listening and community-building" (Lindhal, 2012, p.p. 171). This theory created an incredibly successful story-sharing program. Surviving Katrina and Rita in Houston was given funding as a mental health disaster response due to its success, which attests to the healing properties of storytelling (Lindhal, 2012).

Social media plays a large part in therapeutic storytelling as well. M. Rae Moors, a PhD student at the University of Michigan, explores the power of storytelling through social media regarding the water crisis in Flint, Michigan. She describes how traditional news outlets focused coverage on government actions, writing off Flint citizens as "one-dimensional" people in distress (Moors, 2019, p. 815). With their perspectives going unheard in mainstream media, Flint citizens took to social media to share their stories and experiences during the water crisis. The hashtag #FlintFwd

emerged as a means of promoting the dynamic narrative the people of Flint wanted to share. Moors explains that on Twitter, #FlintFwd created this narrative by promoting the realities of the water crisis and depicting the resilience of Flint citizens while they continued to live their lives as more than just the tragic victims shown in mainstream media. She writes that for those experiencing the water crisis, turning to social media to share stories "does the work of claiming power over their own identity and place that has thus far been denied to them through traditional media representation" (Moors, 2019, p. 819). In this way, social media acts as a massively connected platform for storytelling, and through that, healing.

Methods

Rather than analyze the millions of stories flooding social media every day, I started a story-sharing project of my own. For this project, I created an Instagram account, @pandemic.perspectives, that curates and shares people's responses to weekly topics relating to the coronavirus outbreak.

Participants were encouraged to come up with their own creative and unique submissions in response to the weekly topics, such as written poetry, photographs, artwork, short monologues, or even readings of a striking book passage. Weekly response topics were broad themes that allowed for a lot of creativity and freedom of expression, such as "Alone Together," "Quarantine Life," and "Hope vs. Fear."

I promoted this project on my personal social media accounts where I have a decent following in order to gather more participants. This meant many of the participants were people within my social circle, and this was considered in my analysis. I enlisted the help of my family, a few close friends, and this class to create some initial submissions to get the ball rolling. I posted as often as I could, trying to put something up at least once a day when I had enough submissions. Participants were asked to email me their submissions for that week, and with their permission, I posted submissions on the account throughout the week. I chose to use Instagram for this account because it is the social media
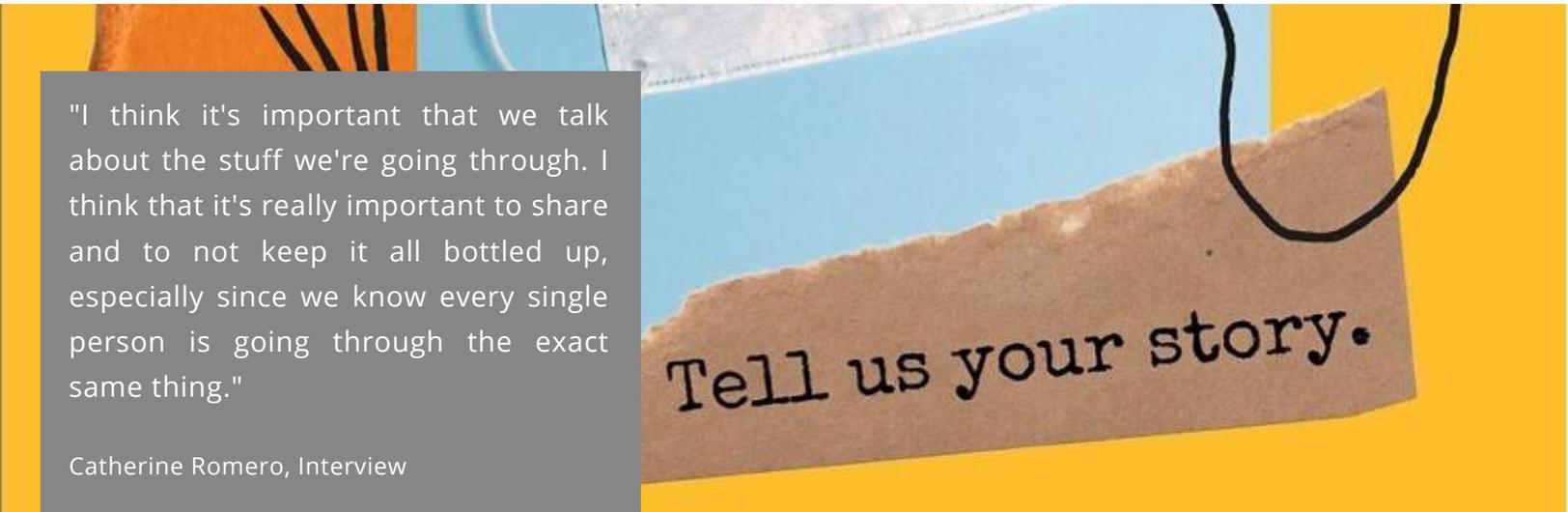
"I think it's important that we talk about the stuff we're going through. I think that it's really important to share and to not keep it all bottled up, especially since we know every single person is going through the exact same thing."

Catherine Romero, Interview

platform I am most comfortable with and most active on. In my personal experience, Instagram tends to have less "toxic" communities than other social media platforms. Instagram is also an ideal platform to share creative works as much of its activity revolves around sharing visually appealing content.

In order to gain a deeper understanding of how creating a reflection for my project affected people, I reached out to a few of the people who submitted things and asked for an interview. Initially, I planned to conduct one interview before the person submitted anything and a follow up one towards the end of the project. I did this with two people, but I was unsatisfied with my original interview scripts and decided to revise my methods. To be more conducive to the timeline of this project, I chose to instead conduct single interviews with people who had already submitted a reflection. I also used this interview script as a revised follow-up interview for the two people I originally interviewed.

As much as this account is a means of collective expression, it is also a research project. I conducted a thematic analysis of participants' submissions in order to understand what kind of stories people are willing to share and how their stories impact others. I coded the submissions to posted on

the account with the method outlined by Taylor-Powell and Renner, highlighting some of the larger themes that stood out (outside of the theme for that week) (Taylor-Powell & Renner, 2003). The interviews were also coded with the same thematic method as the posts. The themes of the submissions, along with the interviews that discussed the person's ideas and thoughts behind them, were used to observe the effects of storytelling. How personal did people get with their submissions, and were some formats more personal than others? Did people tell mostly positive or negative stories? Which submissions received the most response from the community, and why might that be?

Reflections on Life in the Midst of a Pandemic

Submission by @catherine.g.romero

"Before COVID-19, I was on my study/research abroad in Glasgow, Scotland. On March 11, my home university sent an email to all students currently abroad that we needed to return home immediately. Suddenly, one week I was having the time of my life learning in the UK, and the next I was alone in my school's Emergency Housing for my government mandated self-isolation. I wasn't able to say goodbye to my friends or my lab since the UK went under lockdown shortly after.

Currently, I'm finishing my classes from abroad remotely, and I'm trying to see the positives in all of it. Maybe I'll return back to Scotland after I graduate to finish up my work in the lab. And I get to meet my parents' new puppy earlier than I expected :)"

Curbside
573-449-0116

STAY HEALTHY Y'ALL-
WE WILL ALL GET
THROUGH THIS
TOGETHER!

Submission by @catdavphoto

"My college town has become a ghost town. We're both far from home but we got each other."

"We decided that just because quarantine was going on, doesn't mean we can't go outside and do our fun family traditions while creating new ones!"

"At first I had access to beaches and trails, and visitors weren't around. So the world around me felt peaceful, and I felt that I always had a natural sanctuary to ground myself. The second image shows the signs indicating that Parks and Beaches Closed throughout the Olympic Peninsula, including National Park, state and Tribal land, and recreational areas. This came as a big blow and really started messing with my initial Zen approach to staying at home. I really had to check myself whenever I would start to gripe about this. I still have a couple places I can go outside. I also can do my job from home! I'm lucky to be able to fill my trunk with food and overflow my pantry. It's strange to see so much food stored in my house, even using the floor. It's another change that makes me know things are different. Shopping has become a bit nerve-wracking, but I keep running out of vegetables. I miss seeing friends. I spend a lot of time with my husband, kitty, and really appreciating flowers in my house. I think transitioning out of this will be difficult psychologically. I'm waiting for us to be at a stage where that becomes a top news story."

Submission by @maloufbelz

Submission by Susan Brown
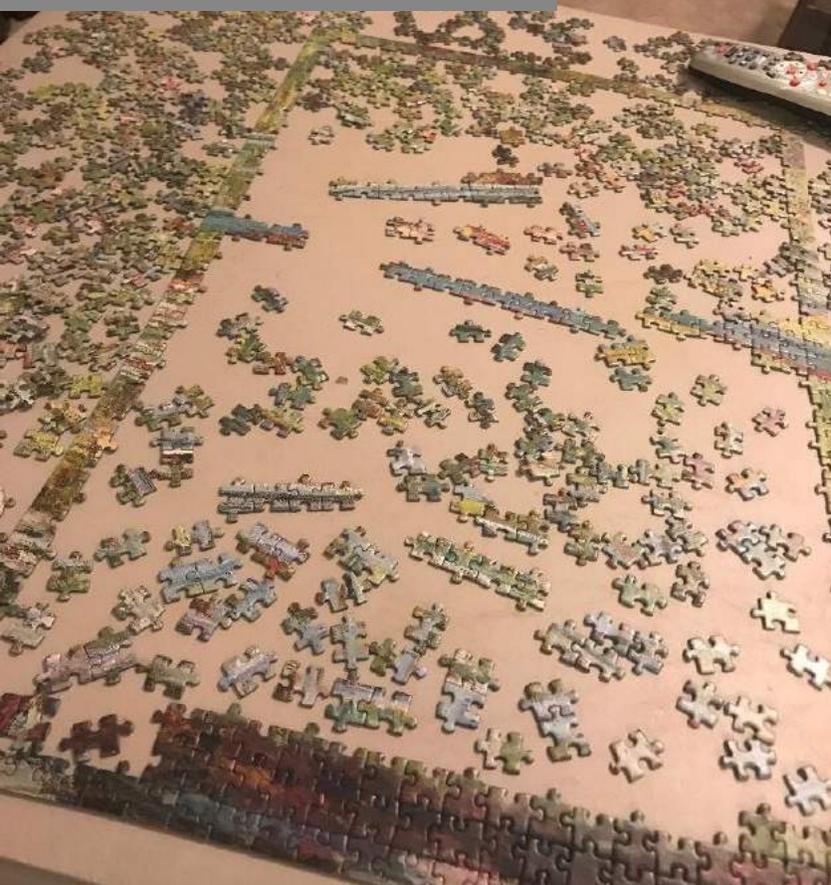
"This school year, I took a photo every morning on my walk to class. Day 62-102 are all of the normal days of this Spring Semester. The night or Day 102 (March 10), my school decided to switch to online classes due to the beginning of the pandemic. Day 103 (March 11) was our first day of online classes. Day 106 was my first day of class at home with my family.

Not pictured in my daily snaps are the late nights working on homework, the frustrated tears shed over exams, the fear and worry of the unknown of this pandemic. Switching from living on a college campus to living back with my family in another state was a huge, but necessary change. I miss my college and my friends, but am grateful for the ability to continue with school and to have this time to deepen my relationships with my family. Together we can get through this, one day at a time :)"
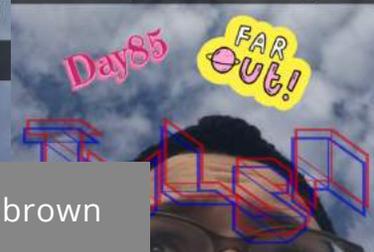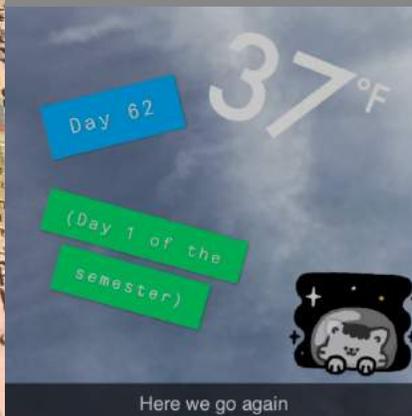
Submission by @rianne.brown

"While I'm not really "alone", I am separated from some of my loved ones. The puzzle competition we have going on between our separated households is one way we stay connected. And solving a puzzle seems to be an appropriate metaphor for these times…starting with chaos, gradually bringing order, and hopefully ending up with something better than before. They usually win because they have a cat helping them."
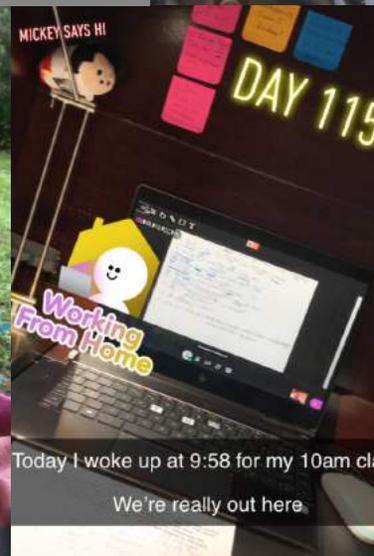
Submission by Anonymous

"I have this collection of colored dishes from the 1940s and 50s that was started by my grandmother and added to through many antique shopping trips by my mother and me (and a little bit of Ebay). They are perfect for Easter dinners. How many times did we use them for Easter? Maybe once…too worried about them getting broken, too much trouble to wash, etc., etc… Then they got all packed up to the attic for a dining room remodel. I thought we had our last Easter together as family for a long time three years ago since both girls are far away at school and will likely end up with permanent jobs far away, and the opportunity to use the colored dishes for Easter had passed. We talked about the colored dishes last Christmas, and I told my oldest "the next time you're home for Easter, we'll use the colored dishes," thinking that would be years away. Suddenly, the opportunity comes again! We couldn't miss the chance … we pulled the boxes out of the attic, unwrapped the newspaper (from 2004) and used them for Easter breakfast, lunch and dinner. There was even egg dyeing and another Easter egg hunt! So now, he dishes are still being packed away again (how many weeks has it been?), and, sadly, in 2020 newspaper. When we pull them out again someday, hopefully we can look back through those papers and remember all the historical pain and sacrifice that happened, but also the joy of these unexpected months spent together."

"This quarantine has been a combination of a difficult unexpected time and a spiritual awakening. During this time I have learned more about myself and how much I treasure the interactions I frequently take for granted. This time has encouraged me to reach out to people both who I know and who I don't to tell them what they mean to me. Every time I go to the grocery store I thank the workers for all that they are doing during this time when we all want to hold our loved ones close. Learning online is definitely difficult but it reminds us that in life we always have to be on our toes. We are alone in this experience together and will remember it always."

Submission by @beccadawley
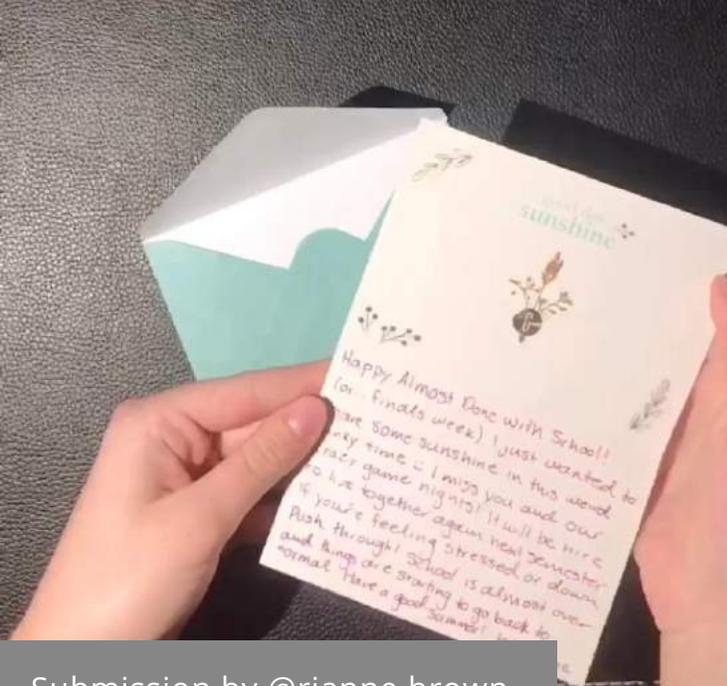
Submission by @rianne.brown

"This is a crazy time full of unknowns and fears. Fears for our loved ones, for our life style, for our income, for our future. From just looking at my family, I know that these fears impact all of us.

These next few weeks I am sending letters to friends to spread a little hope and sunshine in the face of all these fears. I've found that by sharing smiles, I am more at peace, and I hope to bring some piece to those I share with. After sending the letters in the video, some responses I got were "that lil smiley face brought me so much joy" and "THERE'S A COFFEE STICKER". Sometimes all you need is the little things :)"

Results

As of May 12th, @pandemic.perspectives has 55 followers and has received 10 submissions, several of which are pictured here. The account did not go viral or even get that much traffic, but I was not expecting it to. Instead, it became as small but meaningful place for a group of people to share their thoughts and reflect on their experiences with the COVID-19 pandemic. Through observation and interviews with a few of the people who submitted reflections, I learned that there are three layers to the feelings behind many of the posts. The first layer is documentation. Many of the submissions and the conversations I had focused on documenting that person's "new normal," or how their life had changed with the arrival of COVID-19. This documentation often led to the second layer, reflection. Documenting these major life changes allowed people to look back on their experiences and think about them in ways they may not have before. The third layer is inspiration. Several
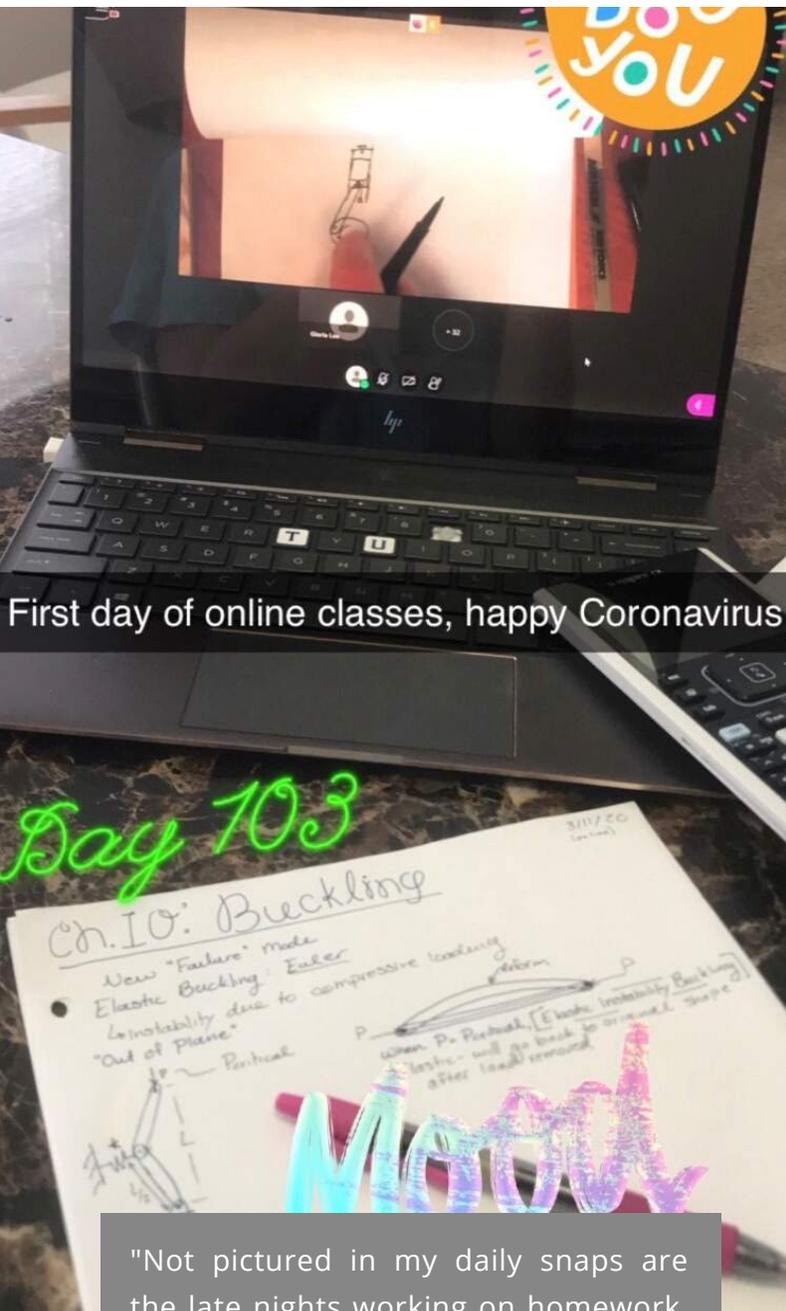
First day of online classes, happy Coronavirus

Day 103

Ch.10: Buckling

"Not pictured in my daily snaps are the late nights working on homework, the frustrated tears shed over exams, the fear and worry of the unknown of this pandemic. Switching from living on a college campus to living back with my family in another state was a huge, but necessary change."

@rianne.brown

people mentioned how they hoped their submissions would inspire others viewing the page, or at least help them feel a little less alone. This layer gives the contributor the comfort of being heard and satisfies their desire to help others. From what I have observed, healing can be found in all three layers of this method of storytelling.

I found the idea of a "new normal" to be the focus of much of the documentation. Many of the submissions and the conversations I had in the interviews evoked a sense of loss for cancelled plans, absent friends, or restricted hobbies. However, most people seemed to find some healing from that loss by discovering a new routine that brings comfort and normalcy in a time of uncertainty. This "new normal" could be anything from creating a space to work on online classes to starting new family traditions. Rianne Brown (@rianne.brown) submitted a video compilation of daily Snapchats she took throughout the semester that clearly highlighted the shift from regular college life to online learning. In our interview, she commented on how abrupt this change was, saying "I have regular school, regular classes, and then it's like, 'First day of online classes. Thanks, COVID.' And then it's like, I'm home. In the span of three photos." Catherine Romero (@catherine.g.romero), also documented the abrupt shift to a different lifestyle she experienced in the caption of her submission, stating "Suddenly, one week I was having the time of my life learning in the UK, and the next I was alone in my school's Emergency Housing for my government mandated self-isolation." Melissa Belz (@maloufbelz)

"My college town has become a ghost town. We're both far from home but we got each other."

@catdavphoto

documented a more gradual change in her submission about closed beaches and new grocery shopping methods, saying "it's another change that makes me know things are a bit different."

Most submissions were a series of photos with captions describing the meaning of the pictures and telling the story of the author. Pictures were scenes from everyday life, and I found they often had a sense of being incomplete: an unfinished puzzle, a closed park, an empty café, or schoolwork in an unfamiliar environment. These "incomplete" pictures were often followed by ones with happier connotations: a cat in a window, laughing roommates, siblings bonding, or a joke about online classes. Captions tended to follow this same theme. They were very

reflective, starting with the difficulties of life in quarantine and then ending with a positive message or a ray of hope. Catherine Davis's (@catdavphoto) submission illustrates this theme very well. Her first three pictures were of empty streets and shops in her college town, which convey a strong sense of isolation and loneliness. The final two are much warmer: portraits of her and a close friend smiling at the camera. The caption is short, but effective. "My college town has become a ghost town. We're both far from home but we got each other." These two sentences and the set of pictures they describe document a jarring change, and then find and display a little joy that has come with it. With this, Catherine dips into the second layer of storytelling: reflection.

It was interesting to see how most people tried to end their submissions or interview conversations on a positive note, moving from the difficulties the pandemic has presented them to the ways they are coping and finding new ways to keep on living. I explored this layer of reflection in depth with several of the people I interviewed. While I was talking with Catherine Romero, we noticed an interesting dichotomy between the reflection she sent me and the one she posted on her personal Instagram account. Both documented the end of her study abroad experience, but in very different ways. The post on her personal Instagram was very positive, recalling the good times she had while abroad and hardly mentioning the grief of having her time there cut short. The post for my account focused more on the things she never got to do, like saying goodbye to her friends. I asked her why the reflection she sent me was much more melancholic, and she said she would never post something like that on her personal Instagram because she doesn't want the people who follow her to worry about her. She said, "it's almost easier to tell people that you don't know that you're going through

something than it is to tell people that you know." Catherine felt more comfortable opening up in the reflection she sent me than she did in her personal post, because she wanted to preserve the image of herself she created on her personal Instagram. The purpose of my account was not to curate a perfect life, but to share real experiences. In this environment, she didn't have to continue projecting her personal image. This idea opening up in a welcoming environment also came up in my interview with Rianne. She told me that it was "easier to be more vulnerable" in submissions to my account because that's what the account was created for. It is "very much focused on personal thoughts," unlike her personal social media accounts.

Another theme that surfaced under this idea of reflection was control. Rianne and I talked about how reflecting on her situation for this project had affected her, and she said " by actively trying to figure out if things are happening in your life, you're a lot more in control, and able to handle things." In my interview with Susan Brown, she observed that creating a reflection was something that
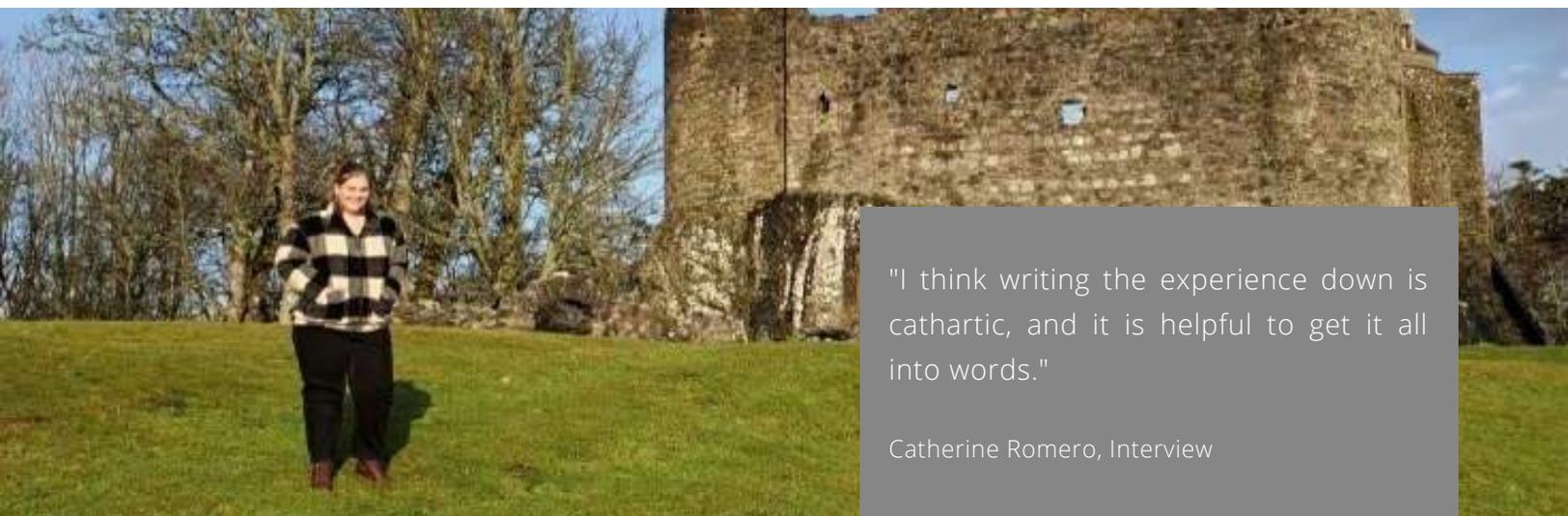
"I think writing the experience down is cathartic, and it is helpful to get it all into words."

Catherine Romero, Interview

"Solving a puzzle seems to be an appropriate metaphor for these times… starting with chaos, gradually bringing order, and hopefully ending up with something better than before."

Susan Brown
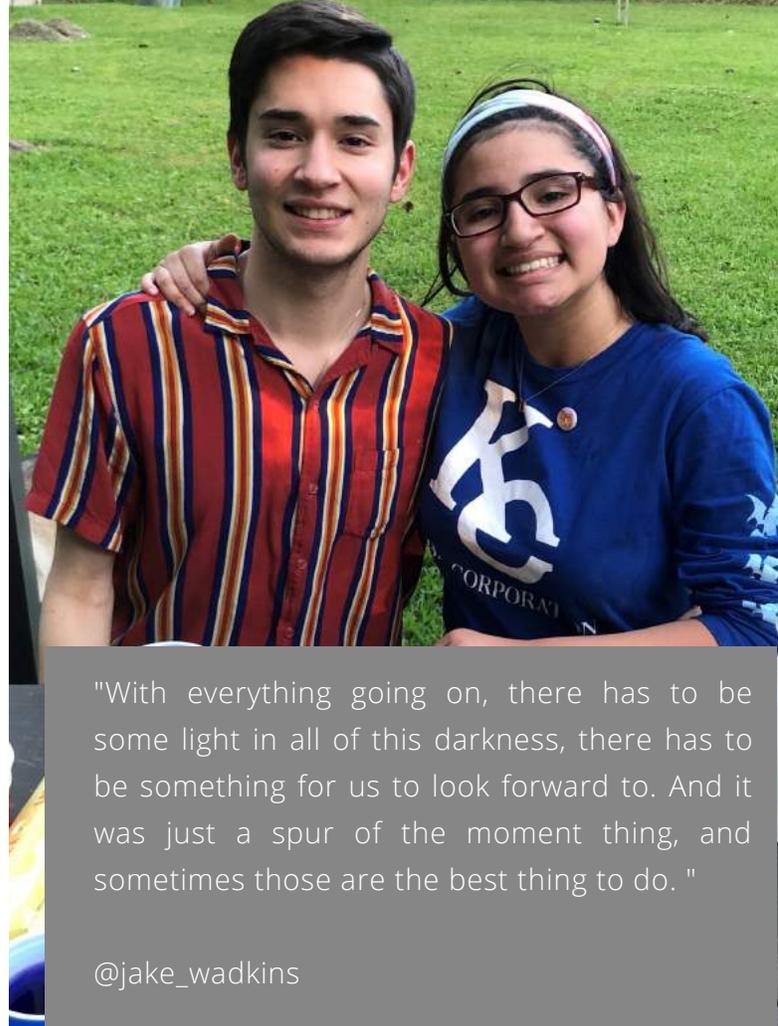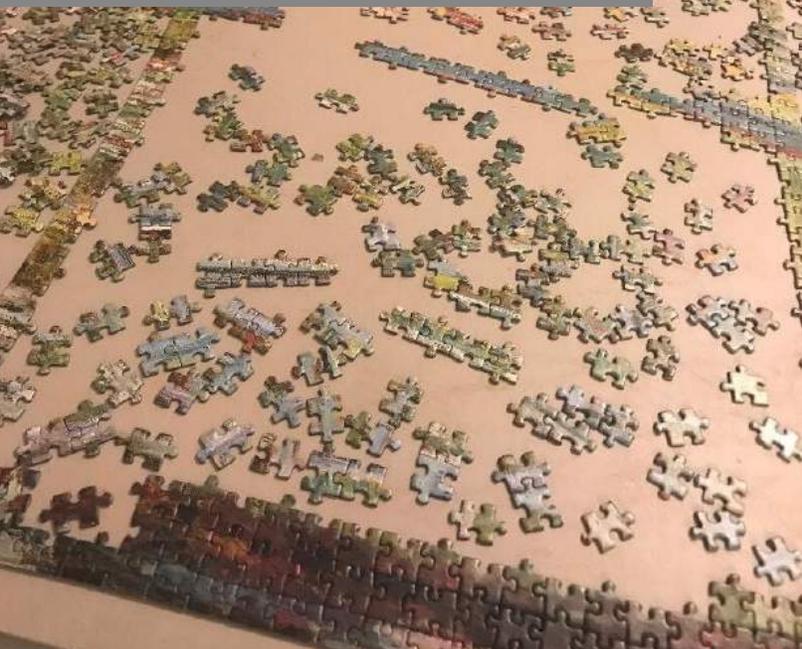
"With everything going on, there has to be some light in all of this darkness, there has to be something for us to look forward to. And it was just a spur of the moment thing, and sometimes those are the best thing to do. "

@jake_wadkins

would help her "think about how I feel about the whole thing rather than just kind of moving through it." I noticed themes of control and understanding in several reflections, including one about a puzzle Susan submitted. The she noted that "solving a puzzle seems to be an appropriate metaphor for these times… starting with chaos, gradually bringing order, and hopefully ending up with something better than before." People seemed to be using these reflections to synthesize what was happening to them and begin to make sense of it. In sharing their story, they gained some control of their situation, and found the silver linings.

The final layer of this method of storytelling, inspiration, was evident in almost all the posts and the interviews I

conducted. People both gained inspiration from the posts they saw on my account and used their submissions to inspire others. I spoke with my interviewees about what they thought of the page, and which posts were their favorite. Catherine said the reflections under the "Alone Together" theme resonated with her because they were posted while she was in 14-day self-isolation after her flight home. Jake Wadkins (@jake_wadkins) expressed appreciation for the diversity of the page, saying "there's so many things other than just mine, a lot of it is other people's different take on [the pandemic]." Jake was particularly focused on "shar[ing] the light," as he put it in our interview. His submission documented how he and his family decided to celebrate Easter, even though they couldn't take part in their

"I've found that by sharing smiles, I am more at peace, and I hope to bring some peace to those I share with."

@rianne.brown

important to her to "share that and try and ease those fears with more positive moments and memories." She wanted to bring a little happiness to her friends through her gifts, and possibly inspire someone else to do the same through the reflection she sent me. These little bits of inspiration can be found in the positive messages many people finished the captions of their submissions with, saying "Sometimes all you need is the little things :)" (@rianne.brown), "I get to meet my parents' new puppy earlier than I expected :)" (@catherine.g.romero), or "We are alone in this experience together and will remember it always" (@beccadawley).

All my interviewees talked about the sense of "togetherness" they found in this page, and how hearing other's stories, though they may not all have the same perspective, reinforced the idea that we are all going through this together. Jake told me that when he looked at the other reflections on my page he "realize[d] that everyone has each other's backs." Rianne found that "we're all struggling but we're all struggling together." Catherine said that our shared difficulties helped her because "it's not crazy that you feel this way when you feel so alone…You're not crazy or we're all crazy, but together." I think this is the largest benefit of sharing our stories in this difficult time. Creating stories of our experiences allows us to make sense of what we're going through. Sharing these stories allows us to connect in new and helpful ways. Healing occurs when we look back on the difficult times we've navigated together and find that there was a little light in the darkness after all.

usual traditions. Instead of going to church and hosting an Easter dinner, he and his sister took some time to paint eggs and hold an impromptu Easter egg hunt, something they had not done for years. He hoped his submission would inspire others to create new family traditions during this difficult time. The idea of spreading a little joy through a post on my account was very meaningful to him, even though "all I'm doing is sending pictures of a small little thing that we did in the back yard." Rianne's second submission documented the letters she sent to her friends back at school. In our first interview, we discussed how one of her means of expressing herself was through giving others gifts, so I brought this up while we were talking about her submission. She said that "it really makes a difference to just have something to bring a smile." It was very

OUR EXPERIENCES

Struggles

These signs sit ironically over my desk as I can't go anywhere or talk to anyone
-Erica Houghton

Puzzled
By Robert Peralta
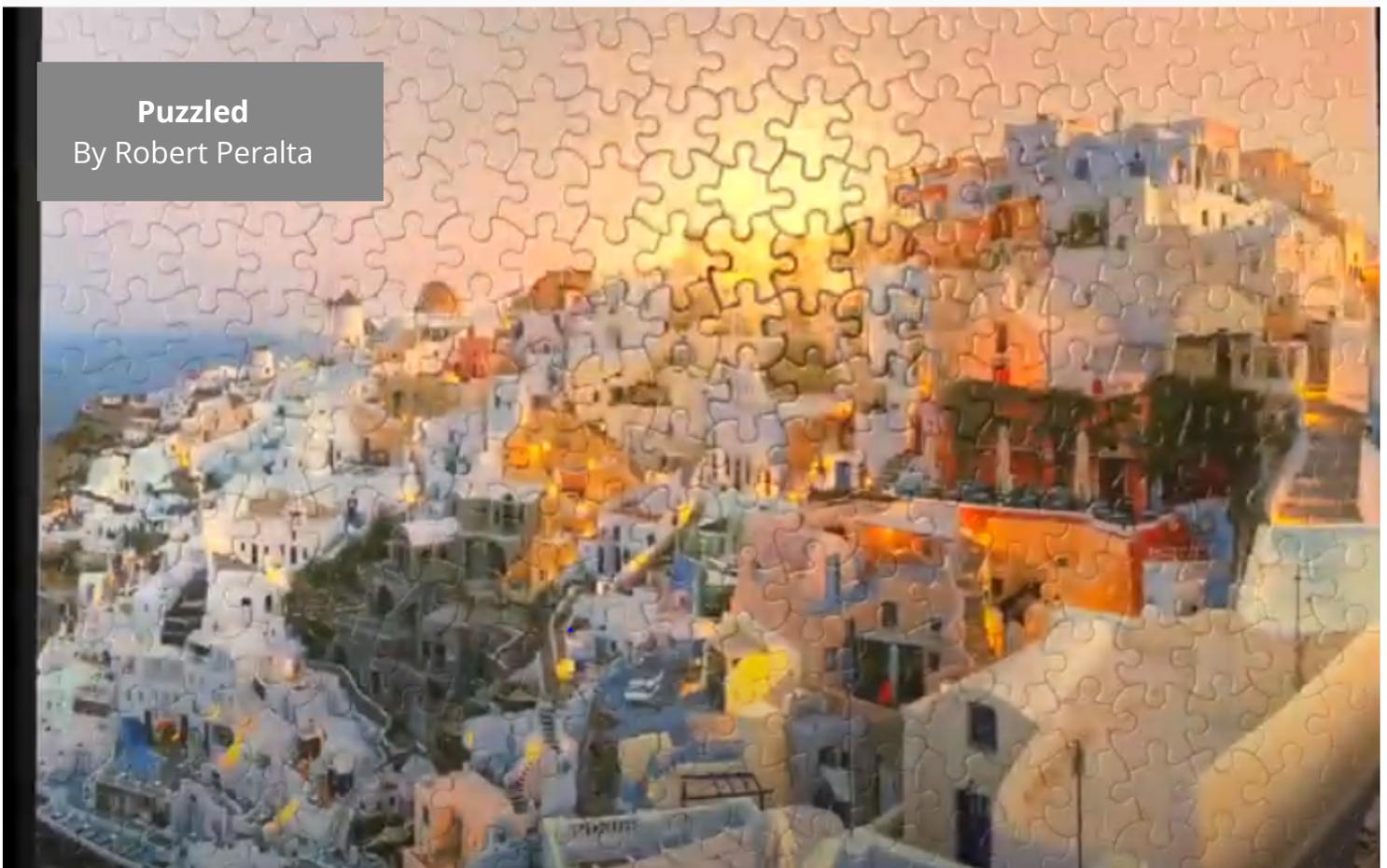
Companionship

The happiest of the Madamba's to have everyone home all day long
-Olivia Madamba
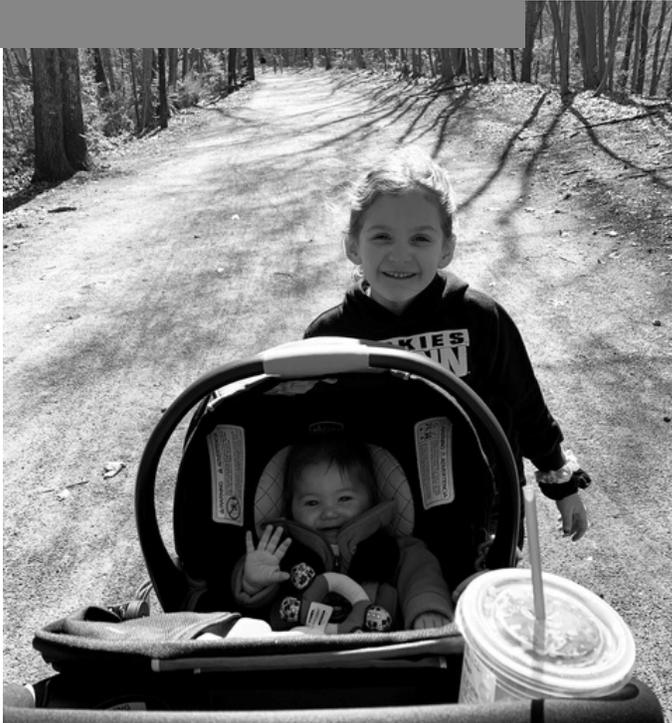
Gym class, daily exercise, and play time all in one! I take care of/teach these two precious angels (my sister in the back and my baby cousin in the stroller) each day so that my family can work. We like to get out and explore new trails, while performing social distancing.
-Mia DiBattista

Family
By Amanda Wetmore

I am so lucky
That during isolation
I am not alone

Not Alone
By Madeline Blake

Staying connected is no simple task,

When staying at home is what they ask.

Keep those connections and friendships too,

But don't go see them, not even a few.

Hey, now that Zoom is mostly free,

You can video chat with all, and those friends you will see.

Try using social media, keep those streaks alive,

Keep the challenges going, and you will thrive.

Don't forget about those relationships with pets,

Keep them exercised, and you will have no regrets.

Fish, horses, dogs, and cats oh my,

If I wanted to be bored in my house, I'd really have to try.

So think about it this way, you aren't really alone,

You aren't missing out, just pick up the phone.

This too shall pass, and you won't lose your mind,

Please stay at home, and the end you will find.

My sister's room, where I am staying. My cats help alleviate my anxiety and are wonderful quarantine companions. Pictured is Tiger, our orange kitty
-Kyria Nelson
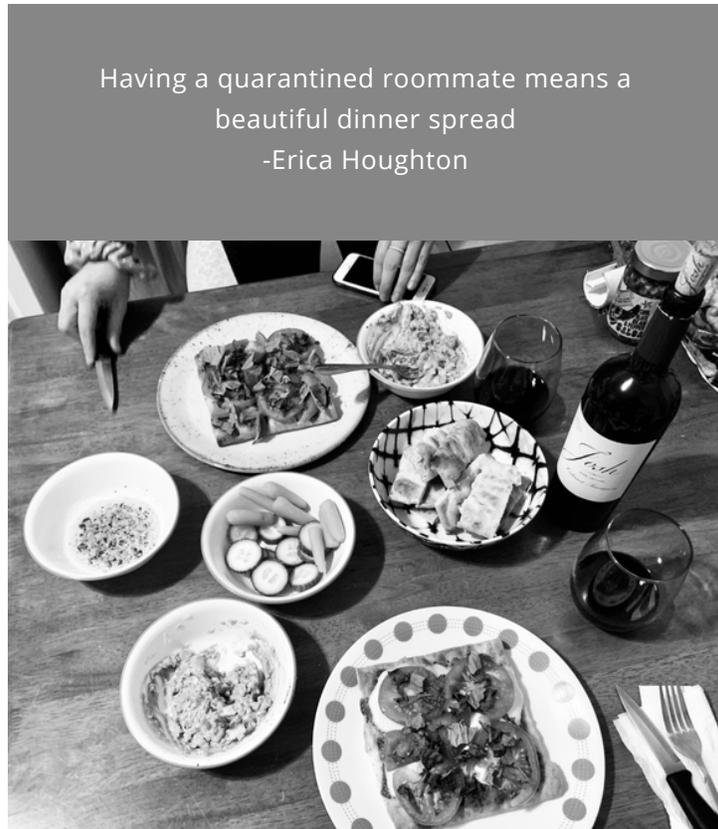
Having a quarantined roommate means a beautiful dinner spread
-Erica Houghton

Acceptance and Adjustment

Isolation.
By Cameron Walsh

Inside I stay, all day, every day

Sitting at my desk, both doing work and playing

Online with my friends, trying to stay sane,

Learning from our mistakes, improving our

Awareness of reality and

The map on the screen in front of us, trying

In vain to win game after game, seeking praise from

Ourselves, because we have

Nothing else that we know how to do.

Sheltering In Place
By Olivia Madamba

Ways to Cope

Trying to keep busy

-Jillian Spera

This is an image of my driveway currently. My sister loves to play tennis but is currently inside. Sadly her season will most likely be cancelled and she messes going to the courts. As a temporary training solution, I placed a section of plywood up against our rock wall and spray painted a line to represent the net at regulation height. She hits against it for hours whenever the weather is appropriate.

-Connor Craigie

Training Continues

-Olivia Hauber

Keeping Busy (4/2/20): With not much else to do, my mom and I have turned to baking as way to pass the time.
-Connor Skinner

Being back at home has allowed me to play tennis which I haven't done in years
-Colin Gordon

Alternative lifestyle means alternative living spaces
-Noah Roberts

REFERENCES

REFERENCES - INTRODUCTION

Adams, K. (2019, April 29). What GDP tells us about the economy. Retrieved May 3, 2020, from h
    ttps://www.marketplace.org/2018/07/26/what-gdp-tells-us-about-economy/

Boncristiani, H. F. (2009). Respiratory Viruses. Encyclopedia of Microbiology, 500–518. doi:
    https://doi.org/10.1016/B978-012373944-5.00314-X

Casselman, B. (2020, April 29). Worst Economy in a Decade. What's Next? 'Worst in Our Lifetime.'.
    Retrieved May 3, 2020, from https://www.nytimes.com/2020/04/29/business/economy/us-
    gdp.html

Chen, Q., & Leung, T. (2020, May 2). Bats, a wet market, and many theories: Where did the
coronavirus
    come from? Retrieved from https://www.inkstonenews.com/science/bats-wet-market-and-many-
    theories-what-we-know-about-origin-coronavirus/article/3082414

COVID-19 in Racial and Ethnic Minority Groups. (2020, April 22). Retrieved May 3, 2020, from
    https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/racial-ethnic-
    minorities.html?deliveryName=USCDC_2067-DM26555

Cox, J. (2020, April 30). US weekly jobless claims hit 3.84 million, topping 30 million over the last 6
    weeks. Retrieved May 3, 2020, from https://www.cnbc.com/2020/04/30/us-weekly-jobless-
    claims.html

Duddu, P. (2020). Coronavirus in italy: Outbreak, measures and impact. Retrieved from
    https://www.pharmaceutical-technology.com/features/covid-19-italy-coronavirus-deaths-
    measures-airports-tourism/

Georgiou, A. (2020, March 16). Coronavirus was able to spread so fast because of "stealth
    transmissions," study finds. Retrieved April 5, 2020, from
    https://www.newsweek.com/coronavirus-spread-fast-stealth-transmissions-study-finds-1492577

Gorvett, Z. (2018, November 13). The mystery viruses far worse than flu. BBC Future. From
    https://www.bbc.com/future/article/20181101-the-mystery-viruses-far-worse-than-flu

Huang, C. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan,
China.
    The Lancet, 395(10223), 497–506. doi: https://doi.org/10.1016/S0140-6736(20)30183-5

Lo, D. (2020, April 3). Despite US expanding coronavirus testing to 100,000 each day, lab testing
    expected to face serious roadblocks. GlobalData. Retrieved from
    https://www.globaldata.com/despite-us-expanding-coronavirus-testing-to-100000-each-day-lab-
    testing-expected-to-face-serious-roadblocks-says-globaldata/

Lombardi, P., Fairless, T. & Kowsmann, P. (2020). Europe braces for economic impact of italy's
    lockdown. Retrieved from https://www.wsj.com/articles/europe-braces-for-economic-impact-of-
    italys-lockdown-11583698806?ns=prod/accounts-wsj

McCrimmon, K. (2020, March 17). Viruses 101: Why the new coronavirus is so contagious and how we can fight it. UCHealth Today. Retrieved from https://www.uchealth.org/today/viruses-101-why-the-new-coronavirus-is-so-contagious-how-to-fight-it/

Morath, E., & Chaney, S. (2020, April 16). U.S. Jobless Claims Top 20 Million Since Start of Shutdowns.
Retrieved May 5, 2020, from https://www.wsj.com/articles/u-s-unemployment-claims-likely-continued-at-record-levels-11587029401

Nania, R. (2020, May 1). Higher COVID-19 Incidence in Minority Communities. Retrieved May 5, 2020,
from https://www.aarp.org/health/conditions-treatments/info-2020/minority-communities-covid-19.html

News Release. (n.d.). Retrieved from https://www.bea.gov/news/2020/gross-domestic-product-1st-quarter-2020-advance-estimateNew York City. (2020, May 1). Retrieved from https://en.wikipedia.org/wiki/New_York_City NIAID. (n.d.).

COVID-19, MERS & SARS. Retrieved from https://www.niaid.nih.gov/diseases-conditions/covid-19 Perez, J. & French, M. (2020, April 4). 'There will be death': Trump warns of 'toughest week' ahead. POLITICO. Retrieved from https://www.politico.com/news/2020/04/04/trump-predicts-toughest-week-coronavirus-164836

Scott, D. (2020, April 17). Covid-19's devastating toll on black and Latino Americans, in one chart. Retrieved May 5, 2020, from https://www.vox.com/2020/4/17/21225610/us-coronavirus-death-rates-blacks-latinos-whites

Secon, H., Woodward, A., & Mosher, D. (2020, April 23). A comprehensive timelines of the new coronavirus pandemic, from China's first COVID-19 case to the present. Business Insider, Retrived from https://www.businessinsider.com/coronavirus-pandemic-timeline-history-major-events-2020-3

Shuster, S. (2020, March 31). As New York Coronavirus Deaths Soar, Makeshift Morgues Go Up. Retrieved May 11, 2020, from https://time.com/5812569/covid-19-new-york-morgues/

Soucheray, S. (2020, April 20). Cumo says COVID-19 cases have peaked in New York. CIDRAP. Retrieved from https://www.cidrap.umn.edu/news-perspective/2020/04/cuomo-says-covid-19-cases-have-peaked-new-york

Statista Research Department. (2020). Cumulative number of coronavirus (COVID-19) cases in italy since february 2020. Retrieved from https://www.statista.com/statistics/1101680/coronavirus-cases-development-italy/

Taylor, D. (2020, April 28). How the Coronavirus Pandemic Unfolded: a Timeline. The New York Times, Retrieved from https://www.nytimes.com/article/coronavirus-timeline.html.

Pixabay. (2019, January 12). Asia China Wuhan. Retrieved from https://pixabay.com/photos/asia-china-wuhan-night-nightlife-3925305/

Timeline: How the new coronavirus spread. (2020). Retrieved from https://www.aljazeera.com/news/2020/01/timeline-china-coronavirus-spread-200126061554884.htm

Torry, H. (2020, April 29). U.S. Economy Shrank at 4.8% Pace in First Quarter. Retrieved May 5, 2020, from https://www.wsj.com/articles/first-quarter-gdp-us-growth-coronavirus-11588123665

White House Adviser Warned of Risks of Pandemic; Trump Misleads on Testing. (2020, April 6). Retrieved May 5, 2020, from https://www.nytimes.com/2020/04/06/world/coronavirus-live-news-updates.html

Whoriskey, P. & Satika, N. How U.S. coronavirus testing stalled: Flawed tests, red tape and resistance to using the millions of rests produced by the WHO. The Washington Post. Retrieved from https://www.washingtonpost.com/business/2020/03/16/cdc-who-coronavirus-tests/

WHO. (2006.). A Guide to Healthy Food Markets. Retrieved from https://www.who.int/foodsafety/publications/capacity/healthymarket_guide.pdf

WHO. (2020). Naming the coronavirus disease (COVID-19) and the virus that causes it. From https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it

World Health Organization. (2020, April 27). WHO Timeline - COVID-19. Retrieved from https://www.who.int/news-room/detail/27-04-2020-who-timeline---covid-19Wuhan. (2020, April 30). Retrieved from https://en.wikipedia.org/wiki/

Wuhan Zhang, T., Wu, Q., & Zhang, Z. (2020). Probable Pangolin Origin of SARS-CoV-2 Associated with the COVID-19 Outbreak. Current Biology, 30(7), 1346–1351. doi: https://doi.org/10.1016/j.cub.2020.03.022

Zhong, R., & Mozur, P. (2020). To tame coronavirus, mao-style social control blankets china. Retrieved from https://www.nytimes.com/2020/02/15/business/china-coronavirus-lockdown.html

REFERENCES- THE COVID-19 CRISIS FROM THE STANDPOINT OF HEALTHCARE WORKERS AND THEIR FAMILIES

Adams, William. "Conducting Semi-Structured Interviews." Handbook of Practical Program Evaluation. 4th edition, edited by Kathryn E. Newcomer, Harry P. Hatry & Joseph S. Wholey, Jossey Bass, 2015, pp. 492-505.

Bernstein, L., Johnson, C. Y., Kaplan, S. & McGinley, L. "Coronavirus destroys lungs. But doctors are finding damage in kidneys, hearts and elsewhere," The Washington Post.15 April,2020. https://www.washingtonpost.com/health/coronavirus-destroys-lungs-but- doctors-are-finding-its-damage-in-kidneys-hearts-and-elsewhere/2020/04/14/7ff71ee0-7db1-11ea-a3ee-13e1ae0a3571_story.html.

Brooks, Ashley. "7 Compelling Reasons to Consider Working in the Healthcare Industry." Rasmussen College, 28 August, 2017. https://www.rasmussen.edu/degrees/health-sciences/blog/working-in-the-healthcare-industry/.

Chaib, F., & Jasarevic, T. "Urgent health challenges for the next decade." World Health Organization, 13 January, 2020. https://www.who.int/news-room/photo-story/photo- story-detail/urgent-health-challenges-for-the-next-decade.

Cohen, Elizabeth. "'Such a simple thing to do': Why positioning Covid-19 patients on their stomachs can save lives." CNN Health, 14 April, 2020. https://www.cnn.com/2020/04/14/health/coronavirus-prone-positioning/index.html.

"Coronavirus Disease 2019." Centers for Disease Control and Prevention (CDC), 2020. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F20 19 ncov%2Fprepare%2Ftransmission.html.

"Coronavirus: 'Nurses prepare for the worst but not this'." BBC News, 30 March, 2020. https://www.bbc.com/news/world-us-canada-52094331.

"FAQ's on Shortages of Surgical Masks and Gowns." Food and Drug Administration. 2020. https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/faqs-shortages-surgical-masks-and-gowns.

"Fast Facts on U.S. Hospitals, 2020." American Hospital Association. 2020. https://www.aha.org/statistics/fast-facts-us-hospitals.

"Fastest Growing Occupations." U.S. Bureau of Labor Statistics. 2018. https://www.bls.gov/ooh/fastest-growing.htm.

Fink, Sheri. "Worst Case Estimates for U.S. Coronavirus Deaths." The New York Times, 13 March, 2020. https://www.nytimes.com/2020/03/13/us/coronavirus-deaths-estimate.html.

Follow a Nurse Inside a COVID-19 ICU: 'I'm Terrified'." MedicineNet, 8 April, 2020. https://www.medicinenet.com/script/main/art.asp?articlekey=229982.

Halpern, N. A., & Tan, K. S. "U.S. ICU Resource Availability for COVID-19." Society of Critical Care Medicine, 25 March, 2020. https://sccm.org/getattachment/Blog/March-2020/United-States-Resource-Availability-for-COVID-19/United-States-Resource-Availability-for-COVID-19.pdf?lang=en-US.

Hess, Amanda. "In Praise of Quarantine Clapping," The New York Times. 9 April, 2020. https://www.nytimes.com/2020/04/09/arts/virus-quarantine-clapping.html.

Jacobs, A., Ritchel, M. & Baker, M. "'At War With No Ammo': Doctors Say Shortage of Protective Gear Is Dire." The New York Times, 19 March, 2020. https://www.nytimes.com/2020/03/19/health/coronavirus-masks-shortage.html.

Jojola, J. & Beese, W. "'I don't think our normal will be normal again': Colorado nurses on the front line of COVID-19 pandemic share their experiences." 9 News. 26 April, 2020. https://www.9news.com/article/news/health/coronavirus/colorado-nurses-describe-being- on-front-line-of-the-covid-19-pandemic/73-65d34141-c080-45f8-9651-f0c5843eaf69.

Leonard, Kimberly. "Pay cuts, furloughs, and layoffs for doctors, nurses and other healthcare workers are mounting as the coronavirus pandemic hits hospitals," Business Insider. 9 April, 2020. https://www.businessinsider.com/hospitals-are-facing-economic-turmoil-in- the-coronavirus-pandemic-2020-4.

Marks, Peter. "The nightly ovation for hospital workers may be New York's greatest performance," The Washington Post. 6 April, 2020. https://www.washingtonpost.com/entertainment/theater_dance/the-nightly-ovation-for-hospital-workers-may-be-new-yorks-greatest-performance/2020/04/06/e443195c-7795-11ea-a130-df573469f094_story.html.

Maunder, Robert G et al. "Computer-assisted resilience training to prepare healthcare workers for pandemic influenza: a randomized trial of the optimal dose of training." BMC health services research vol. 10 72. 22 Mar. 2010, doi:10.1186/1472-6963-10-72.

Miller, Kenneth, E. "The Power of Stories to Heal or Harm." Psychology Today, 11 March, 2017. https://www.psychologytoday.com/us/blog/the-refugee-experience/201703/the-power-stories-heal-or-harm.

Murrer, Sally. "Nurses line the corridors to clap as two Covid-19 patients get released from Milton Keynes hospital." MKCitizen, 10 April, 2020. https://www.miltonkeynes.co.uk/health/coronavirus/nurses-line-corridors-clap-two-covid-19-patients-get-released-milton-keynes-hospital-2535756.

Nierenberg, Amelia. "Where Are All the Masks?" The New York Times, 3 April, 2020. https://www.nytimes.com/article/face-masks-coronavirus.html.

Osterholm, Michael T. "Unprepared for a Pandemic." Foreign Affairs, vol. 86, no. 2, 2007, pp. 47-57. JSTOR, www.jstor.org/stable/20032283.

"Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employees." Occupational Safety and Health Administration. 2007. https://www.osha.gov/Publications/3328-05-2007-English.html.

Pappas, Stephanie. "Is there a cure for the new coronavirus?" Live Science, 15 March, 2020. https://www.livescience.com/can-coronavirus-be-cured.html.

Paul, Timothy S. "Latest COVID-19 Projections Point to Spring Peak." Columbia University Mailman School of Public Health, 22 April, 2020. https://www.mailman.columbia.edu/public-health-now/news/latest-covid-19-projections-point-spring-peak.

Saldana, Johnny. The Coding Manual for Qualitative Researchers. SAGE Publications, 2016.

Thew, Jennifer. "COVID-19 is Affecting Critical Care Nurse. What Nurse Leaders Need to Know," HealthLeaders. 8 April, 2020. https://www.healthleadersmedia.com/nursing/covid-19-affecting-critical-care-nurses- what-nurse-leaders-need-know.

"Why Did You Choose Healthcare Administration?" Southern New Hampshire University Communications, 14 September, 2015. https://www.snhu.edu/about- us/newsroom/2015/09/why-did-you-choose-healthcare-administration

REFERENCES- HEALING AND HEART: THE IMPACT OF THE COVID-19 PANDEMIC ON NURSING STUDENTS

Benner, P. (1982). From Novice to Expert. The American Journal of Nursing, 82(3), 402-407. doi:10.2307/3462928

Crary, Pamela. (2016). Relatedness Matters. Holistic Nursing Practice. 30. 345-350. 10.1097/HNP.0000000000000177.

DeRuy, E. (2020, March 27). Coronavirus: Graduating California nursing students want to help, but told to stay home instead. Retrieved April 8, 2020, from https://www.mercurynews.com/2020/03/27/coronavirus-graduating-nursing-students-want-to-help-but-told-to-stay-home-instead/

Guerrero, M. (2020, April 8). Nursing Students Prepare to Enter Workforce. Retrieved April 9, 2020, from https://www.nbcdfw.com/news/coronavirus/nursing-students-prepare-to-enter-workforce/2347991/

Hezaveh, M. S., Rafii, F., & Seyedfatemi, N. (2013). Novice nurses' experiences of unpreparedness at the beginning of the work. Global journal of health science, 6(1), 215–222. https://doi.org/10.5539/gjhs.v6n1p215

Hoeve, Yvonne & Kunnen, E. & Brouwer, Jasperina & Roodbol, Pétrie. (2018). The voice of nurses: Novice nurses' first experiences in a clinical setting. A longitudinal diary study. Journal of Clinical Nursing. 27. 10.1111/jocn.14307.

Hussein, R., Everett, B., Ramjan, L., Hu, W., & Salamonson, Y. (2017, July 28). New graduate nurses' experiences in a clinical specialty: a follow up study of newcomer perceptions of transitional support. Retrieved April 8, 2020, from https://bmcnurs.biomedcentral.com/articles/10.1186/s12912-017-0236-0

Magsam, S. (2020, March 30). Nursing Students and Faculty Answer Call, Join Local Hospitals in COVID Crisis. Retrieved April 8, 2020, from https://news.uark.edu/articles/52622/nursing-students-and-faculty-answer-call-join-local-hospitals-in-covid-crisis

Morgan, T. (2020, March 30). Nursing students preparing to start work during the coronavirus pandemic. Retrieved April 8, 2020, from https://abc6onyourside.com/news/local/nursing-students-preparing-to-start-work-during-the-coronavirus-pandemic

Murphy, P. P. (2020, April 9). Detroit hospital workers say people are dying in the ER hallways before help can arrive. Retrieved April 9, 2020, from https://www.cnn.com/2020/04/09/us/detroit-hospital-workers-sinai-grace-coronavirus/index.html

Simmons, J. (2017). The Development and Validation of a Novice Nurse Decision-Making Skills Education Curriculum. Walden University College of Health Sciences.

REFERENCES- MODIFYING MEDICINE: HOW THE COVID-19 PANDEMIC HAS ALTERED PATIENT CARE AND MEDICAL WORKER EXPERIENCE

Alltucker, K. (2020, March 23). 'Who lives and who dies': In worst-case coronavirus scenario, ethics guide choices on who gets care. Retrieved from https://www.usatoday.com/story/news/health/2020/03/22/coronavirus-crisis-medical-ethics-guide-decisions-doctors-cant-help-all/2882738001/

American College of Surgeons. (2020a, March 30). Deployment of Surgeons for Out-of-Specialty Patient Care. Retrieved from https://www.facs.org/covid-19/clinical-guidance/workforce-deployment

American College of Surgeons. (2020b, March 13). COVID-19: Recommendations for Management of Elective Surgical Procedures. Retrieved from https://www.facs.org/covid-19/clinical-guidance/elective-surgery

American College of Surgeons. (2020c, March 31). COVID-19 and Surgical Procedures: A Guide for Patients. Retrieved from https://www.facs.org/covid-19/clinical-guidance/patient-guide

American College of Surgeons. (2020d, March 17). COVID-19: Guidance for Triage of Non- Emergent Surgical Procedures. Retrieved from https://www.facs.org/covid-19/clinical- guidance/triage

Beebe, J. (2014). Getting the insider's perspectives. Rapid qualitative inquiry: A field guide to team-based assessment (pp. 29-39)

Centers for Disease Control and Prevention. (2020, March 20). Steps Healthcare Facilities Can Take Now to Prepare for Coronavirus Disease 2019 (COVID-19). Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/healthcare-facilities/steps-to-prepare.html

Cheney, C. (n.d.). Coronavirus: Tiered Staffing Recommended to Bolster Critical Care. Retrieved from https://www.healthleadersmedia.com/clinical-care/coronavirus-tiered-   staffing-recommended-bolster-critical-care

Cram, P., Anderson, M. L., & Shaughnessy, E. E. (2020, April 28). All Hands on Deck: Learning to "Un-specialize" in the COVID-19 Pandemic. Retrieved from https://www.journalofhospitalmedicine.com/jhospmed/article/220370/hospital-medicine/all-hands-deck-learning-un-specialize-covid-19-pandemic

Felson, S. (2020, January 26). Different Types of Doctors & Medical Specialists Explained. Retrieved from https://www.webmd.com/health-insurance/insurance-doctor-types#3

Goldberg, E. (2020, March 23). These Doctors Have Specialties. Fighting Coronavirus Wasn't   One of Them. Retrieved from https://www.nytimes.com/2020/03/23/health/coronavirus- doctors-specialists.html

Khan, S. (2020, April 20). I am an eye surgeon but could soon be your doctor in the ICU. I'm terrified. Retrieved from https://www.theguardian.com/society/2020/apr/20/eye-surgeon- doctor-meet-icu-coronavirus?CMP=Share_AndroidApp_Slack

Noack, R., Shammas, B., Wagner, J., Horton, A., Berger, M., Metler, K., ... Pell, S. (2020, April 2). Live updates: Global coronavirus cases edge toward a million as pandemic surges in U.S., Italy, France. Retrieved from   https://www.washingtonpost.com/world/2020/04/02/coronavirus-latest-news/

Olson, P. (2020, April 1). Telemedicine, Once a Hard Sell, Can't Keep Up With Demand. Retrieved from
https://www.wsj.com/articles/telemedicine-once-a-hard-sell-cant-keep-up-with-demand-
11585734425?mod=searchresults&page=1&pos=1

Prepare to Care for COVID-19: Get Your Practice Ready. (2020, March 31). Retrieved from
https://www.cdc.gov/coronavirus/2019-ncov/hcp/preparedness-resources.html?CDC_AA
_refVal=https://www.cdc.gov/coronavirus/2019-ncov/healthcare-facilities/practice-
preparedness.html

Rockwell, K. L., & Gilroy, A. S. (n.d.). Incorporating Telemedicine as Part of COVID-19Outbreak
Response Systems. Retrieved from https://www.ajmc.com/journals/issue/2020/2020-vol26-
n4/incorporating-telemedicine-as-part-of-covid19-outbreak-response-systems

Taylor, D. B. (2020, February 13). A Timeline of the Coronavirus Pandemic. Retrieved from
https://www.nytimes.com/article/coronavirus-timeline.html

Taylor-Powell, E. & Renner, M. (2003). Analyzing qualitative data. Program Development and
Evaluation: The University of Wisconsin, Madison. Retrieved from
https://deltastate.edu/docs/irp/Analyzing%20Qualitative%20Data.pdf.

REFERENCES-LEHR UND KUNST: A THEORY & PRACTICE APPROACH TO 3D PRINTED PERSONAL PROTECTIVE EQUIPMENT

Alvarez, P. (2020). Watchdog report finds severe shortages and significant challenges to hospitals' coronavirus responses. CNN. https://www.cnn.com/2020/04/06/politics/department-of-health-and-human-services-shortages/index.htmlAn

Example of a 3D printer (Zortrax M200 3D printer) [Online Image]. (2015). Retrieved May 5, 2020Bonessi, D.M. (2020, April 10) People are 3D Printing Personal Protective Equipment to Help Hospitals With Shortage. NPR. Retrived by https://www.npr.org/local/305/2020/04/01/825217523/people-are-3-d-printing-personal-protective-equipment-to-help-hospitals-with-shortage

Campanile, C. & Hogan, B. (2020, April 13). Hospitals must provide medical workers N-95 masks daily under Cuomo edict. New York Post. Retrieved by https://nypost.com/2020/04/13/hospitals-must-provide-workers-n95-masks-daily-under-cuomo-edict/

Centers for Disease Control and Prevention. (2004-a). Guidance for the Selection and Use of Personal Protective Equipment (PPE) in Healthcare Settings. Retrieved from https://www.cdc.gov/hai/pdfs/ppe/ppeslides6-29-04.pdf

Centers for Disease Control and Prevention. (2018, November 30-b). Personal Protective Equipment-NIOSH workplace safety and health topic. Retrieved from https://www.cdc.gov/niosh/topics/emres/ppe.html.

Centers for Disease Control and Prevention. (2020, April-c). Strategies to Optimize the Supply of PPE and Equipment. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhcp%2Fhealthcare-supply-ppe-index.html

Kanno-Youngs, Z. & Swanson, A. (2020, April 1). Wartime production law has been used routinely, but not with coronavirus. Chicago Tribune. Retrived by https://www.chicagotribune.com/coronavirus/sns-nyt-defense-production-act-coronavirus-20200401-f7l26ongn5dh5pppkvgtomr5ma-story.htmlKesslen, B.

Kleinman, Z. (2020, April 10). Coronavirus: Can we 3D-print our way out of the PPE shortage? BBC. Retrieved by https://www.bbc.com/news/health-52201696

Lee, D. & Haberkorn, J. (2020, March 25). Trump's refusal to use wartime powers to direct scarce medical supplies has left states fighting it out. Los Angeles Times. Retrived by https://www.latimes.com/politics/story/2020-03-25/trump-faces-heat-for-not-using-wartime-powers-to-procure-medical-supplies

Mccammon, S. (2020). Hospitals reject Trump's claim they are 'really thrilled' with supplies. National Public Radio. https://www.npr.org/sections/coronavirus-live-updates/2020/04/05/827671323/hospitals-reject-trumps-claim-they-are-really-thrilled-with-supplies

Mcnamara, A. (2020, April 1). Nurses protest lack of PPE at 15 hospitals nationwide. CBS News. https://www.cbsnews.com/news/nurses-protest-ppe-shortages-15-hospitals/

Montanaro, D. (2020, April 29). The U.S. Hits 1 Million Coronavirus Cases, One-Third Of All The World's Cases. NPR. Retrieved by https://www.npr.org/2020/04/29/847629575/the-u-s-hits-1-million-coronavirus-cases-one-third-of-all-the-worlds-cases

Ngo, T. D., Kashani, A., Imbalzano, G., Nguyen, K. T. Q., & Hui, D. (2018). Additive manufacturing (3D printing): A review of materials, methods, applications and challenges doi:https://doi.org/10.1016/j.compositesb.2018.02.012

OSHA: Personal protective equipment.(occupational safety and health administration). (2004). Older Americans Report, 28(27), 216. Retrieved from https://www.osha.gov/Publications/osha3151.pdf

Rogers, K. Haberman, M. & Swanson, A. (2020, March 20). Trump Resists Pressure to Use Wartime Law to Mobilize Industry in Virus Response. New York Times. Retrieved by https://www.nytimes.com/2020/03/20/us/politics/trump-coronavirus-supplies.htmlSandhu-Longoria, A. (2020, February 26).

HHS officials warn of medical supply shortages amid coronavirus outbreak. MedTechDive. Retrived by https://www.medtechdive.com/news/hhs-officials-warn-of-medical-supply-shortages-amid-coronavirus-outbreak/573011/

Sherman, A. (2020, April 1). Are states in a bidding war over medical gear with the feds?. PolitiFact. https://www.politifact.com/article/2020/apr/01/are-states-bidding-war-over-medical-gear-feds/

Thielking, M. (2020). Frustrated and afraid about protective gear shortages, health workers are scouring for masks on their own. Stat News. https://www.statnews.com/2020/03/18/ppe-shortages-health-workers-afraid-scouring/

Ventola, C. L. (2014). Medical applications for 3D printing: Current and projected uses. P & T : A Peer-Reviewed Journal for Formulary Management, 39(10), 704-711. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/25336867

"What is PLA?" (2019). 3D Supply Guys. Retrieved by https://3dsupplyguys.com/education-center/printer-filament-information/what-is-pla/

World Health Organization. (2020-a) Coronavirus. Retrieved from https://www.who.int/health-topics/coronavirus#tab=tab_1

World Health Organization. (2020-b) Coronavirus disease (COVID-2019) situation reports. Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/.

REFERENCES - STUDENT ATTITUDES TOWARD COLLEGE AND UNIVERSITY COVID-19 RESPONSES

Alpaslan, C. M., Green, S. E., & Mitroff, I. I. (2009). Corporate governance in the context of crises: Towards a stakeholder theory of crisis management. Journal of Contingencies and Crisis Management, 17(1), 38–49. doi: 10.1111/j.1468-5973.2009.00555.x

Bellisario, D. P. (n.d.). Attributions of crisis responsibility - situational crisis communication theory. Retrieved from https://pagecentertraining.psu.edu/public-relations-ethics/ethics- in-crisis-management/lesson-1-prominent-ethical-issues-in-crisis-situations/attributions- of-crisis-responsibility-situational-crisis-communication-theo/

Bentley, Q. (2020, April 25). Academic pandemic: Students and professors worry education will suffer in the wake of coronavirus. The News Record. Retrieved from https://www.newsrecord.org/news/academic-pandemic-students-and-professors-worry-education-will-suffer-in-the-wake-of-coronavirus/article_172106c2-872c-11ea-8fa7-ff75097914a8.html

Borter, G. (2020, March 20). New York governor orders all non-essential businesses closed, says everyone must stay home. Reuters. Retrieved from https://www.reuters.com/article/us- health-coronavirus-usa-new-york/new-york-governor-orders-all-non-essential- businesses-closed-says-everyone-must-stay-home-idUSKBN2172JP

Bryant University. (n.d.). COVID-19 updates. Retrieved from http://emergency.bryant.edu/covid19-updates/

Center for Infectious Disease Research and Policy at the University of Minnesota. (2012). H1N1 & higher ed lessons learned: Pandemic influenza tools, tips, and takeaways from the big 10+2 universities. Retrieved from https://www.cidrap.umn.edu/sites/default/files/public/downloads/big102webfinal_0.pdf

Choi, Y., & Lin, Y.-H. (2009). Consumer responses to Mattel product recalls posted on online bulletin boards: Exploring two types of emotion. Journal of Public Relations Research, 21, 198–207.

Coombs, W. T. (2007a). Attribution Theory as a guide for post-crisis communication research. Public Relations Review, 33(2), 135–139. doi: 10.1016/j.pubrev.2006.11.016

Coombs, W. T. (2007b). Protecting organization reputations during a crisis: The development and application of situational crisis communication theory. Corporate Reputation Review, 10(3), 163–176. doi: 10.1057/palgrave.crr.1550049

Darby, W. R., Doane, R. B., Cook, P. A., & Garrett, S. K. (2010). College student knowledge and behavior concerning novel H1N1 influenza. IIE Annual Conference Proceedings, 1- 6. Retrieved from http://ezproxy.wpi.edu/login?url=https://search.proquest.com/docview/733013073?accountid=29120

Dillard, J. P., & Peck, E. (2001). Persuasion and the structure of affect: Dual systems and discrete emotions as complementary models. Human Communication Research, 27, 38– 68.

Elflein, J. (2020, May 4). COVID-19 cases in New York City by date 2020. Retrieved from
    https://www.statista.com/statistics/1109711/coronavirus-cases-by-date-new-york-city/

Finlaw, S. Massachusetts Government (2020). Retrieved from
    https://www.mass.gov/news/governor-charlie-baker-orders-all-non-essential-businesses- to-cease-in-
    person-operation

Gault, B. A., & Sabini, J. (2000). The roles of empathy, anger, and gender in predicting attitudes
    toward punitive, reparative, and preventative public policies. Cognition and Emotion, 14, 495–520.

Griffin, R. J., Dunwoody, S., & Neuwirth, K. (1999). Proposed model of the relationship of risk
    information seeking and processing to the development of preventive behaviors. Environmental
    Research, 80(2), S230–S245. doi: 10.1006/enrs.1998.3940

IHE Staff. (2020, April 22). Live updates: Latest news on coronavirus and higher education. Inside Higher
    Education. Retrieved from https://www.insidehighered.com/news/2020/04/22/live-updates-latest-
    news-coronavirus- and-higher-education

Kim, H. J., & Cameron, G. T. (2011). Emotions matter in crisis. Communication Research, 38(6), 826–855.
    doi: 10.1177/0093650210385813

Kim, H. K., & Niederdeppe, J. (2013). The role of emotional response during an H1N1 influenza pandemic
    on a college campus. Journal of Public Relations Research, 25(1), 30–50. doi:
    10.1080/1062726x.2013.739100

Kim, H. K., & Yang, S.-U. (2009). Cognitive processing of crisis communication: Effects of CSR and crisis
    response strategies on stakeholder perceptions of a racial crisis dynamics. Public Relations Journal,
    3(1). Retrieved from https://doaj.org/article/0b1c9b6cf2074216b5a52949b22c39ae

Koskan, A., Foster, C., Karlis, J., Rose, I., & Tanner, A. (2012). Characteristics and influences of H1N1
    communication on college students. Disaster Prevention and Management: An International Journal,
    21(4), 418–432. doi: 10.1108/09653561211256134

Manhattan College. (n.d.). Coronavirus information. Retrieved from
    https://manhattan.edu/news/categories/coronavirus-information

McGuire, W. (1974). Psychological motives and communication gratification. In J. Blumler & E. Katz (Eds.),
    The uses of mass communication: Current perspectives on gratifications research (pp. 167–198).
    Beverly Hills, CA: Sage.

Mishra, A. K. (1996). Organizational responses to crisis: The centrality of trust. In R. M. Kramer & T. R.
    Tyler (Eds.), Trust in Organizations: Frontiers of Theory and Research (pp. 261–273). Thousand Oaks,
    CA: Sage Publications.

Moody, J. (2020, March 27). Study abroad programs and COVID-19: What to know. U.S. News. Retrieved
    from https://www.usnews.com/education/best-colleges/articles/how- coronavirus-is-changing-course-
    of-study-abroad-programs

O'Donnell, B., Clyde, W., Satterlee, R., & Fabe, B. (2020, March 9). Coronavirus information: March 9, 2020.
    Retrieved from https://manhattan.edu/news/archive/2020/03/coronavirus- update-march-9.php

Pang, A., Jin, Y., & Cameron, G. T. (2009, March). Final stage development of the Integrated Crisis Mapping
    (ICM) model in crisis communication: The myth of low engagement in crisis. Paper presented at the
    12th International Public Relations Research Conference, Miami, FL.

Phelps, L. D., & Dufrene, D. D. (1989). Improving organizational communication through trust. Journal of
    Technical Writing and Communication, 19(3), 267–276. doi: 10.2190/ta62- kcqe-j3pw-8btp

Poliakoff, M. (2020, April 21). What will COVID-19 mean for academic freedom? Forbes. Retrieved from
    https://www.forbes.com/sites/michaelpoliakoff/2020/04/21/what-will- covid-19-mean-for-academic-
    freedom/#150ec897684c

Schnirring, L. (2010, December 7). Universities found pandemic preparedness paid off. University of Minnesota. Retrieved from https://www.cidrap.umn.edu/news- perspective/2010/12/universities-found-pandemic-preparedness-paid

Syracuse University. (n.d.). Updates and community messages. Retrieved from https://www.syracuse.edu/updates-and-community-messages/

The Associated Press. (2020, March 28). R.I. governor issues stay-at-home order, closes nonessential businesses; State reports first coronavirus deaths. WBUR News. Retrieved from https://www.wbur.org/news/2020/03/28/ri-stay-at-home-businesses-close

Taylor-Powell, E. & Renner, M. (2003). Analyzing qualitative data. Program Development and Evaluation: The University of Wisconsin, Madison. Retrieved from https://deltastate.edu/docs/irp/Analyzing%20Qualitative%20Data.pdf.

Weber, B. (2020, March 11). Students react to college closing due to COVID-19 cautions. The Muhlenberg Weekly. Retrieved from https://muhlenbergweekly.com/news/students-react- to-college-closing-due-to-coronavirus-cautions/

Worcester Polytechnic Institute. (n.d.). University messages. Retrieved from https://www.wpi.edu/news/coronavirus/university-messages

REFERENCES - THE EFFECT OF THE CORONAVIRUS PANDEMIC ON COLLEGIATE ATHLETES

An Open Letter to NCAA Student-Athletes. (2020, March 27). Retrieved April 7, 2020, from http://www.ncaa.org/student-athletes/open-letter-ncaa-student-athletes

Coronavirus (COVID-19). (n.d.). Retrieved April 7, 2020, from http://www.ncaa.org/sport-science-institute/coronavirus-covid-19

Cronin, M. (2014). Sport: A Very Short Introduction. United Kingdom: Oxford University Press.

Feltz, D. L., & Lirgg, C. D. (2001). Self-efficacy beliefs of athletes, teams, and coaches. In C. M. Janelle, H. A. Hausenblas, & R. N. Singer (Eds.), Handbook of Sport Psychology (2nd ed., pp. 340-361). John Wiley & Sons, Inc. Retrieved April 8, 2020 from http://web.a.ebscohost.com.ezpxy-web-p-u01.wpi.edu/ehost/ebookviewer/ebook/bmxlYmtfXzU1NDIxX19BTg2?sid=a2e28fb5-ea9d-4d2e-91c0-c9ca236f7318@sessionmgr4007&vid=4&format=EB&lpid=lp_I&rid=0

Gibson, C. (2020, March 18). How to make mental health a priority during the coronavirus pandemic. Retrieved April 8, 2020, from https://www.espn.com/espn/story/_/id/28918521/how-make-mental-health-priority-coronavirus-pandemic

Griner, B. (2014). In my skin: My life on and off the basketball court. HarperCollins

Marizy, C.A. (2012). Taking off the mask: Seeing the person behind the student-athlete [Unpublished doctoral dissertation/master's thesis]. University of Illinois at Urbana-Champaign.

Stark, R. (2018). When the Playing Days End. Retrieved April 7, 2020, from http://www.ncaa.org/static/champion/when-the-rplaying-days-end/

Student-Athletes. (n.d.). Retrieved April 8, 2020, from http://www.ncaa.org/student-athletes

Wolf-Wendel, L., Toma, J.D., & Morphew, C.C. (2001). There's no "I" in "Team": Lessons from athletics on community building. The Review of Higher Education 24(4), 369-396. doi:10.1353/rhe.2001.0012.

REFERENCES - DOCUMENTING THE DIFFICULTIES THAT WPI STUDENTS FACED AMIDST THE COVID-19 CRISIS AT HOME

American University of Armenia (2020, April). Temporary Online Learning Survey Report. Retrieved from https://ira.aua.am/files/2020/04/AUA-Temporary-Online-Learning-report-Summary-Final Website.pdf

Branswell, H., Joseph, A., (2020, March 12). WHO declares the coronavirus outbreak a pandemic. Retrieved from https://www.statnews.com/2020/03/11/who-declares-the-coronavirus-outbreak-a-pandemic/

Burke, L. (2020, March 19). Colleges go pass/failto address coronavirus. Retrieved from https://www.insidehighered.com/news/2020/03/19/colleges-go-passfail-address-coronavirus

Center for Disease Control and Prevention (2020, April7). Social Distancing, Quarantine, and Isolation. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html

Ceron, E. (2020, March 25). Most College StudentsAre Being Significantly Impacted By The Coronavirus: 'Students Are HurtingEverywhere'. Retrieved from http://www.mtv.com/news/3161167/rise-poll-coronavirus-college-students/

Dennon, A. (2020, March 17). Coronavirus Impacts on Students and Online Learning. Retrieved from https://www.bestcolleges.com/blog/coronavirus-impacts-on-students/

Digital, B. (2020, March 16). Combatting Loneliness with Tech During Self-Isolation. Retrieved from https://medium.com/@borneagency/combatting-loneliness-with-tech-during-self-isolation-f4bd90dcc14

Dynarski, S. (2018, January 19). Online Courses Are Harming the Students Who Need the Most Help. Retrieved from https://www.nytimes.com/2018/01/19/business/online-courses-are-harming-the-students-who-need-the-most-help.html

Ferrer, D. (2019, July 17). History of Online Education. Retrieved from https://thebestschools.org/magazine/online-education-history/

Hallett, M. (2015, December 11). 5 reasons collegesocial life is important. Retrieved from https://www.unigo.com/in-college/college-experience/5-reasons-college-social-life-is-important

Heibutzki, R. (2019, April 29). Why Is It Important to Have a Social Life in College? Retrieved from https://www.theclassroom.com/why-is-it-important-to-have-a-social-life-in-college-12729103.html

Hornshaw, P. (2020, March 26). What Is Discord? Retrieved from https://www.digitaltrends.com/gaming/what-is-discord/

Hurst, B., Wallace, R., Nixon, S. B. (2013, September4). The Impact of Social Interaction on Student Learning. Retrieved from https://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=3105&context=reading_horizonsImam, M. (2020, April 3). 15 college students on how COVID-19 derailed their lives. Retrieved from https://www.businessinsider.com/college-students-coping-covid-19-coronavirus-2020-4

Isselbacher, J., Su, A. (2020, April 8). Away From Campus and Facing Coronavirus, Students Confront Mental Health Crises at Home: News: The Harvard Crimson. Retrieved from

Jesse, D. (2020, April 22). College students forced home by coronavirus stuck paying rent - for nothing. Retrieved from https://www.usatoday.com/story/news/education/2020/04/20/coronavirus-college-students-pay-rent-apartments/5154394002/

Kerr, E. (2020, April 27). How College Students Are Managing Coronavirus Stress. Retrieved from https://www.usnews.com/education/best-colleges/articles/how-college-students-are-managing-coronavirus-stress

Kumar, S. (2020, April 23). 5 Common Problems Faced By Students In eLearning And How To Overcome Them. Retrieved from https://elearningindustry.com/5-common-problems-faced-by-students-in-elearning-overcome (L. Leshin, Personal Communication, March 18, 2020)

Levin, D. (2020, April 8). 'I'm in High School Again': Virus Sends College Students Home to Parents, and Their Rules. Retrieved from https://www.nytimes.com/2020/04/08/us/coronavirus-college-students.html

Montgomery College. (n.d.). Advantages and Disadvantages of Online Courses. Retrieved from https://www.montgomerycollege.edu/academics/online-learning/distance/advantages-and-disadvantages-online-courses.html National Center for Education Statistics (2019, May). Undergraduate Enrollment. Retrieved from https://nces.ed.gov/programs/coe/indicator_cha.asp

Redden, E. (2020, March 12). As colleges confronting coronavirus tell students to move out, many urge attention to the needs of vulnerable students. Retrieved from https://www.insidehighered.com/news/2020/03/12/colleges-confronting-coronavirus-tell-students-move-out-many-urge-attention-needs Research, H. (2020, March). Responding to the COVID-19 Crisis: A Survey of College and University Presidents. Retrieved from Personal Email

Roshgadol, J., Jacob, A. J. R. V., Roshgadol, A. J., & Jacob, V. (2020, April 21). Quarantine Quality Time: 4 In 5 Parents Say Coronavirus Lockdown Has Brought Family Closer Together. Retrieved from https://www.studyfinds.org/quarantine-quality-time-4-in-5-parents-say-coronavirus-lockdown-has-brought-family-closer-together/

Singh, P. (2020, March 22). The Kids Are Home From College. And Parents Are Trying to Cope. Retrieved from https://www.wsj.com/articles/the-kids-are-home-from-college-and-parents-are-trying-to-cope-11584902769

Unicef. (2020, March). How to organize time in home quarantine. Retrieved from https://www.unicef.org/serbia/en/how-organize-time-home-quarantine

REFERENCES - EFFECT OF SOCIAL MEDIA AND THE INTERNET ON COLLEGE-AGED FRIENDSHIPS DURING THE PANDEMIC

SAMSHA. (2020). Taking care of your behavioral health: Tips for social distancing, quarantine, and
    isolation during an infectious disease outbreak. Retrieved from
    https://www.samhsa.gov/sites/default/files/tips-social-distancing-quarantine-isolation-031620.pdf

Leibowitz, U. D. (2018). What is Friendship?, Disputatio, 10(49), 97-117. doi: https://doi.org/10.2478/disp-
    2018-0008

Kaliarnta, S. (2016). Using aristotle's theory of friendship to classify online friendships: A critical
counterview.
    Ethics and Information Technology, 2016, urn:issn:1388-1957.

Malakhova.Contemporary friendships. Retrieved from
    https://philosophynow.org/issues/126/Contemporary_Friendships

Giordano, P. C. (2003). Relationships in adolescence. Annual Review of Sociology; Annu.Rev.Sociol., 29(1),
    257-281. doi:10.1146/annurev.soc.29.010202.100047

Holcombe, M. (2020). Here are the states restricting travel from within the US. Retrieved from
    https://www.cnn.com/2020/03/31/us/states-travel-restrictions-list/index.html

Jones, M. (2015). The complete history of social media: The founding of the online networking. Retrieved
    from https://historycooperative.org/the-history-of-social-media/

National Center for Immunization and Respiratory Diseases. Coronavirus disease 2019 (COVID-19): Stress
    and coping. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-
    stress-anxiety.html

Primack, B. A., Shensa, A., Sidani, J. E., Whaite, E. O., Lin, L. y., Rosen, D., . . . Miller, E. (2017). Social media
use
    and perceived social isolation among young adults in the U.S.(survey). American Journal of Preventive
    Medicine, 53(1), 1. doi:10.1016/j.amepre.2017.01.010

Standlee, A. (2019). Friendship and online filtering: The use of social media to construct offline social
    networks. New Media & Society, 21(3), 770-785. doi:10.1177/1461444818806844

Zhang, W., & Gearhart, S. (2014). Social capital. In K. Harvey (Ed.), Encyclopedia of social media and
politics
    (pp. 1138-1141). Thousand Oaks, CA: SAGE Reference. Retrieved from https://link-gale-com.ezpxy-web-
    p-u01.wpi.edu/apps/doc/CX3708500492/GVRL?u=mlin_c_worpoly&sid=GVRL&xid=f1bee062

Quinlan, M. B. (2017). The freelisting method. In P. Liamputtong (Ed.), Handbook of
    research methods in health social sciences (pp. 1-16). Singapore: Springer Singapore.
    doi:10.1007/978-981-10-2779-6_12-1 Retrieved from https://doi.org/10.1007/978-981-10-2779-6_12-
    1COVID-19 educational disruption and response. Retrieved from
    https://en.unesco.org/covid19/educationresponse

REFERENCES - THE ROLE OF VIDEO GAMES IN THE COVID-19 PANDEMIC

Choi, Charles. (2010). "'Grand Theft Auto' May Improve Decision-Making Skills". NBC News. Accessed from:
>   http://www.nbcnews.com/id/39154288/ns/technology_and_science-science/t/grand-theft-auto-may-improve-decision-making-skills/#.Xo9XSshKiUk

Entertainment Software Association. (2019). 2019 Essential Facts About the Computer and Video Game
>   Industry. Accessed from: https://www.theesa.com/esa-research/2019-essential-facts-about-the-computer-and-video-game-industry/

Johnston, Laura. (2020). "Coping with Coronavirus: Guide Aims to Ease Fear of Pandemic Disease".
>   Cleveland.com. Accessed from: https://www.cleveland.com/news/2020/03/coping-with-coronavirus-guide-aims-to-ease-fear-of-pandemic-disease.html

Gough, Christina. (2019). "Number of Video Gamers Worldwide 2014-2021". Statista. Accessed from:
>   https://www.statista.com/statistics/748044/number-video-gamers-world/

Haasch, Palmer. (2020). "Gaming Companies are Inserting WHO Coronavirus Guidance into Games in an
>   Effort to Encourage Players to Stay Home". Insider. Accessed from: https://www.insider.com/play-apart-together-who-coronavirus-covid-19-blizzard-riot-twitch-2020-3

History.com Editors. (2017). "Video Game History". History.com. Accessed from:
>   https://www.history.com/topics/inventions/history-of-video-games

Munn, Nicholas. (2012). "The Reality of Friendship Within Immersive Virtual Worlds". Ethics and Information
>   Technology, vol. 14, iss. 1. 1-10. doi: 10.1007/s10676-011-9274-6

Newbury, Elizabeth. (2020). "Exploring the Complexity of Pandemics Through Play". Wilson Center CTRL
>   Forward. Accessed from: https://www.wilsoncenter.org/blog-post/exploring-complexity-pandemics-through-play

Ohannessian, Robin; Yaghobian, Sarina; Verger, Pierre; Venhems, Philippe. (2016). "A Systematic Review of
>   Serious Video Games Used for Vaccination". Vaccine, vol. 34, iss. 38. 4478-4483. doi: https://doi.org/10.1016/j.vaccine.2016.07.048

Perez, Matt. (2020). "Video Games are Being Played at Record Levels as the Coronavirus Keeps People
>   Indoors". Forbes. Accessed from: https://www.forbes.com/sites/mattperez/2020/03/16/video-games-are-being-played-at-record-levels-as-the-coronavirus-keeps-people-indoors/#484153ea57ba

Scott, Elizabeth. (2020). "The Link Between Video Games and Stress Relief". verywell mind. Accessed from:
>   https://www.verywellmind.com/how-video-games-relieve-stress-4110349

Sherr, Ian. (2020). "Lots of People are Playing Video Games During Coronavirus Lockdowns". c|net. Accessed
>   from: https://www.cnet.com/news/lots-of-people-are-playing-video-games-during-coronavirus-lockdowns/

Sinem, Siyahhan. Gee, Elisabeth. (2018). Families at Play: Connecting and Learning through Video Games.
>   The MIT Press. doi: https://doi-org.ezpxy-web-p-u01.wpi.edu/10.7551/mitpress/10696.001.0001

Weaver, Andrew. Lewis, Nicky. (2012). "Mirrored Morality: An Exploration of Moral Choice in Video Games".
>   Cyberpsychology, Behavior and Social Networking, vol. 15, iss. 11. 61-64. doi: https://doi-org.ezpxy-web-p-u01.wpi.edu/10.1089/cyber.2012.0235

Wolf, Mark J. P. (Ed.). (2012). Before the Crash: Early Video Game History. Wayne State University Press.
>   Accessed from: https://ebookcentral-proquest-com.ezpxy-web-p-u01.wpi.edu/lib/wpi/reader.action?docID=3416474

REFERENCES- THE ADJUSTMENT OF SMALL BUSINESS AMIDST THE COVID-19 PANDEMIC

Amadeo, K. (2020, February 7). Why Small Businesses Are the Lifeblood of America. Retrieved from https://www.thebalance.com/small-business-3305963

Aral, S., Dellarocas, C., & Godes, D. (2013). Introduction to the Special Issue: Social Media and Business Transformation: A Framework for Research. Information Systems Research, 24(1), 3-13. Retrieved April 7, 2020, from www.jstor.org/stable/42004266

Axios. (2020, March 19). 96% of small business owners are already feeling coronavirus impact. Retrieved from https://www.axios.com/small-business-owners-coronavirus-survey-06e04322-7788-4de4-8216 42b875a39e53.html

Center for Disease Controls and Prevention. (2019, March 20). 1918 Pandemic (H1N1 virus). Retrieved from https://www.cdc.gov/flu/pandemic-resources/1918-pandemic-h1n1.html

1918 pandemicCenter for Disease Control and Prevention. (2020, April 4). Social Distancing, Quarantine, and Isolation. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html

Hannon, K. (2020, March 27). How The Coronavirus Is Impacting Small Business Owners.Retrieved from https://www.forbes.com/sites/nextavenue/2020/03/23/how-the-coronavirus-is-impacting-small business-owners/#6bf1320a473a

Huddleston, T. (2020, March 23). How small business owners are coping with COVID-19 pandemic: 'It was my civic duty to be a part of the solution'. Retrieved from https://www.cnbc.com/2020/03/23/how-small-businesses-across-us-are-coping-with-covid-19 pandemic.html

Jiang, I. (2020, March 31). Here's the difference between an 'essential' business and a 'nonessential' business as more than 30 states have imposed restrictions. Retrieved from https://www.businessinsider.com/what-is-a-nonessential-business-essential-business-coronavirus 2020-3

Lauckner, S. (2019, September 5). How Many Small Businesses Are in the U.S.? (And Other Employment Stats). Retrieved from https://www.fundera.com/blog/small-business-employment-and-growth statistics

Mass.gov. (2020, March 23). Governor Charlie Baker Orders All Non-Essential Businesses To Cease In Person Operation, Directs the Department of Public Health to Issue Stay at Home Advisory For Two Weeks. Retrieved from https://www.mass.gov/news/governor-charlie-baker-orders-all-non-essential businesses-O-cease-in-person-operation

McIntyre, G. (2020, January 31). What Is the SBA's Definition of Small Business (And Why)? Retrieved from https://www.fundera.com/blog/sba-definition-of-small-business

McKinney, A., Lisa, & Nik. (2020, April 5). 10 Digital Marketing Ideas to Consider During the Coronavirus. Retrieved from https://thriveagency.com/news/10-digital-marketing-ideas-to-consider-during-the coronavirus/

McMullen, A. (2016, October 26). How Does Social Media Affect Retail Businesses? Retrieved from https://smallbusiness.chron.com/social-media-affect-retail-businesses-39275.html

Resources for Entrepreneurs. (2020, May 1). Number of Massachusetts Small Businesses. Retrieved
    from https://www.gaebler.com/Number-of-Small-Businesss-in-Massachusetts.htm

Stans, M. (1946). What Small Business Needs. The Accounting Review, 21(4), 361-371. Retrieved April 6,
    2020, from www.jstor.org/stable/239972

TeleHealth Services. (n.d.). TeleHealth Services. Retrieved from https://www.telehealth.com/

Wicks, D. (2015, November 15). Role of Social Media Marketing in Business. Retrieved from
    https://www.socialmediatoday.com/social-business/role-social-media-marketing-business

REFERENCES- RETURNING TO WORK: CHALLENGES ON THE PRODUCTION LINES

Bomey, N. (2020, May 8). Can these 13 retailers survive coronavirus? Permanent store closings, bankruptcies coming. Retrieved May 8, 2020, from https://www.usatoday.com/story/money/2020/05/08/store-closings-chapter-11-bankruptcy-coronavirus-covid-19/3090235001/

CDC. (2020, May 7). Reopening Guidance for Cleaning and Disinfecting Public Spaces, Workplaces, Businesses, Schools, and Homes. Retrieved May 11, 2020, from https://www.cdc.gov/coronavirus/2019-ncov/community/reopen-guidance.html

Chappelow, J. (2020, April 29). Gross Domestic Product – GDP. Retrieved May 8, 2020, from https://www.investopedia.com/terms/g/gdp.asp

Cox, J. (2020, April 30). US weekly jobless claims hit 3.84 million, topping 30 million over the last 6 weeks. Retrieved May 3, 2020, from https://www.cnbc.com/2020/04/30/us-weekly-jobless-claims.html

Cleaning and Disinfecting Your Facility. (2020, April 14). Retrieved April 27, 2020, from https://www.cdc.gov/coronavirus/2019-ncov/community/disinfecting-building-facility.html

Goodman, J. D., & Rothfeld, M. (2020, May 10). Why the Path to Reopening New York City Will Be So Difficult. Retrieved May 11, 2020, from https://www.nytimes.com/2020/05/10/nyregion/reopen-coronavirus-nyc-testing.html

Governor Cuomo Issues Guidance on Essential Services Under The 'New York State on PAUSE' Executive Order. (2020, April 7). Retrieved May 9, 2020, from https://www.governor.ny.gov/news/governor-cuomo-issues-guidance-essential-services-under-new-york-state-pause-executive-order

Interim Guidance for Businesses and Employers to Plan and Respond to Coronavirus Disease 2019 (COVID-19 (2020,April 9). Retrieved April 27, 2020, from https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html

NPR. (2020, April 15). Trump Softens Stance On His Power To 'Reopen' American Business. Retrieved May 11, 020, from https://www.npr.org/2020/04/15/835308105/trump-softens-stance-on-his-power-to-reopen-american-business

Peterson, H. (2020, March 27). More than 3,000 stores are closing in 2020 as the retail apocalypse drags on. Here's the full list. Retrieved May 8, 2020, from https://www.businessinsider.com/stores-closing-in-2020-list-2020-1

Rosenbaum, E. (2020, March 3). The 'stranded employee' is a coronavirus problem the work world has never seen. Retrieved May 11, 2020, from https://www.cnbc.com/2020/03/03/stranded-employee-is-coronavirus-issue-work-world-has-never-seen.html

Ross, S. (2020, January 29). What Are the Best Measurements of Economic Growth? Retrieved May 8, 2020, from https://www.investopedia.com/ask/answers/032515/what-are-best-measurements-economic-growth.asp

Schwartz, N., Casselman , B., & Koeze, E. (2020, May 8). How Bad Is Unemployment? 'Literally Off the Charts'. Retrieved May 8, 2020, from https://www.nytimes.com/interactive/2020/05/08/business/economy/april-jobs-report.html?action=click&module=Spotlight&pgtype=Homepage

Snider, M. (2020, March 23). What is essential and non-essential during a pandemic? Retrieved April 7, 2020, from https://www.usatoday.com/story/money/business/2020/03/21/coronavirus-conditions-lead-state-decisions-essential-businesses/2884758001/

Spector, J. (2020, May 5). Reopening in New York: Seven hurdles each region will need to overcome to restart business. Retrieved May 11, 2020, from https://www.lohud.com/story/news/politics/2020/05/05/reopening-ny-seven-steps-each-region-need-take-restart/3085322001/

Swanson, A., Yaffe-bellany, D., & Corkery, M. (2020, May 10). Pork Chops vs. People: Battling Coronavirus in an Iowa Meat Plant. Retrieved May 11, 2020, from https://www.nytimes.com/2020/05/10/business/economy/coronavirus-tyson-plant-iowa.html

Trading Economics. (2020). United States GDP Growth Rate1947-2020 Data: 2021-2022 Forecast: Calendar. Retrieved May 8, 2020, from https://tradingeconomics.com/united-states/gdp-growth

White House. (n.d.). Opening Up America Again. Retrieved May 11, 2020, from https://www.whitehouse.gov/openingamerica

REFERENCES- DETERMINING HOW COVID-19 HAS AFFECTED WORKERS

Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2020). The large and unequal impact of COVID-19 on workers. Vox, Retrieved from https://voxeu.org/article/large-and-unequal-impact-covid-19-workers

APA Help Center. (2018). Coping with stress at work. American Psychological Assocation, Retrieved from https://www.apa.org/helpcenter/work-stress

Associated Press. (2020). 30 million have sought U.S. unemployment aid since COVID-19 hit. Market Place, Retrieved from https://www.marketplace.org/2020/04/30/covid-19-us-unemployment-state benefits/

Booth, B. (2020). Working at home during the coronavirus crisis with kids underfoot? here are 9 ways to cope. Cnbc, Retrieved from https://www.cnbc.com/2020/03/17/working-at-home-with-kids-during covid-19-crisis-with-kids-underfoot.html

Borden, T. (2020). The coronavirus outbreak has triggered unprecedented mass layoffs and furloughs. here are the major companies that have announced they are downsizing their workforces. Business Insider, Retrieved from https://www.businessinsider.com/coronavirus-layoffs-furloughs-hospitality service-travel-unemployment-2020

Bubacz, K. (2020). We asked 11 essential workers what their lives were like during the coronavirus. BuzzFeed News, Retrieved from https://www.buzzfeednews.com/article/katebubacz/new-frontline-of the-coronavirus

Flynn Jay, E. (2020). Union and workers reclassified as 'essential' claim that the PA department of human services is endangering their safety. Generosity, Retrieved from https://generocity.org/philly/2020/03/20/union-and-workers-reclassified-as-essential-claim-that-the pa-department-of-human-services-is-endangering-their-safety/

Harnett, S. (2020). The big challenge of being an 'Essential' worker in a global pandemic. Kqed, Retrieved from https://www.kqed.org/news/11809643/the-many-challenges-of-being-an-essential-service worker-in-a-pandemic

Hernandez, K. (2020). Even if you're working from home, your employer is still keeping track of your productivity—here's what you need to know. CNBC: Make It, Retrieved from https://www.cnbc.com/2020/03/19/when-working-from-home-employers-are-watching---heres-what to-know.html

Kelly, J. (2020). The coronavirus effect: Here are the jobs that will be added and lost. Forbes, Retrieved from https://www.forbes.com/sites/jackkelly/2020/03/19/the-coronavirus-effect-here-are-the-jobsthat-will-be-added-and-lost/#2059d5ad2a1c

Kinder, M. (2020). COVID-19's essential workers deserve hazard pay. here's why—and how it should work. Brookings, Retrieved from https://www.brookings.edu/research/covid-19s-essential-workers deserve-hazard-pay-heres-why-and-how-it-should-work/

KOMO News Staff. (2020). List of jobs, businesses considered essential during washington's stay-at home order. KOMO News, Retrieved from https://komonews.com/news/coronavirus/list-of-jobs businesses-considered-essential-during-washingtons-stay-at-home-order

Leer, J. (2020). Analysis: COVID-19 has harmed workers in ways the april jobs report can't capture. Morning Consultant, Retrieved from https://morningconsult.com/2020/05/06/analysis-coronavirus-jobs-april/

Liang, L. (2020). How covid-19 led to a nationwide work-from-home experiment. Bbc, Retrieved from
    https://www.bbc.com/worklife/article/20200309-coronavirus-covid-19-advice-chinas-work-at-home
    experiment

Lund, S., Ellingrud, K., Hancock, B., Manyika, J., & Dua, A. (2020). Lives and livelihoods: Assessing the
    near-term impact of COVID-19 on US workers. McKinsey & Company, Retrieved from
    https://www.mckinsey.com/industries/public-sector/our-insights/lives-and-livelihoods-assessing-the
    near-term-impact-of-covid-19-on-us-workers

Melin, A., & Mosendex, P. (2020). Bosses stretch the definition of who is 'Essential' — and workers take
    the risk.Bloomberg, Retrieved from https://www.bloomberg.com/news/features/2020-04-09/are-you
    an-essential-worker-in-the-pandemic-that-depends

Pinola, M. (2020). The 7 biggest remote work challenges (and how to overcome them). Zapier, Retrieved
    from https://zapier.com/blog/remote-work-challenges/

Rotondo, S. (2019). Employees' financial stress costs employers. World at Work, Retrieved from
    https://www.worldatwork.org/workspan/articles/employees-financial-stress-costs-employers

Schrotenboer, B. (2020). Working at home had a positive effect on productivity during the pandemic,
    survey shows. USA Today, Retrieved from
    https://www.usatoday.com/story/money/2020/05/04/coronavirus-pandemic-might-game-changer
    working-home/3061862001/

Schwartz, N., Casselman, B., & Koeze, E. (2020). How bad is unemployment? 'Literally off the charts'. New York
    Times, Retrieved from https://www.nytimes.com/interactive/2020/05/08/business/economy/april-jobs
    report.html

Segal, J., Smith, M., Robinson, L., & Segal, R. (2020). Stress in the workplace. Help Guide, Retrieved from
    https://www.helpguide.org/articles/stress/stress-in-the-workplace.htm

Segarra, M. (2020). The fed steps in to finance COVID-19 relief loans for small businesses. Market Place,
    Retrieved from https://www.marketplace.org/2020/04/07/covid-19-small-business-loans-federal
    reserve/

Semuels, A. (2020). Renters are being forced from their homes despite eviction moratoriums meant to
    protect them .Time, Retrieved from https://time.com/5820634/evictions-coronavirus/

Snider, M. (2020). What is essential and non-essential during a pandemic? . USA Today, Retrieved from
    https://www.usatoday.com/story/money/business/2020/03/21/coronavirus-conditions-lead-state-decisions
    essential-businesses/2884758001/

Sultan, R. (2020). 13 essential workers describe what their lives are like right now. Vice, Retrieved from
    https://www.vice.com/en_us/article/akwpga/essential-workers-job-stories-coronavirus-covid-19

Teo, D. (2020). COVID-19: What measures are employers taking? HRM Asia, Retrieved from
    https://hrmasia.com/covid-19-what-measures-are-employers-taking/

Vincent, A. (2020). The great work-from-home experiment: How COVID-19 is accelerating the future of work. LHH,
    Retrieved from https://www.lhh.com/us/en/organizations/our-insights/the-great-work-from-home-experiment

White, A. (2020). COVID-19: The impact on the economy . Lehigh News, Retrieved from
    https://www2.lehigh.edu/news/covid-19-the-impact-on-the-economy

REFERENCES- SPECIAL EDUCATOR EXPERIENCES AND ADAPTATIONS DURING THE COVID-19 PANDEMIC

Burdette, P. J., Greer, D., & Woods, K. L. (2013). K-12 online learning and students with disabilities: Perspectives from state special education directors. Online Learning, 17(3). doi: 10.24059/olj.v17i3.327

Coppola, N., Hiltz, S., & Rotter, N. (2001). Becoming a virtual professor: pedagogical roles andALN. Proceedings of the 34th Annual Hawaii International Conference on System Sciences.doi: 10.1109/hicss.2001.926183

Greer, D., Rowland, A. L., & Smith, S. J. (2014). Critical Considerations for Teaching StudentsWith Disabilities in Online Environments. TEACHING Exceptional Children, 46(5), 79–91. https://doi.org/10.1177/0040059914528105

Gov. Sununu moves all NH schools to online learning. (2020, March 15). Retrieved from https://www.wcax.com/content/news/Gov-Sununu-moves-all-NH-schools-to-online-learning -568814031.html

Hee Jun Choi, & Ji-Hye Park. (2006). Difficulties That a Novice Online Instructor Faced.Quarterly Review of Distance Education, 7(3), 317–322.

HHS Office of the Secretary,Office for Civil Rights, & Ocr. (2020, March 30). Notification ofEnforcement Discretion for Telehealth. Retrieved from https://www.hhs.gov/hipaa/for-professionals/special topics/emergency-preparedness/notification-enforcement-discretion-telehealth/index.html

Kebritchi, M., Lipschuetz, A., & Santiague, L. (2017). Issues and Challenges for TeachingSuccessful Online Courses in Higher Education: A Literature Review. Journal of Educational Technology Systems, 46(1), 4–29. https://doi.org/10.1177/0047239516661713

Koehler, M. J., Mishra, P., Hershey, K., & Peruski, L. (2004). With a little help from yourstudents: a new model for faculty development and online course design. Journal of Technology and Teacher Education, 12(1), 25+. Retrieved from https://link-gale-com.ezpxy-web-p u01.wpi.edu/apps/doc/A116578435/AONE?u=mlin_c_worpoly&sid=AONE&xid=a1df198a

Li, C.-S., & Irby, B. (2008). An overview of online education: attractiveness, benefits,challenges, concerns and recommendations. College Student Journal, 42(2), 449+. Retrieved from https://link-gale com.ezpxy-web-p-u01.wpi.edu/apps/doc/A179348426/AONEu=mlin_c_worpoly&sid=AONE&xid=15a4683

Mayes, R., Ku, H.-Y., Akarasriworn, C., Luebeck, J., & Korkmaz, O. (2011). Themes andstrategies for transformative online instruction: a review of literature and practice. Quarterly Review of Distance Education, 12(3), 151+. Retrieved from https://link-gale-com.ezpxy-web-p u01.wpi.edu/apps/doc/A284222171/AONE?u=mlin_c_worpoly&sid=AONE&xid=dee489ed

Mervosh, S., Lu, D., & Swales, V. (2020, April 7). See Which States and Cities Have ToldResidents to Stay at Home. The New York Times. Retrieved fromhttps://www.nytimes.com/interactive/2020/us/coronavirus-stay-at-home-order.html

New Hampshire Department of Education. (n.d.). Remote Supports. Retrieved from http://www.nhlearnsremotely.com/remotesupports.html

Sexton, A., & Cronin, M. (2020, April 17). All NH schools will continue remote learning for restof school year, governor says. Retrieved from https://www.wmur.com/article/new-hampshire-coronavirus update-april-16-2020/32170370#

State of New Hampshire, Office of the Governor. (2020). Closure of non-essential businesses and
     requiring Granite Staters to stay at home (Emergency Order # 17 Pursuant to Executive Order 202004).
     https://www.governor.nh.gov/news-media/emergency-orders/documents/emergency-order-171.pdf

Taylor, D. B. (2020, April 7). A Timeline of the Coronavirus Pandemic. The New York Times.Retrieved from
     https://www.nytimes.com/article/coronavirus-timeline.html

Tindle, K., Mellard, D., East, B. (2016). Online Learning for Students with Disabilities:Recommendations
     for Parent Engagement. https://nasdse.org/docs/Parent_Resource_Document_December2016.pdf United

States Department of Education. (2000). A Guide to the Individualized EducationProgram.
     https://www2.ed.gov/parents/needs/speced/iepguide/index.html#closer

United States Department of Education, IDEA. (2017). Sec. 300.320 Definition of individualizededucation
     program. https://sites.ed.gov/idea/regs/b/d/300.320

United States Department of Education, IDEA. (2017). Sec. 300.39 Special
     education.https://sites.ed.gov/idea/regs/b/a/300.39

United States Department of Education. (2020). Questions and Answers on Providing Services to
     Children with Disabilities During the Coronavirus Disease 2019 Outbreak.
     https://www2.ed.gov/policy/speced/guid/idea/memosdcltrs/qa-covid-19-03-12-2020.pdf

United States Department of Education, Student Privacy Policy Office. (2020). FERPA &Coronavirus
     Disease 2019 (COVID-19), Frequently Asked Questions (FAQs).
     https://studentprivacy.ed.gov/sites/default/files/resource_document/file/FERPA%20and%20Coronavirus%20Fr
     equently%20Asked%20Questions.pdf

United States Department of Education, Office for Civil Rights. (2020).Fact Sheet: Addressing the Risk of
     COVID-19 in Schools While Protecting the Civil Rights of Students.
     https://www2.ed.gov/about/offices/list/ocr/docs/ocr-coronavirus-fact-sheet.pdf

United States Department of Education, Office for Civil Rights, Office of Special Education and
     Rehabilitation Services. (2020). Supplemental Fact Sheet Addressing the Risk of COVID-19 in Preschool,
     Elementary and Secondary Schools While Serving Children with Disabilities.
     https://www2.ed.gov/about/offices/list/ocr/frontpage/faq/rr/policyguidance/Supple%20Fact%20Sheet%203.21.
     20%20FINAL.pdf

Wee, S.-L., McNeil, D. G., & Hernandez, J. C. (2020, January 30). W.H.O. Declares GlobalEmergency as
     Wuhan Coronavirus Spreads. The New York Times. Retrieved from
     https://www.nytimes.com/2020/01/30/health/coronavirus-world-health-organization.html
     searchResultPosition=151

REFERENCES - OUTDOORS INTRODUCTION

Beresini, E. (2020, March 27). Are the Great Outdoors Off-Limits During a Pandemic?
    Retrieved April 17, 2020, from https://www.atlasobscura.com/articles/are-the-outdoors-off-limits-
    coronavirus

Childs, C. (2020, March 24). During the pandemic, how do you ethically get outside? Retrieved
    April 29, 2020, from https://www.hcn.org/issues/52.5/covid19-as-covid19-spreads-how-do-you-
    ethically-get-outdoors

Curwood, S. (2020, April 8). Connecting with nature in the time of COVID-19. Retrieved from
    https://www.pri.org/stories/2020-04-08/connecting-nature-time-covid-19

Hull, R., & Michael, S. E. (1995). Nature-based Recreation, mood change, and stress restoration.
    Leisure Sciences, 17(1), 1–14. doi: 10.1080/01490409509513239

Rogers, K. (2019, June 25). Biophilia Hypothesis. Retrieved April 8, 2020, from
    https://www.britannica.com/science/biophilia-hypothesis

Taylor, L., & Young, A. (2020, March 30). People look to outdoor activities to cope with
    coronavirus pandemic. ABC 13 News. Retrieved from https://wset.com/news/coronavirus/people-look-
    to-outdoor-activities-to-cope-with-coronavirus-pandemic

Thomas A. More & Brian R. Payne (1978) Affective Responses to Natural Areas Near Cities,
    Journal of Leisure Research, 10:1, 7-12, DOI: 10.1080/00222216.1978.11969329

Wiens, M., O'Keeffe, J., & Ma, L. (2020, April 17). COVID-19 and outdoor safety:
    Considerations for use of outdoor recreational spaces. Retrieved from
    https://ncceh.ca/documents/guide/covid-19-and-outdoor-safety-considerations-use-outdoor-
    recreational-spaces

Wilson, E. O. (1984). Biophilia. Cambridge, MA: Harvard University Press.

REFERENCES-A CONTROVERSIAL JOURNEY

2000 Milers. (2020). Retrieved from
    https://www.appalachiantrail.org/home/community/2000-milers

Atchley, R., Strayer, D., Atchley, P. (2012) Creativity in the Wild: Improving Creative Reasoning through
    Immersion in Natural Settings. PLOS ONE 7(12): e51474. https://doi.org/10.1371/journal.pone.0051474

A.T. Essentials. (n.d.). Retrieved from
    https://web.archive.org/web/20070716012808/http://www.appalachiantrail.org/site/c.jkLXJ8MQKtH/b.
    727749/k.91A1/AT_Essentials.htm

Berg, A. (2015). "To Conquer Myself": The New Strenuosity and the Emergence of "Thru-hiking" on the
    Appalachian Trail in the 1970s. Journal of Sport History 42(1), 1-19.
    https://www.muse.jhu.edu/article/592225.

Currin, G. H. (2020, March 19). The Ethics of Thru-Hiking During the COVID-19 Pandemic. *Outside*.

Dietrich, Z. C., Joye, S. W., & Garcia, J. A. (2015). Natural Medicine: Wilderness Experience Outcomes for
    Combat Veterans. Journal of Experiential Education, 38(4), 394–406.
    https://doi.org/10.1177/1053825915596431

Farzan, A. (2020, March 22). Coronavirus Complicates Appalachian Trail Hikers' Plans. The Washington
    Post. Retrieved from https://www.usnews.com/news/best-states/virginia/articles/2020-03-
    22/coronavirus-complicates-appalachian-trail-hikers-plans

Fleming, D. (2020, March 28). The Virus Diaries: Thru-hike of Appalachian Trail comes to sudden halt. The
    Portland Press Herald. Retrieved from https://www.pressherald.com/2020/03/28/the-virus-diaries-
    thru-hike-of-appalachian-trail-comes-to-sudden-halt/#

Goldenberg, M., Hill, E., & Freidt, B. (2008). Why Individuals Hike the Appalachian Trail: A Qualitative
    Approach to Benefits. Journal of Experiential Education, 30(3), 277–281.
    doi:10.1177/105382590703000311

Jordan, R. (2016). Stanford researchers find mental health prescription: Nature. Retrieved April 8,
    2020, from https://news.stanford.edu/2015/06/30/hiking-mental-health-063015/

McMillion, D. (2020, March 29). Coronavirus interrupts Waynesboro man's dream of hiking entire
    Appalachian Trail. Herald-Mail Media. Retrieved from
    https://www.heraldmailmedia.com/news/special/coronavirus/coronavirus-interrupts-waynesboro-
    man-s-dream-of-hiking-entire-appalachian/article_0aff9619-d1cc-5306-b1ac-0ca826d1a112.html

Morgan, S. B. (2020, April 5). Coronavirus Pandemic Disrupts Appalachian Trail Dreams. Associated Press.
    Retrieved from https://www.usnews.com/news/us/articles/2020-04-05/coronavirus-pandemic-
    disrupts-appalachian-trail-dreams

Steadman, R., Nykiforuk, C. I. J., & Vallianatos, H. (2013). Active Aging: Hiking, Health, and Healing.
    Anthropology & Aging, 34(3), 87–99. doi: 10.5195/aa.2013.10

Thoreau, Henry David. (1862). "Walking".

Trail Updates. (2020). Retrieved from http://www.appalachiantrail.org/home/explore-the-trail/trail-
    updates

REFERENCES - MINDFULNESS AMIDST THE MADNESS

Boyce, B. (2020). Getting Started with Mindfulness. Retrieved May 2, 2020, from
    https://www.mindful.org/meditation/mindfulness-getting-started/

Calmers, T. (2018). What Are Rock Cairns and How Should They Be Used? Retrieved April
    27, 2020, from https://theculturetrip.com/europe/united-kingdom/scotland/articles/what-are-
    rock-cairns-and-how-should-they-be-used/

Childs, C. (2020, March 24). During the pandemic, how do you ethically get outside?
    Retrieved April 29, 2020, from https://www.hcn.org/issues/52.5/covid19-as-covid19-spreads-how-
    do-you-ethically-get-outdoors

Cording, J. (2020, March 14). Working Remotely During The Coronavirus Outbreak? Here's
    How to Feel More Focused And Energized And Manage Stress. Retrieved May 2, 2020,
    from https://www.forbes.com/sites/jesscording/2020/03/13/working-remotely-during-
    coronavirus-stress-/#efe73556fe15

Department of Labor. (2020). Current Employment Statistics - Ces (National). Washington,
    D.C.: U.S. BUREAU OF LABOR STATISTICS of Labor.

Dias, E. (2020, March 15). A Sunday Without Church: In Crisis, a Nation Asks, 'What Is
    Community?'. Retrieved May 1, 2020, from https://www.nytimes.com/2020/03/15/us/churches-
    coronavirus-services.html

Dietrich, Z. C., Joye, S. W., & Garcia, J. A. (2015). Natural Medicine: Wilderness Experience
    Outcomes for Combat Veterans. Journal of Experiential Education, 38(4), 394–
    406. https://doi.org/10.1177/1053825915596431

Ellison, M. A. (2011, June 10). Soft Fascination Allows The Mind To Wander in a Noisy,
    Urban World. Retrieved April 8, 2020, from
    https://hikingresearch.wordpress.com/2011/06/10/soft-fascination-allows-the-mind-to-wander-
    in-a-noisy-urban-world/

Greider, T., & Garkovich, L. (1994). Landscapes: The Social Construction of Nature and the
    Environment. Rural Sociology, 59(1), 1-24. Harvard Health Publishing. (2019). Benefits of
    Mindfulness. Retrieved May 1, 2020, from https://www.helpguide.org/harvard/benefits-of-
    mindfulness.htm

Heimbuch, J. (2018). Why and how you should start a sit-spot routine. Retrieved April 28,
    2020, from https://www.mnn.com/health/fitness-well-being/blogs/how-find-sit-spot-and-start-
    sit-spot-routine.

Hobday, R. A., & Cason, J. W. (2009). The open-air treatment of pandemic influenza.
    American journal of public health, 99 (2), 236–242. https://doi.org/10.2105/AJPH.2008.134627

Lee, W. (2020, March 26). Balconies, Windows and Rooftops Are the New Public Squares.
    Retrieved April 29, 2020, from https://www.atlasobscura.com/articles/balcony-window-rooftop-
    music

Lewis, H. (2020, March 26). How Panic-Buying Revealed the Problem With the Modern
    World. Retrieved April 9, 2020,
    from https://www.theatlantic.com/international/archive/2020/03/coronavirus-panic-buying-
    britain-us-shopping/608731/

Louv, R. (2015, November 9). How Nature Can Help Civilize Our Cities. Retrieved May 6,
    2020, from https://www.childrenandnature.org/2015/11/09/how-nature-can-help-civilize-our-
    cities/

Louv, R. (2017). Vitamin N: the essential guide to a nature-rich life. London: Atlantic
    Books.

Porges, M. (2020, March 17). Schools Are Closing for Coronavirus. Now What?.
    Retrieved May 1, 2020, from https://www.nytimes.com/2020/03/17/parenting/coronavirus-
    schools-lessons.html

Shea, R. H. (2020, April 9). 'It has become our sanctuary': The calming power of nature in
    a pandemic. Retrieved April 20, 2020,
    from https://www.nationalgeographic.com/history/2020/04/sanctuary-calming-power-nature-
    coronavirus-pandemic/
Stremba, B. (1989). Reflection: A Process to Learn about Self through Outdoor Adventure.
    Journal of Experiential Education, 12(2), 7–9. https://doi.org/10.1177/105382598901200202
Taylor, J. (2020). Bird watching and star gazing: how to escape during lockdown with a
    pair of fancy binoculars. Retrieved April 29, 2020,
    from https://www.telegraph.co.uk/luxury/technology/bird-watching-stargazing-escape-
    lockdown-pair-fancy-binoculars/
The Associated Press. (2020, April 30). 30 Million Have Sought US Unemployment Aid
    Since Virus Hit. Retrieved May 6, 2020,
    from https://www.nytimes.com/aponline/2020/04/30/business/bc-us-virus-outbreak-
    unemployment-benefits.html
Thompson, D. (2020, March 13). The Coronavirus Is Creating a Huge Stressful Experiment
    in Working From Home. Retrieved May 2, 2020,
    from https://www.theatlantic.com/ideas/archive/2020/03/coronavirus-creating-huge-stressful-
    experiment-working-home/607945/
Waters, M. (2020, April 2). The Surprising Intimacy of the Live-Streamed Funeral.
    Retrieved April 9, 2020, from https://www.nytimes.com/2020/04/02/opinion/coronavirus-funeral-
    livestream.html?searchResultPosition=4
Wolf, I., & Wohlfart, T. (2014). Walking, hiking and running in parks: A multidisciplinary
    assessment of health and well-being benefits. Landscape and Urban Planning, 130 (1), 89–
    103. https://doi.org/10.1016/j.landurbplan.2014.06.006

REFERENCES-PEACE, MINDFULNESS, THE OUTDOORS

Brown, D., Barton, J., Gladwell, V., Sandercock, G., & Wood, C. (2013). The Great Outdoors: How A Green Exercise Environment Can Benefit All. Extreme Physiology & Medicine, (3) Retrieved from https://extremephysiolmed.biomedcentral.com/articles/10.1186/2046-7648-2-3#auth-5

Bernstein, J., Gagne, M., Mistretta, L., Ryan, R., Warren Brown, K., & Weinstein, N. (2010). Vitalizing Effects of Being Outdoors and in Nature. Journal of Environmental Psychology, 30, 159-168. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0272494409000838?casa_token=3Mkkiz-_tiEAAAAA:r6MeOb_f_lqensseNlu9SC8x6_oWL03c3ArJ_IRUlgL4lI2SlYBSjU5QuiG_fI-UlFf9umQ

Bratman, G., Daily, G., & Hamilton, P. (2012). The Impacts of Nature Experience on Human Cognitive Function and Mental Health . Annuals of the New York Academy of Sciences, 1249 Retrieved from https://nyaspubs-onlinelibrary-wiley-com.ezpxy-web-p-u01.wpi.edu/doi/full/10.1111/j.1749-6632.2011.06400.x

Bernheim Brush, A. J., Meyers, B., Tan, D., & Czerwinski, M. (2007). Understanding Memory Triggers for Task Tracking. Chi '07, , 947-950. Retrieved from https://dl.acm.org/doi/abs/10.1145/1240624.1240768

Center for Disease Control and Prevention. (2019). Coronavirus Disease 2019 (COVID-19). Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/summary.html

Dallett, K., & Wilcox, S. (2013). Remembering Pictures vs Remembering Descriptions. Human Learning and Thinking, , 312-320. Retrieved from https://link.springer.com/article/10.3758/BF03331012

Hartig, T., Johansson, M., & Staats, H. (2011). Psychological Benefits of Walking: Moderation by Company and Outdoor Environment. Applied Psychology: Health and Well-Being, Retrieved from https://iaap-journals.onlinelibrary.wiley.com/doi/full/10.1111/j.1758-0854.2011.01051.x?casa_token=TGdpG4R4YhIAAAAA%3Amo2Chpmq1BE3gyLA9HSC77GDwcmTaJSFeh3lK3m06ZA94ZrKwHEDqGU_CopgLFfUC86o1GComzMo2w

Jacoby, S., Kondo, M., & South, E. (2018). Does Spending Time Outdoors Reduce Stress? A Review of Real-Time Stress Response to Outdoor Environments. Health & Place, 51, 136-150. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S1353829217307633?casa_token=m1y8PKYiqJMAAAAA:E5RGMqAr2jPZpzdlaSplwEgBL1ljHJ6tTsKplvdZZq2QIokZKZYDMZ7sbHjCpP2koyBl8kQ

Keniger, L., Gaston, K., Irvine, K., & Fuller, R. (2013). What are the Benefits of Interacting with Nature? International Journal of Environmental Research and Public Health, Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3709294/

Korpela, K., Pasanen, T., & Tyrvainen, L. (2014). The Relationship Between Perceived Health and Physical Activity Indoors, Outdoors in Built Environments, and Outdoors in Nature. Applied Psychology: Health and Well-Being, 6 Retrieved from https://iaap-journals.onlinelibrary.wiley.com/doi/full/10.1111/aphw.12031

Manferdelli, G., La Torre, A., & Codella, R. (2019). Outdoor Physical Activity Bears Multiple Benefits to Health and Society. The Journal of Sports Medicine and Physical Fitness, , 868-879. Retrieved from https://europepmc.org/article/med/30650943

Mark, J. (2020). Nature RX: The Outdoors can be an Antidote to Quarantine Anxiety. The National Magazine of the Sierra Club, Retrieved from https://www.sierraclub.org/sierra/nature-rx-outdoors-can-be-antidote-quarantine-anxiety

Medaris Miller, A. (2020). The Psychology of why you go Stir-Crazy, and how to Cope. The
    Business Insider, Retrieved from https://www.businessinsider.com/how-a-coronavirus-
    quarantine-affects-your-body-and-brain-2020-3#the-disruption-of-routine-including-the-
    activities-that-usually-boost-your-mood-can-also-feel-like-an-uncomfortable-jolt-2

National Park Service. (2018). Benefits of hiking. Retrieved from
    https://www.nps.gov/subjects/trails/benefits-of-hiking.htm

Ohara, N., Yasuhiro, Y., & Trencher, G. (2019). Understanding Nature through Photography: An
    Empirical Analysis of the Intents of Nature Photographers and the Respiratory Process.
    Environmental Communication, 13(8), 1053-1068. Retrieved from https://www-tandfonline-
    com.ezpxy-web-p-u01.wpi.edu/doi/full/10.1080/17524032.2019.1572638

Pew Research Center (2020). Most Americans say Coronavirus Outbreak has Impacted their
    Lives. Retrieved from https://www.pewsocialtrends.org/2020/03/30/most-americans-say-
    coronavirus-outbreak-has-impacted-their-lives/

Taylor-Powell, E., & Renner, M. University of Wisconsin - Extension, Program Development and
    Evaluation. (2003). Analyzing Qualitative Data. Retrieved from website:
    http://learningstore.uwex.edu/assets/pdfs/g3658-12.pdf

Ulrich, R. (2007). Visual landscapes and psychological well-being. Landscape Research, 4, 17- 23.
    Retrieved from https://www-tandfonline-com.ezpxy-web-p-
    u01.wpi.edu/doi/abs/10.1080/01426397908705892

Weng, P., & Chiang, Y. (2017). Psychological Restoration Through Indoor and Outdoor Leisure
    Activities. Journal of Leisure Research, , 203-217. Retrieved from
    https://www.tandfonline.com/doi/abs/10.1080/00222216.2014.11950320?
    casa_token=oPrWNpDKShUAAAAA:g_zcl_AlfxlrKt9xmswCA9UIDJY7hnZGIkQpCRoZzcWEX-
    Y913zGg1yZIjaXmZo1KtTJ5wUrAtQ

Xiao, H., Zhang, Y., Kong, D., Li, S., & Yang, N. (2020). Social Capital and Sleep Quality in Individuals
    Who Self-Isolated for 14 Days During the Coronavirus Disease 2019 (COVID-19) Outbreak in
    January 2020 in China. Medical Science Monitor, Retrieved from
    https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7111105/

Zaveri, M, (2020). 'Quarantine fatigue' has more people going outside. (2020). New York Times,
    Retrieved from https://www.nytimes.com/2020/04/27/us/coronavirus-social-distancing-
    lockdown.html?auth=login-facebook

REFERENCES- **PERSPECTIVES ON FEDERAL GUIDELINES AND NEW YORK STATE MANDATES DURING THE PANDEMIC**

Bergmann, A. (2020, April 30). CR Survey: How Coronavirus Has
    Changed Americans' Daily Lives. Retrieved from https://www.consumerreports.org/life-
    family/how-coronavirus-has-changed-americans-daily-lives-survey/

Bradley, T. (2020, April 6). Fact check: A timeline of how
    President Trump responded to the coronavirus. Retrieved from
    https://wgntv.com/news/coronavirus/fact-check-a-timeline-of-how-president-trump-
    responded-to-the-coronavirus/

CDC. (n.d.). Coronavirus Disease 2019 (COVID-19). Retrieved from
    https://www.coronavirus.gov/

CDC, Situation Summary, (2020, March 26). Retrieved from
    https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/summary.html

Gingerich, B. S. (2006). Pandemic outbreaks: Definitions, history,
    mandates, and initiatives. Home Health Care Management & Practice, 19(1), 63-65.
    doi:10.1177/1084822306292218

Governor Cuomo Signs the 'New York State on PAUSE' Executive
    Order. (2020, March 23). Retrieved from https://www.governor.ny.gov/news/governor-
    cuomo-signs-new-york-state-pause-executive-order

Hubert, B. (2020, March 28). Area grocery stores modify hours,
    policies due to coronavirus. Retrieved from https://www.dailyfreeman.com/news/local-
    news/area-grocery-stores-modify-hours-policies-due-to-coronavirus/article_72b90510-
    6f63-11ea-b9c9-bb211c58d103.html

Novel Coronavirus (COVID-19). (n.d.). Retrieved from
    https://coronavirus.health.ny.gov/home

The New York Times. (2020, March 3). Coronavirus in the U.S.:
    Latest Map and Case Count. Retrieved from
    https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html#states

The Obama Administration's Ebola Response. (2014). Retrieved
    from https://obamawhitehouse.archives.gov/ebola-response

REFERENCES- **ASSESSING THE EFFICACY OF STATE GOVERNORS IN FOLLOWING RISK COMMUNICATION GUIDELINES**

Barry, E. (2020, March 30,). Days after a funeral in a georgia town, coronavirus 'Hit like a bomb'. New York Times Retrieved from https://www.nytimes.com/2020/03/30/us/coronavirus-funeral-albany-georgia.html

Center for Preparedness and Response. (2018). Crisis & emergency risk communication (CERC). Retrieved from https://emergency.cdc.gov/cerc/index.asp

Centers for Disease Control and Prevention. (n.d.). CERC wallet card

Centers for Disease Control and Prevention. (2020). CERC in an infectious disease outbreak

Covello, V. T. (2003). Best practices in public health risk and crisis communication. Journal of Health Communication, (8), 5-8. Retrieved from https://www-tandfonline-com.ezpxy-web-p-u01.wpi.edu/doi/pdf/10.1080/713851971?needAccess=true

Ellis, L. D. (2018). The need for effective risk communication strategies in today's complex information environment. Retrieved from https://www.hsph.harvard.edu/ecpe/effective-risk-communication-strategies/

Glik, D. C. (2007). Risk communication for public health emergencies. Annual Review of Public Health, 28, 33-54. Retrieved from https://doi.org/10.1146/annurev.publhealth.28.021406.144123

Harvard T.H. Chan School of Public Health. (2020). Applied risk communication for the 21st century. Retrieved from https://www.hsph.harvard.edu/ecpe/programs/applied-risk-communication-for-the-21st-century/

Kelly, J., & Thomas, P. (2020, April 7,). Disaster in motion: Where flights from coronavirus-ravaged countries landed in US. ABC News Retrieved from https://abcnews.go.com/Health/disaster-motion-flights-coronavirus-ravaged-countries-landed-us/story?id=70025470

Lee, A. (2020). These states have implemented stay-at-home orders. here's what that means for you. Retrieved from https://www.cnn.com/2020/03/23/us/coronavirus-which-states-stay-at-home-order-trnd/index.html

Mazziotta, J. (2020). From a $25,000 fine to a warning: Here's how states are enforcing coronavirus stay-at-home orders. Retrieved from https://people.com/health/how-states-are-enforcing-coronavirus-stay-at-home-orders/

Mervosh, S., Lu, D. & Swales, V. (2020). See which states and cities have told residents to stay at home. Retrieved from https://www.nytimes.com/interactive/2020/us/coronavirus-stay-at-home-order.html

National Center for Immunization and Respiratory Diseases, Division of Viral Diseases. (2020). Cases in U.S. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html

Palenchar, M. J., & Heath, R. L. (2007). Strategic risk communication: Adding value to society. Public Relations Review, 33(2), 120-129. Retrieved from https://www.sciencedirect.com/science/article/pii/S0363811106001561

Reynolds, B., & Quinn, S. C. (2008). Effective communication during an influenza pandemic: The value of using a crisis and emergency risk communication framework. Health Promotion Practice, 9(4), 13S-17S. Retrieved from https://doi.org/10.1177/1524839908325267

Stockman, F., & Barker, K. (2020, April 12,). How a premier U.S. drug company became a virus 'Super spreader'. New York Times Retrieved from https://www.nytimes.com/2020/04/12/us/coronavirus-biogen-boston-superspreader.html

Taylor, D. B. (2020, April 7,). A timeline of the coronavirus pandemic. New York Times Retrieved from https://www.nytimes.com/article/coronavirus-timeline.html

Vaughan, E., & Tinker, T. (2009). Effective health risk communication about pandemic influenza for vulnerable populations. Am J Public Health, 99, S324-S332. doi:10.2105/AJPH.2009.162537

Williamson, E., & Hussey, K. (2020, March 23,). Party zero: How a soirée in connecticut became a 'Super spreader'. New York Times Retrieved from https://www.nytimes.com/2020/03/23/us/coronavirus-westport-connecticut-party-zero.html

World Health Organization. (2020). Rolling updates on coronavirus disease (COVID-19). Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen

REFERENCES- **THE DANGERS OF PROMOTING HYDROXYCHLOROQUINE**

ARDS. (2018, March 10). Retrieved from https://www.mayoclinic.org/diseases-
conditions/ards/symptoms-
    causes/syc-20355576

Campanile, C., Hogan, B., & Marsh, J. (2020, April 6). Medical group endorses anti-malarial drug
treatment for
    coronavirus patients. New York Post. Retrieved from https://nypost.com/2020/04/06/medical-group-
    backs-giving-hydroxychloroquine-to-coronavirus-patients/

Can hydroxychloroquine treat Covid-19? Here's what the evidence says. (2020, April 7). Retrieved from
    https://www.advisory.com/daily-briefing/2020/04/07/hydroxychloroquine

Chloroquine (Aralen) vs. Hydroxychloroquine (Plaquenil) for COVID-19? (2020, March 24). Retrieved from
    https://www.medicinenet.com/chloroquine_aralen_vs_hydroxychloroquine_plaquenil/article.htm#chl
    oroquine_aralen_vs_hydroxychloroquine_plaquenil_whats_the_difference

Cronkite News. (2020, April 9). Rx For A Feud: Ducey Coronavirus Treatment Order Splits Health
Officials.
    Retrieved from https://patch.com/arizona/across-az/rx-feud-ducey-coronavirus-treatment-order-
    splits-health-officials

Crowley, M., Thomas, K., & Haberman, M. (2020, April 5). Ignoring Expert Opinion, Trump Again
Promotes Use
    of Hydroxychloroquine. New York Times. Retrieved from
    https://www.nytimes.com/2020/04/05/us/politics/trump-hydroxychloroquine-coronavirus.html?
    referringSource=articleShare

Cox, N. K. (2011). The QT interval. Nursing Made Incredibly Easy!, 9(2), 17–21. doi:
    10.1097/01.nme.0000394049.90368.13

Erman, M. (2020, March 19). Potential coronavirus treatment touted by Trump already in shortage,
    pharmacists say. Reuters. Retrieved from https://www.reuters.com/article/us-health-coronavirus-usa-
    shortages-excl/potential-coronavirus-treatment-touted-by-trump-already-in-shortage-pharmacists-
    say-idUSKBN2163JD

Estes, C. (2020, April 17). What Is The Cytokine Storm And Why Is It So Deadly For Coronavirus Patients?
    Retrieved from https://www.forbes.com/sites/claryestes/2020/04/16/what-is-the-cytokine-storm-and-
    why-is-it-so-deadly-for-covid-19-patients/#4460ac74460f

Farber, M. (2020, April 7). Possible coronavirus treatment leaves lupus patients with new challenges:
'There
    are backorders'. Fox News. Retrieved from https://www.foxnews.com/health/shortages-of-potential-
    coronavirus-drugs-are-affecting-lupus-patients-it-puts-me-at-a-greater-risk

Fox, R. I. (1993). Mechanism of action of hydroxychloroquine as an antirheumatic drug. Seminars in
Arthritis
    and Rheumatism, 23(2), 82–91. doi: 10.1016/s0049-0172(10)80012-5

Gao, J., Tian, Z., & Yang, X. (2020). Breakthrough: Chloroquine phosphate has shown apparent efficacy in
    treatment of COVID-19 associated pneumonia in clinical studies. Bioscience Trends, 14(1), 72–73. doi:
    https://doi.org/10.5582/bst.2020.01047

Gautret, P. (2020). Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. International Journal of Antimicrobial Agents. doi: https://doi.org/10.1016/j.ijantimicag.2020.105949

George, A. (n.d.). Cytokine Storm. New Scientist. Retrieved from https://www.newscientist.com/term/cytokine-storm/

Hamblin, J. (2020, April 6). Why Does the President Keep Pushing a Malaria Drug? The Atlantic. Retrieved from https://www.theatlantic.com/health/archive/2020/04/hydroxychloroquine-trump/609547/

Hariton, E., & Locascio, J. J. (2018). Randomised controlled trials—the gold standard for effectiveness research. BJOG: Int J Obstet Gy, 125(13), 1716. doi: https://doi.org/10.1111/1471-0528.15199

Hydroxychloroquine: MedlinePlus Drug Information. (n.d.). Retrieved from https://medlineplus.gov/druginfo/meds/a601240.html

Hydroxychloroquine Has about 90 Percent Chance of Helping COVID-19 Patients - AAPS: Association of American Physicians and Surgeons. (2020, April 28). Retrieved from https://aapsonline.org/hcq-90-percent-chance/

Kaplan, T. (2020, March 24). Pence: FDA approving 'off-label' use for hydroxychloroquine to help coronavirus patients. Fox News. Retrieved from https://www.foxnews.com/media/pence-fda-hydroxychloroquine-off-label-coronavirus

Kim, A. (2020, April 8). FDA approves hydroxychloroquine new drug application to address COVID-19 related shortage. Retrieved from https://www.healio.com/rheumatology/lupus/news/online/{a34fd607-0241-49d2-b57f-885d79ab94ca}/fda-approves-hydroxychloroquine-new-drug-application-to-address-covid-19-related-shortage

Lovelace, B. (2020, April 24). FDA issues warnings on chloroquine and hydroxychloroquine after deaths and poisonings reported. CNBC. Retrieved from https://www.cnbc.com/2020/04/24/fda-issues-warnings-on-chloroquine-and-hydroxychloroquine-after-serious-poisoning-and-death-reported.html

Lowe, D. (2020, April 6). Hydroxychloroquine Update For April 6. Retrieved from https://blogs.sciencemag.org/pipeline/archives/2020/04/06/hydroxychloroquine-update-for-april-6

Mehta, B. (2020, April 10). Potential Shortages of Hydroxychloroquine for Patients with Lupus During the Coronavirus Disease 2019 Pandemic. Retrieved from https://jamanetwork.com/channels/health-forum/fullarticle/2764607

NPR (2020, April 1). Retrieved from https://www.npr.org/2020/04/01/825056946/why-lupus-patients-find-hydroxychloroquine-in-short-supply

Piller, C. (2020, April 7). Former FDA leaders decry emergency authorization of malaria drugs for coronavirus. Science Magazine. doi: doi:10.1126/science.abc1337

Robb, M. J. A., & Orient, J. M. (2020, April 27). Retrieved from https://aapsonline.org/aaps-letter-asking-gov-ducey-to-rescind-executive-order-concerning-hydroxychloroquine-in-covid-19/

Side Effects Halt Use of Chloroquine Vs. COVID-19. (2020, April 7). Retrieved from https://www.webmd.com/lung/news/20200407/side-effects-halt-use-of-chloroquine-vs-covid-19

Simpson, T. F., Kovacs, R. J., & Stecker, E. C. (2020, March 29). Ventricular Arrhythmia Risk Due to Hydroxychloroquine-Azithromycin Treatment For COVID-19. Cardiology Magazine. Retrieved from: https://www.acc.org/latest-in-cardiology/articles/2020/03/27/14/00/ventricular-arrhythmia-risk-due-to-hydroxychloroquine-azithromycin-treatment-for-covid-19

UNESCO mobilizes 122 countries to promote open science and reinforced cooperation in the face of COVID-19. (2020, April 7). Retrieved from https://en.unesco.org/news/unesco-mobilizes-122-countries-promote-open-science-and-reinforced-cooperation-face-covid-19

Vincent, J.-L. (2020). Understanding pathways to death in patients with COVID-19. The Lancet Respiratory Medicine. doi: https://doi.org/10.1016/S2213-2600(20)30165-X

Wang, M., Cao, R., Zhang, L. et al. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. Cell Res 30, 269–271 (2020). https://doi.org/10.1038/s41422-020-0282-0

Wilson, K. C., Chotirmall, S. H., Bai, C., & Rello, J. (2020). COVID-19: Interim Guidance on Management Pending Empirical Evidence. From an American Thoracic Society-Led International Task Force. Retrieved from https://www.thoracic.org/covid/covid-19-guidance.pdf

Yazdany, J., & Kim, A. H. (2020). Use of Hydroxychloroquine and Chloroquine During the COVID-19 Pandemic: What Every Clinician Should Know. Annals of Internal Medicine. doi: 10.7326/m20-1334

REFERENCES - **AN INVESTIGATION OF PANIC PURCHASING DURING THE PANDEMIC**

Ansari, A., and Batoul Modarress. "Just-In-Time Purchasing: Problems and Solutions." Journal of Purchasing and Materials Management, vol. 22, no. 2, 1986, pp. 11–15., doi:10.1111/j.1745-493x.1986.tb00157.x.

Barufaldi, D. (2020, February 03). A Review of Past Recessions. Retrieved April 19, 2020, from https://www.investopedia.com/articles/economics/08/past-recessions.asp

Brown, Dalvin. "It's Not Just Toilet Paper: People Line up to Buy Guns, Ammo over Coronavirus Concerns." USA Today, Gannett Satellite Information Network, 17 Mar. 2020, www.usatoday.com/story/money/2020/03/16/coronavirus-people-line-up-gun-stores-stock-up/5054436002/.

Bryman, A. (2002). Analyzing Qualitative Data. doi: 10.4324/9780203413081

Buder, Emily. "What Misinformation Has to Do With Toilet Paper." The Atlantic, Atlantic Media Company, www.theatlantic.com/video/index/608209/toilet-paper-shortage/.

Bushman, B. J. (2020, March 23). "You Can't Shoot a Virus," and Guns Won't Make You Safer. Retrieved from https://www.psychologytoday.com/us/blog/get-psyched/202003/you-cant-shoot-virus-and-guns-wont-make-you-safer

Carufel, R. (2020, April 15). Consumer behavior in the coronavirus crisis-new insights on the impact of COVID-19. Retrieved from https://www.agilitypr.com/pr-news/public-relations/consumer-behavior-in-the-coronavirus-crisis-new-insights-on-the-impact-of-covid-19/

Dowd-Arrow, B., Hill, T. D., & Burdette, A. M. (2019). Gun ownership and fear. SSM - Population Health, 8, 100463. doi: 10.1016/j.ssmph.2019.100463

Ferrugia, J. (2020, April 17). As Gun Sales Spike in Colorado Amid the Coronavirus Outbreak, Experts Worry about Suicide Risk. Retrieved April 19, 2020, from https://www.pbs.org/wgbh/frontline/article/gun-sales-colorado-coronavirus-suicide/

Furnham, Adrian. "Psychology of Hoarding." Management and Myths, 2004, pp. 120–122., doi:10.1057/9781403990037_44.

Garza, A. (2020, March 16). How Social Media Is Shaping Our Fears of the Coronavirus. Retrieved April 20, 2020, from https://time.com/5802802/social-media-coronavirus/

Geddie, John. "To Mask or Not to Mask: Confusion Spreads over Coronavirus Protection." Reuters, Thomson Reuters, 31 Jan. 2020, www.reuters.com/article/us-china-health-masks-safety/to-mask-or-not-to-mask-confusion-spreads-over-coronavirus-protection-idUSKBN1ZU0PH.

Heshmat, S. (2020, March 22). 7 Reasons for Panic-Buying Behavior. Retrieved from https://www.psychologytoday.com/us/blog/science-choice/202003/7-reasons-panic-buying-behavior

Huntley, H. (1973). St. Petersburg Times. Retrieved from https://news.google.com/newspapers?id=VepRAAAAIBAJ&sjid=J3MDAAAAIBAJ&pg=1485,752674

Kluger, Jeffrey. "Why Shoppers Are Hoarding Toilet Paper." Time, Time, 14 Mar. 2020, time.com/5803273/hoarding-toilet-paper/.

Lewis, Helen. "How Panic-Buying Revealed the Problem With the Modern World." The Atlantic, Atlantic Media Company, 26 Mar. 2020, www.theatlantic.com/international/archive/2020/03/coronavirus-panic-buying-britain-us-shopping/608731/.

Novemsky, N. (2020, March 31). Why a Pandemic Leads to Panic Buying. Retrieved from
    https://insights.som.yale.edu/insights/why-pandemic-leads-to-panic-buying

Phillips, Tom. "Coronavirus Misinformation Is Dangerous. Think before You Share | Tom Phillips."
    The Guardian, Guardian News and Media, 13 Mar. 2020,
    www.theguardian.com/commentisfree/2020/mar/13/coronavirus-misinformation-health-advice.

Smail, D. L. (2014). Neurohistory in Action: Hoarding and the Human Past. Isis, 105(1), 110–122.
    doi: 10.1086/675553

Whitehead, Kate. "Hong Kong's Panic Buying and the Psychology behind It." South China Morning
    Post, 25 Feb. 2020, www.scmp.com/lifestyle/health-wellness/article/3052101/why-hong-kong-
    panic-buying-happened-herd-mentality-media.

REFERENCES - **FAMILY DYNAMIC DURING COVID-19 PANDEMIC**

Audra. (2020, March 21). How Coronavirus-Weary Americans Are Seeking Joy. The New York Times.

Audra. (2020, April 15). What Historians Will See When They Look Back on the Covid-19 Pandemic of 2020. The New York Times.

Bennett, J. (2020, March 20). 'I Feel Like I Have Five Jobs': Moms Navigate the Pandemic. The New York Times.

CDC. (2020, April 9). Cases in U.S. National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html

CDC. (2020, April 1). Mental Health and Coping During COVID-19. National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html

CDC. (2020, April 1). Talking with children about Coronavirus Disease 2019. National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/talking-with-children.html

Dalton, L., Rapa, E., & Stein, A. . (2020, March 31). Protecting the psychological health of children through effective communication about COVID-19. Lancet Child Adolesc Health 2020. Retrieved from https://doi.org/10.1016/S2352-4642(20)30097-3

Downs, J. (2020, March 22). The Epidemics America Got Wrong. The Atlantic.

Eyal, N. (2017, June 8). When Distraction Is a Good Thing. Psychology Today.

Graves, L. (2020, April 22). Who's Behind the 'Reopen' Protests? Retrieved from https://www.nytimes.com/2020/04/22/opinion/coronavirus-protests-astroturf.html

Hale, L., Kirschen, G. W., et al. (2018). Youth Screen Media Habits and Sleep: Sleep-Friendly Screen Behavior Recommendations for Clinicians, Educators, and Parents. Child and adolescent psychiatric clinics of North America, 27(2), 229–245. https://doi.org/10.1016/j.chc.2017.11.014

NYU Langone Health. (2020). School's Out: A Parents' Guide for Meeting the Challenge During the COVID-19 Pandemic. NewsHub.

Office of Population Affairs. (2019, October 3). A Day in the Life of a High School Teen.Office of Population Affairs.

Remmerswaal, D. & Muris, P. (2010). "Children's fear reactions to the 2009 Swine Flu pandemic: The role of threat information as provided by parents." Journal of Anxiety Disorders, 25(3), 444-449. https://doi.org/10.1016/j.janxdis.2010.11.008

Rochwerg, et al. (2020, April). Misinformation During the Coronavirus Disease 2019 Outbreak: How Knowledge Emerges From Noise. Critical Care Explorations, 2 (4), 98. doi:10.1097/CCE.0000000000000098

Simon, A. (2018). On the Brink: A Day in the Life Anthropology Tool. Andi Simons. Retrieved from http://info.simonassociates.net/day-in-the-life-anthropology-tool-0

Stevenson, E., et al. (2009). "Pandemic Influenza Planning: Addressing the Needs of Children", American Journal of Public Health. 99, 2. 255-S260. https://doi.org/10.2105/AJPH.2009.159970

Terada, Y. (2020, April 3). Pediatricians on Balancing Screen Time, Sleep, and Family During Coronavirus. Edutopia.

Ungar, M. (2020, March 25). What Teens Need During a Pandemic. Psychology Today.

REFERENCES - **SEPARATION FROM OLDER LOVED ONES DURING THE PANDEMIC**

ARMITAGE, R., & NELLUMS, L. B. (2020). COVID-19 AND THE CONSEQUENCES OF ISOLATING THE ELDERLY. THE LANCET. PUBLIC HEALTH, 5(5), E256. ADVANCE ONLINE PUBLICATION. HTTPS://DOI.ORG/10.1016/S2468-2667(20)30061-X

BEEBE, J. (2014). GETTING THE INSIDER'S PERSPECTIVES. RAPID QUALITATIVE INQUIRY: A FIELD GUIDE TO TEAM-BASED ASSESSMENT (PP. 29-39)

CALL IN TIME. (N.D.). RETRIEVED FROM HTTPS://WWW.AGEUK.ORG.UK/WIGANBOROUGH/OUR-SERVICES/CALL-IN-TIME/

CDC. (2020, APRIL 7). OLDER ADULTS. RETRIEVED FROM HTTPS://WWW.CDC.GOV/CORONAVIRUS/2019-NCOV/NEED-EXTRA-PRECAUTIONS/OLDER-ADULTS.HTML

GIRDHAR, R., SRIVASTAVA, V., & SETHI, S. (2020). MANAGING MENTAL HEALTH ISSUES AMONG ELDERLY DURING COVID - 19 PANDEMIC. JOURNAL OF GERIATRIC CARE AND RESEARCH, 7(1).

LELAND, J. (2020, MARCH 18). 'I'M REALLY ISOLATED NOW': WHEN ELDERS HAVE TO FIGHT CORONAVIRUS ALONE. RETRIEVED FROM HTTPS://WWW.NYTIMES.COM/2020/03/18/NYREGION/CORONAVIRUS-ELDERLY-NYC.HTML

MCNAMARA, A. (2020, JANUARY 31). CDC CONFIRMS FIRST CASE OF CORONAVIRUS IN THE UNITED STATES. RETRIEVED FROM HTTPS://WWW.CBSNEWS.COM/NEWS/CORONAVIRUS-CENTERS-FOR-DISEASE-CONTROL-FIRST-CASE-UNITED-STATES/

MESA VIEIRA, C., FRANCO, O. H., GÓMEZ RESTREPO, C., & ABEL, T. (2020). COVID-19: THE FORGOTTEN PRIORITIES OF THE PANDEMIC DOI:HTTPS://DOI-ORG.EZPXY-WEB-P-U01.WPI.EDU/10.1016/J.MATURITAS.2020.04.004

NOVOTNEY, A. (2019, MAY). THE RISKS OF SOCIAL ISOLATION. MONITOR ON PSYCHOLOGY, 50(5). HTTP://WWW.APA.ORG/MONITOR/2019/05/CE-CORNER-ISOLATION

NUYEN, S. (2020, MARCH 23). THESE STATES HAVE ISSUED STAY-AT-HOME ORDERS, HERE'S WHAT THAT MEANS. RETRIEVED FROM HTTPS://WWW.WUSA9.COM/ARTICLE/NEWS/HEALTH/CORONAVIRUS/WHAT-DOES-SHELTER-IN-PLACE-MEAN-THESE-ARE-THE-STATES-THAT-WANT-CITIZENS-TO-STAY-HOME/507-9F19139A-2F1D-4C8B-9343-2C8FD42B2208

PEOPLE WHO ARE AT HIGHER RISK FOR SEVERE ILLNESS. (2020, APRIL 15). RETRIEVED FROM HTTPS://WWW.CDC.GOV/CORONAVIRUS/2019-NCOV/NEED-EXTRA-PRECAUTIONS/PEOPLE-AT-HIGHER-RISK.HTML

SINGER, C. (2018). HEALTH EFFECTS OF SOCIAL ISOLATION AND LONELINESS. RETRIEVED FROM HTTPS://WWW.AGINGLIFECAREJOURNAL.ORG/HEALTH-EFFECTS-OF-SOCIAL-ISOLATION-AND-LONELINESS/

SOCIAL ISOLATION IN THE ELDERLY: ASC BLOG. (2016, SEPTEMBER 26). RETRIEVED FROM HTTPS://WWW.ASCCARE.COM/HELPING-LOVED-ONES-AVOID-SOCIAL-ISOLATION/

TAN, E. (2020, MARCH 16). HOW TO AVOID SOCIAL ISOLATION DURING CORONAVIRUS PANDEMIC. RETRIEVED FROM HTTPS://WWW.AARP.ORG/HEALTH/CONDITIONS-TREATMENTS/INFO-2020/CORONAVIRUS-SOCIAL-ISOLATION-LONELINESS.HTML

WALLIS, A. (2020). WHAT IT'S LIKE TO BE IMMUNOCOMPROMISED DURING THE COVID-19 OUTBREAK.
RETRIEVED FROM HTTPS://WWW.HEALTHLINE.COM/HEALTH-NEWS/WHAT-ITS-LIKE-TO-BE-IMMUNOCOMPROMISED-DURING-THE-COVID-19-OUTBREAK

WILLIAMS, J. (2020). HOW THE CORONAVIRUS PANDEMIC IS FUELING AMERICA'S LONELINESS EPIDEMIC.
RETRIEVED FROM HTTPS://WWW.USNEWS.COM/NEWS/HEALTHIEST-COMMUNITIES/ARTICLES/2020-04-07/CORONAVIRUS-PANDEMIC-FUELS-AMERICAS-LONELINESS-EPIDEMIC

REFERENCES- **THE ROLE OF MEMES AS COPING MECHANISMS FOR THE COVID-19 PANDEMIC**

Blake, A. (2015, February 9). Here's
    how many Americans are actually anti-vaxxers. Retrieved from
    https://www.washingtonpost.com/news/the-fix/wp/2015/02/09/heres-how-many-
    americans-are-actually-anti-vaxxers/
Börzsei, L. K. (2013). Makes a Meme Instead.
    The Selected Works of Linda Börzsei, 1-28.
Coronavirus Cases: (2020). Retrieved
    from https://www.worldometers.info/coronavirus/
Ellis, E. G. (2020, March 25). What
    Coronavirus Isolation Could Do to Your Mind (and Body). Retrieved from
    https://www.wired.com/story/coronavirus-covid-19-isolation-psychology/
Elmhirst, Sophie. New Statesman,
    (2012, March 12). Meme. Retrieved from
    http://web.a.ebscohost.com.ezpxy-web-p-u01.wpi.edu/ehost/detail/detail?
    vid=1&sid=c0033574-5c16-4ddd-8d12-0ddb93dfc606%40sdc-v-
    sessmgr02&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#AN=73042382&db=bsh
Force, N. (2018, October 8). Humor
    As Weapon, Shield and Psychological Salve. Retrieved from
    https://psychcentral.com/lib/humor-as-weapon-shield-and-psychological-salve/
Haasch, P. (2020, April 21). How
    coronavirus memes have traced the timeline of the pandemic, from panic to the
    new normal. Retrieved from https://www.insider.com/coronavirus-memes-
    timeline-progression-handwashing-nature-tiktok-twitter-new-normal-2020-4
Hadden, J. (2020, March 24).
    Columbia, Harvard, NYU, and other major US colleges and universities that have
    switched to remote classes and are telling students to move out of dorms to
    prevent the spread of the coronavirus. Retrieved from
    https://www.businessinsider.com/major-colleges-and-universities-going-remote-
    over-coronavirus-fears
Hadden, J., Casado, L., & Sonnemaker, T. (2020, March 12). Oracle, Apple,
    Google, and Amazon are among the largest global companies who have restricted
    travel or asked their employees to work remotely as a precaution against the
    novel coronavirus. Here's the full list. Retrieved from
    https://www.businessinsider.com/companies-asking-employees-to-work-from-
    home-due-to-coronavirus-2020
How Coronavirus Spreads. (2020,April 2). Retrieved from
    https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-
    spreads.html?CDC_AA_refVal=https://www.cdc.gov/coronavirus/2019-
    ncov/prepare/transmission.html
Long, H. (2020, April 2). Over 10 million Americans applied for unemployment
    benefits in March as economy collapsed. Retrieved froM
    https://www.washingtonpost.com/business/2020/04/02/jobless-march-
    coronavirus/

Marcus , O. R., & Singer , M. (2016, April 25). Loving Ebola-chan: Internet memes in an epidemic. Retrieved from https://journals-sagepub-com.ezpxy-web-p-u01.wpi.edu/doi/full/10.1177/0163443716646174

Martin, R. A., & Dobbin, J. P. (1989). Sense of Humor, Hassles, and Immunoglobulin A: Evidence for a Stress-Moderating Effect of Humor. The International Journal of Psychiatry in Medicine, 18(2), 93–105. https://doi.org/10.2190/724B-3V06-QC5N-6587

Martin, R. A., Kuiper, N. A., Olinger, L. J., & Dance, K. A. (1993). Humor, coping with stress, self-concept, and psychological well-being.

McClure, M. (2011, August 1). StanforD psychologists find that jokes help us cope with horrifying images. Retrieved from https://news.stanford.edu/news/2011/august/humor-coping-horror-080111.html

Nkengasong, J. China's response to a novel coronavirus stands in stark contrast to the 2002 SARS outbreak response. Nat Med 26, 310–311 (2020). https://doi.org/10.1038/s41591-020-0771-1

Pfefferbaum, B., Grein, J., Zhang, Y., Doremalen, N. van, & Department of Psychiatry and Behavioral Sciences. (2020, April 10). Mental Health and the Covid-19 Pandemic: NEJM. Retrieved from https://www.nejm.org/doi/full/10.1056/NEJMp2008017?query=featured_coronavirus

Reardon, M. (2020, March 23). Coronavirus has made peak internet usage into the new normal. Retrieved from https://www.cnet.com/news/coronavirus-has-made-peak-internet-usage-into-the-new-normal/

References- **Pandemic Perspectives: Healing Through Storytelling**

Adelson, N., & Olding, M. (2012). Narrating Aboriginality On-Line: Digital
    Storytelling, Identity and Healing. The Journal of Community Informatics, 9(2).
    Retrieved from http://ci-journal.net/index.php/ciej/article/view/740

Bee, I., Flamand, A.-L., Agecoutay, C., Ramirez, B., & Webber, K. (2010, August 26).
    Residential Truth: Unified Future. Retrieved from
    https://reelyouth.ca/residentialtruth.html

Blanch, A., Filson, B., & Penney, D. (2012, April). Engaging Women in Trauma-I
    nformed Peer Support: A Guidebook. Engaging Women in Trauma-Informed Peer
    Support: A Guidebook. National Center for Trauma-Informed Care.

Carter, J. (2017, August 2). Healing Through Storytelling: How to find your essential
    life message. Psycology Today. Retrieved from
    https://www.psychologytoday.com/us/blog/stress-is-laughing-
    matter/201708/healing-through-storytelling

Chen, P. W. (2011, February 10). When Patients Share Their Stories, Health May
    Improve. The New York Times. Retrieved from
    https://www.nytimes.com/2011/02/10/health/views/10chen.html

de la Garza, A. (2020, March 16). How Social Media Is Shaping Our Fears of — and
    Response to — the Coronavirus. TIME. Retrieved from
    https://time.com/5802802/social-media-coronavirus/

Gupta-Carlson, H. (2016). Re-Imagining the Nation: Storytelling and Social Media in
    the Obama Campaigns. PS: Political Science & Politics, 49(1), 71-75.
    doi:10.1017/S1049096515001274

Houston, T. K., Cherrington, A., Coley, H. L., Robinson, K. M., Trobaugh, J. A.,
    Williams, J. H., Foster, P. H., Ford, D. E., Gerber, B. S., Shewchuk, R. M., & Allison,
    J. J. (2011). The art and science of patient storytelling-harnessing narrative
    communication for behavioral interventions: the ACCE project. Journal of health
    communication, 16(7), 686–697. https://doi-org.ezpxy-web-p-
    u01.wpi.edu/10.1080/10810730.2011.551997

King University. (2019, September 19). The Psychology of Social Media. Retrieved from https://online.king.edu/news/psychology-of-social-media/

Lindahl, C., Jasper, P., American Folklife Center, C., Archive Of Folk Culture, C. & Surviving Katrina And Rita In Houston. (2009) Surviving Katrina and Rita in Houston. [Manuscript/Mixed Material] Retrieved from the Library of Congress, https://lccn.loc.gov/2009655477.

Lindahl, C. (2012). Legends of Hurricane Katrina: The Right to Be Wrong, Survivor-to-Survivor Storytelling, and Healing. The Journal of American Folklore, 125(496), 139. doi: 10.5406/jamerfolk.125.496.0139

Mohammed, F. (2018, August 3). How Storytelling Heals. JSTOR Daily. Retrieved from https://daily.jstor.org/how-storytelling-heals/

Moors, M. R. (2019). What is Flint? Place, storytelling, and social media narrative reclamation during the Flint water crisis. Information, Communication & Society, 22(6), 808–822. doi: 10.1080/1369118x.2019.1577477

Stanton, Brandon [@humansofny] (2020, April 4). [A Mother Describes Acts of Love From Her Neighbors]. Retrieved from https://www.instagram.com/p/B97IYhuHtmm/

Stanton, Brandon [@humansofny] (2020, March 15). [Message about Quarantine Stories]. Retrieved from https://www.instagram.com/p/B9w1J-NnobC/

Stanton, Brandon [@humansofny] (2020, March 19). [Three Sisters Remember Their Mother in India]. Retrieved from https://www.instagram.com/p/B97IYhuHtmm/

Taylor-Powell, E., & Renner, M. (2003). Analyzing Qualitative Data. Madison, WI: University of Wisconsin - Extension.

Vaynerchuk, G. (2019, March 18). How to Tell a Story on Social Media. Retrieved from https://www.garyvaynerchuk.com/how-to-tell-a-story-on-social-media/

APPENDICES

APPENDICES-THE COVID-19 CRISIS FROM THE STANDPOINT OF HEALTHCARE WORKERS AND THEIR FAMILIES

Appendix A: Interview Questions

What:
- Overarching topic: How has the pandemic affected healthcare workers and those that are closest to hem, both from a physical and mental standpoint.
- With these interviews, I would like to cover how healthcare workers are experiencing the pandemic, how their job and homelife have changed and more. Although there are many negatives in such a situation, there are many triumphs as well. I would like to cover it all by just letting workers and their families talk. However, I will use these questions to guide the interviews, but if the interviewee is telling a story, I will not interrupt to try and get back on track with the interview. While it is important to understand the impact the pandemic has had on them, it is equally important to provide a space where they are simply allowed to talk about their day or any other topic they would like.
Who:
- Family members or friends of those who are health care workers
- Healthcare professionals working on the frontline
How:
- Zoom, FaceTime (those that I know personally), other similar platforms
- Hopefully I'll be able to type as they talk and I'll try to go slow with the questions
- If needed, email interviews under special circumstances

For those that live with a person that works in the healthcare field:
Introduction:
Hi, my name is Jillian Spera and I am currently working on a social science project at my school, Worcester Polytechnic Institute (WPI). This is part of the junior year curriculum and since the outbreak, our project center has chosen to focus on the current COVID-19 or coronavirus outbreak. I have many friends and family members that are currently working in the healthcare or medical field or know someone that is. After receiving many personal accounts about what it is like to know or be someone on the frontlines, I have chosen to focus my research on how the pandemic affects those that have a loved one or close friend working in the healthcare field, in regards to both the mental and physical tolls it can have on the people closest to those that are the heroes of the pandemic.

For healthcare workers

Introduction:

Hi, my name is Jillian Spera and I am currently working on a social science project at my school, Worcester Polytechnic Institute (WPI). This is part of the junior year curriculum and since the outbreak, our project center has chosen to focus on the current COVID-19 or coronavirus outbreak. I have many friends and family members that are currently working in the healthcare or medical field or know someone that is. After receiving many personal accounts about what it is like to know or be someone on the frontlines, I have chosen to focus my research on how the pandemic affects those that are working closely with patients, both the mental and physical tolls it can have on them that is. Your participation in this study is voluntary. If you agree to participate you will take part in an Interview. Your identity will be kept confidential if you wish. Do you consent to WPI using quotes or audio recordings produced during this interview? Please clearly mark which of the following that you consent to being used:

.❑ Quotes

❑ Audio Recordings

I, _____, consent to the above being used in:

❑ WPI Documents

❑ WPI Research Papers

❑ WPI Video Presentations and Other Media

Signed_____   Date_____

1. How are you today?
2. What is your job title or what do you do?
   a. What does this entail or what are your duties?
3. How has the pandemic changed your job, if at all?
   a. Do you have any new duties that you didn't have before? Any new or different procedures?
4. Would you be able to share a little of what you may do on a daily basis?
   a. For example, what type of patients do you work with?
5. What are your thoughts on the coronavirus pandemic? How do you feel about it?
6. How has this pandemic affected you, personally?
   a. Do you live with other people? Have you had to stay away from them? How do you go about doing this if so?
   b. I understand that most healthcare professionals are under a lot of stress. Is this the case for you as well? Why or why not?
   c. Are you worried about your own health? Would you be willing to share why or why not?
   d. Would you mind saying how you are coping with the whole situation?
7. This is a loaded question, and if it's too personal you do not have to share, but has it had an affect on you, emotionally? In what ways?
8. Are there any aspects that have inspired you or helped raise your spirits?
9. Is there anything that those of us that are not working right now can do to help?

Your participation in this study is voluntary. If you agree to participate you will take part in an Interview. Your identity will be kept confidential if you wish. Do you consent to WPI using quotes or audio recordings produced during this interview? Please clearly mark which of the following that you consent to being used:

❑ Quotes
❑ Audio Recordings
I, _____, consent to the above being used in:
❑ WPI Documents
❑ WPI Research Papers
❑ WPI Video Presentations and Other Media

Signed_____   Date_____

1. How are you today?
2. How do you feel about the pandemic?
3. For the purposes of this recording, would you mind stating your relation to the person you live with who works in the healthcare field?
    a. What does this person do (ie. doctor, nurse, etc.)
4. What is this person like as an individual? Any funny stories you have of them?
5. What are the differences with this person now compared to before the outbreak? Does s/he have new habits or protocols?
    a. What are some of the difficulties? If so, how are you dealing with it?
6. What are some of your worries? Are you apprehensive about what could happen to them at their job? What about it?
7. Are there any new habits you are noticing in (person's name)? What are these habits? Did (person's name) have any habits before? What were they?
8. Have you seen a change in any way, behavior or otherwise, of this person that is working in the healthcare field? How so?
    a. Would you be willing to describe in a bit more detail what some physical changes you have seen in this individual are?
    b. How is s/he holding up emotionally?
9. Have you noticed any physical or emotional changes in your own behavior?
    a. What is the biggest impact, if any, that you have noticed?
    b. Is there anything you are doing to cope? Would you mind explaining a little?
10. Based on what you have seen or heard, is there anything that people that are not currently working in the healthcare field can do to help?

APPENDICES- THE IMPACT OF THE COVID-19 PANDEMIC ON NURSING STUDENTS
Appendix A

Introductory

What school do you go to?

How do you like it?

What is the specific degree that you're pursuing?

Do you have a concentration within nursing that you favor?

What sort of clinical work have you done in the past?

Are you currently working or volunteering at a health care facility?

If so, what kind of facility is it?

Responsibilities

What are your roles and responsibilities at your facility during the pandemic?

How have your responsibilities changed over the past few weeks?

How are you being supervised?

Describe a typical day for you starting from before you get to work until you get home.

How many patients at your facility have tested positive, and do you work with them in close contact?

What kind of training/orientation/requirements did you need before working with coronavirus positive patients?

How would you describe the attitudes of the patients you are working with?

What kind of precautions and protocols is your facility taking in terms of preventing spread or the virus and allocating personal protective equipment?

Was it your choice to work during the pandemic? If so, what factors influenced you to make your decision?

Attitudes or Emotions

What were your initial emotions and thoughts when beginning work?

Since the beginning of the pandemic, how have you seen changes to your clinical environment? Can you reflect on a moment when you realized the changes from then to now?

How do you think the pandemic has affected your nursing education?

From your nursing classes or clinicals, what do you think has prepared you the most for working during this health crisis?

What have you felt most unprepared for?

What have you felt are the most rewarding moments of working in health care? Can you explain a recent experience where you've felt inspired as a future nurse or hopeful through the pandemic?

What do you think is the most important lesson you've learned so far?

Can you explain how your perspective on nursing as a future career changed since the beginning of the COVID-19 outbreak?

Concluding Remarks

What are three words that you think describe working as a nurse during a global pandemic.

What advice do you have for the public and what can we do to help?

Are there any questions I missed or is there anything else you would like to reflect on?

APPENDICES - MODIFYING MEDICINE: HOW THE COVID-19 PANDEMIC HAS ALTERED PATIENT CARE AND MEDICAL WORKER EXPERIENCE
Appendix A: Interview Protocol

Considerations:

In order to find participants to be interviewed, I posted an interview request to a large sample pool of individuals who met certain criteria. The criteria for respondents was the following:

1. Must be a healthcare professional (i.e. doctors, physician's assistants, nurses, technicians, etc.).
2. Must be employed in a specialty area other than critical care or emergency.

This was to ensure that all those who are interviewed are not those whose duties would normally require them to work at the frontlines with COVID-19 patients. These criteria were clearly stated when the interviews were requested.

Biases:

To avoid implicit biases, I tried not to include any leading questions that would be framed to obtain any one specific result.

Validity:

By obtaining participants through public posts on my Facebook page, I attempted to obtain a diverse sample of responses from different health care workers in varying specialties and with varying professions.

When I posted the interview request to my Facebook timeline, I asked for professionals in my community to reach out to me and schedule a date and time to conduct the interview. The post was made public, and I asked that those on my friends list share the post with their own communities and send it to anyone they knew who also fit the criteria. I also posted this interview request in each of the WPI class Facebook pages and asked if anyone had friends or family members who fit the criteria and if so to send the request to those people as well to schedule an interview with me.

I conducted these interviews partially over zoom and mainly over telephone call. With permission from the participant, I recorded these interviews. These were semi-structured interviews, with the main objective being the collection of personal stories from these medical workers regarding their experiences during this pandemic.

Post to Find Participants:

For my personal Facebook Page:

"Hello friends, family members, and members of my community. I am currently conducting interviews for a large research project with the goal being to understand how medical professionals working in specialist fields are facing changes caused by the COVID-19 pandemic. In addition to understanding

how this pandemic may be forcing medical professionals to change their roles and responsibilities, I am interested in learning about their own personal and unique experiences during this time. As such, I am trying to find individuals to participate in an informal interview of about 30 minutes. The responses can be kept anonymous, and I am interested in hearing from individuals at any level of health care work (nurses, doctors, technicians, etc.), as long as their typical duties do not include treating critical care or emergency patients, such as those currently being hospitalized with COVID-19. If any of you fit those criteria and would be willing to participate in a brief interview, I would really appreciate it! I also have made this post public, so if you could share it with your own connections and any others that fit these criteria, that would be extremely helpful for my research. It is my hope that my findings can lead to greater public understanding of how this pandemic has affected those working in specialist medical fields. If anyone has any questions or would like to set up a date and time for an interview, please feel free to message me personally. Thank you!"

For posting in the WPI Facebook Pages:
"Hello friends and members of the WPI community. I am currently working on my IQP, and the focus of my project is to understand how medical professionals working in specialist fields are dealing with the COVID-19 pandemic. In addition to understanding how this pandemic may be forcing medical professionals to change their roles and responsibilities, I am interested in learning about their own personal and unique experiences during this time. As such, I am trying to find individuals to participate in an informal interview of about 30 minutes. The responses can be kept anonymous, and I am interested in hearing from individuals at any level of health care work (nurses, doctors, technicians, etc.), as long as their typical duties do not include treating critical care or emergency patients, such as those currently being hospitalized with COVID-19. If any of you fit those criteria and would be willing to participate in a brief interview, I would really appreciate it! If you could also share this with your own communities and any others that fit these criteria, that would be extremely helpful for my research. It is my hope that my findings can lead to greater public understanding of how this pandemic has affected those working in specialist medical fields. If anyone has any questions or would like to set up a date and time for an interview, please feel free to message me personally. Thank you!"

Interview Introduction/ Consent Script:
"Hello, my name is Sarah Huber and I am a junior biology and biotechnology student at Worcester Polytechnic Institute. I am currently completing my Interactive Qualifying Project, which is focused on understanding the widespread social and humanistic implications of the COVID-19 pandemic as we are currently experiencing it. My specific focus for this project is learning about the changes to roles and responsibilities of medical workers whose normal roles do not include working in critical care or emergency medicine with patients like those who have COVID-19. I was wondering if I could record this interview so I can accurately record your responses. If you would prefer, I can simply take notes instead. If I have your permission, would I be able to use clips from this interview in an audio compilation as a deliverable for my project? If not, that is okay as well. Could I quote you directly in my final report? If so, the quotes could be kept anonymous if you would prefer. The final report and deliverables will be available online, and I can email you a copy when I finish my work as well if you'd like. If at any time you do not wish to answer any question let me know and we can move on. Thank you in advance for doing this. Do you have any questions before we begin?"

Interview Questions:
This was the initial list of interview questions, but since the interviews were set to be semi-structured in nature, not all of these questions were asked to all of the respondents.

- Can you explain to me a little bit about what your daily routine at work was like before this pandemic? What type of patients you treat, what your specific responsibilities are on a day to day basis, etc.?
- Can you explain how your daily routine has shifted during this pandemic in terms of changes to individual and collective responsibilities?
    - What skills have you had to draw on as a result of this change and transition?
    - Did you feel prepared for this transition? If yes, why did you feel prepared? If no, why not?
    - If you could express your feelings towards this change how would you and why?
    - *If participant indicates that this transition involves using telemedicine:*
        - What is the most difficult about assessing your patient remotely?
        - What does a typical decision-making process look like in terms of when the risk of coming into the office and contracting COVID is considered less than the risk to the patient's immediate health and it would be best to have them come into the office?
- Since you have been employed in this role, have you had to deal with any other pandemic or large-scale health crisis (e.g. the 2003 SARS outbreak, the 2009 H1N1 pandemic, Ebola, etc.)?*
    - If yes, how have your experiences with the COVID-19 pandemic been different from your experience with previous pandemic(s)?
        - How has this previous experience prepared you (or not) for the current pandemic?
- In my background research, I found statements from the American College of Surgeons detailing guidelines and recommendations for when postponing elective treatments would be necessary. Has your office had to cancel a lot of procedures? If so, what did this decision-making process look like?
**
    - What is the most difficult part of this decision-making process?
    - Where is that line drawn to where it seems necessary to not postpone a procedure and have the patient come into the office?
- Have you seen a change in your patient's behavior during this time? If so, could you please describe what that looks like? For example, are patients canceling appointments or procedures more frequently?
- Have you found that your patients are coming to you for advice about the pandemic as well as the typical questions or concerns you are used to addressing in your specialty? If so, how do you respond to these questions or concerns?
    - How do you stay up to date on information about this pandemic?
    - Does the information you have received on the pandemic make you feel prepared in addressing patient concerns regarding the pandemic?
- Do you think that you may one day be asked to treat COVID-19 patients if the pandemic gets worse in the future?
    - If so, how would you prepare for this?
- What is the most difficult part about working in your profession during this pandemic?
- Is there anything else you would like the public to know about what it's like working in the medical field during this time?

*This question was only asked to those who I knew were old enough to have had the possibility to be employed during the most recent pandemic prior to this one.

**This question was only asked to those who indicated that their typical roles included surgeries or other procedures of that nature.

Interview Conclusion:

 "I really appreciate you taking the time to talk with me today. Is there anything you'd like to talk more about or that you think I may have missed in the interview? Thank you for your time. If there is anything else you think of that you would like to add, you can reach me at srhuber@wpi.edu."

APPENDICES- LEHR UND KUNST: A THEORY & PRACTICE APPROACH TO 3D PRINTED PERSONAL PROTECTIVE EQUIPMENT

Appendix A: Interview Protocol

Healthcare Workers Initial Interview Questions

Brief Introduction: Hello my name is Hannah Gallagher and I am a student from Worcester Polytechnic Institute. This term I am working on conducting a research project that focuses on the effect the coronavirus is having throughout hospitals. Through this project I intend to not only understand the needs of healthcare workers but also help to create equipment through 3D printing. I'd love to discuss with you about your experience as a healthcare worker and the current atmosphere you are working in.

- These past few weeks I'm sure have been very difficult, how are you holding up?
- What is your role as a healthcare worker?
- What hospital or medical center do you work at?What are the current conditions like at the hospital or medical center you work at?
- How has the shortage of PPE affected you has a healthcare worker?What in particular is your hospital low on?
  - Face shields, ear guards, N95 masks etc.
- What designs do you prefer for the face mask and the ear guards?
  - (I will show them pictures)
- What keeps you positive during such a unique yet overwhelming time?

Healthcare Workers Follow Up Interview Questions

Brief Introduction: Hello my name is Hannah Gallagher and I am a student from Worcester Polytechnic Institute. This term I am working on conducting a research project that focuses on the effect the coronavirus is having throughout hospitals. Through this project I intend to not only understand the needs of healthcare workers but also help to create equipment through 3D printing. I'd love to discuss with you about your experience as a healthcare worker and the current atmosphere you are working in.

- How are you doing?
  - Touch base after we last discussed or met
- Has the supplies been helpful to you as a healthcare worker?
- What was your experience using the face shield?
- What was your experience using the ear guards?
- Do you have any recommendations for me?
- Will you need supplies in the future?
  - What are the items and quantities?
  - When do you need them by?
- How do you stay positive during these times?

Appendix A: Interview Protocol

Engineers and 3D Printing Experts Interview Questions (WPI staff)
Brief Introduction" Hello my name is Hannah Gallagher and I am a student from Worcester Polytechnic Institute. This term I am working on conducting a research project that focuses on the effect the coronavirus is having throughout hospitals. Through this project I intend to not only understand the needs of healthcare workers but also help to create equipment through 3D printing. I'd love to discuss with you about your experience in 3D printing

- What has WPI done so far and how have they utilized 3D printing technology to help combat the coronavirus?
- What designs have worked best with 3D printing equipment?
- In particular for face shields, masks, etc.
  - Are these designs approved by healthcare workers/ the FDA?
- What is the most efficient way to produce equipment?
- Are there designs that use less material?
  - What materials are you using?
  - What advice do you have to someone who just recently started producing equipment?
- Are there other ways that engineering can be used to help replenish the supplies throughout hospitals?
  - Are there any methods that don't use 3D printing?
    - Do you have any ideas yourself?
- What resources do you use to help stay up to date with design changes and hospital demands?
  - Do you have a network of engineers?
  - How do you know what hospitals need equipment?

Appendix B

Material	Cost per Package	Quantity
Ender 3 3D Printer	$360	1
PLA	$25 (per roll)	2 Rolls (1000 grams)
Elastics	$3.90	100 Elastics
Transparency Sheets	$54.92	100 Sheets

Appendix C: Ear Guard Breakdown

	Ear Guard
PLA Amount Used	4 grams
Time Per Guard	22 minutes
Cost per Guard	.10 cents
Overall Amount Created	~200
Overall Cost	$20.00

Appendix D: Face Shield Breakdown

Material	Design 1	Design 2	Design 3
Brand	Stratasys	Prusa	DtM
PLA Amount Used	29 grams	21 grams	50 grams
Time Per Shield	2 hours 26 minutes	1 hours 59 minutes	3 hours 15 minutes
Overall Amount Created	35	1 (only for testing)	2 (only for testing

Appendix E: Donation Tracker

Organization/ Person	Location	Date Donated	Supplies Donated	#
Erik Garcia	Worcester, MA	4/10/20	Ear Guards	30
Erik Garcia	Worcester, MA	4/10/20	Face Shields	25
Keira Coulard-Smith	Gardiner, New York	4/22/20	Ear Guards	10
Kiersten Hoglund	Londonderry, New Hampshire	4/22/20	Ear Guards	20
Lauren Hillard	Boston, MA	4/20/20	Ear Guards	20
Evelyn	Boston, MA	4/23/20	Face Shields	4
Julia Tatone	Lowell, MA	5/7/20	Ear Guards	4
Emily Stead	Leicester, MA	5/7/20	Ear Guards	2
Emily Crisfulla	South Kingstown, RI	5/7/20	Ear Guards	20
Emily Crisfulla	South Kingstown, RI	5/7/20	Face Shields	6

Appendix F: Printer Settings

Setting	Values	Definition
Layer Height	.3 mm	the exact height of each layer of plastic extruded, cured, or sintered by a 3D printer
Nozzle Speed	62 mm/s	The speeds of the nozzle as it travels to create an object
Bed Temperature	75 degrees Celsius	The temperature of the bed at which the object lays upon. The greater the temperature the higher the adhesion
Travel Speed	155 mm/s	How fast the nozzle travels when it is not dispelling material

Appendix G: Online Resources

Website/Software	URL(s)	Purpose
GrabCad	General URL: https://grabcad.com/dashboard Design 1: https://grabcad.com/library/face-shields-with-3d-printed-visors-1	Engineers can create designs and upload them on this website. Where I found Design 1 and read feedback.
Thingiverse	General URl: https://www.thingiverse.com/ Ear Guard Design 1: https://www.thingiverse.com/thing:4249113?fbclid=IwAR0qShS5ELtPJ3PN-_1RDZNVysKqLXfkXpeMa3lO9n3qs-ixPROZ15yDun4 Ear Guard Design 2: https://www.thingiverse.com/thing:4271434	Engineers can create designs and upload them on this website. This is where I found the ear guard design.
Cura	https://ultimaker.com/software/ultimaker-cura	Helps transfer the design files to the 3D printer and you can adjust settings to the 3D printer through this software.

APPENDICES - STUDENT ATTITUDES TOWARDS COLLEGE AND UNIVERSITY COVID-19 RESPONSES
APPENDIX A - INTERVIEW PROTOCOL

Considerations:
I will conduct interviews either over zoom or the phone, depending on what the student is most comfortable with. With permission from the student, the interview will be recorded in order to be quoted in the final report and/or used in deliverables such as a video. These will be semi-structured interviews with the intent of gaining in-depth information on their personal attitudes and experiences with their school's response towards the COVID-19 pandemic.

Biases:
To avoid implicit biases, I will ensure that the questions asked are not leading questions that are framed in a way to obtain any specific result. While the interview will be semi-structured, I will ensure that all questions asked will be focused on the personal experience of the student.

Validity:
Students will be chosen to be interviewed on a volunteer basis. I will invite students that I know who are currently attending a college or university affected by COVID-19 to be interviewed.

Interview Invitation:
"Hello [personal contact's name]! I am currently conducting interviews for a research project with the goal being to understand college student attitudes towards their school's COVID-19 response and how these attitudes may change throughout the current pandemic. As such, I was wondering if you were interested in being interviewed and sharing your personal experience. This will be an informal interview of about 30-45 minutes. Your responses can be kept confidential if you wish. Also, if you know of any other college students that would want to be interviewed to share their experience, please share this with them! If you have any questions please don't hesitate to ask! Thank you!"

Preamble:
"Hello, my name is Olivia Hauber and I am a junior at Worcester Polytechnic Institute studying civil engineering. I am currently conducting my junior year project researching student attitudes towards their college or university's response to the COVID-19 pandemic and how they may change as the pandemic progresses. I am asking to interview you to gain insight into the personal experiences of students like yourself and to better understand your attitude towards your school's response. I was wondering if I could directly quote this interview in my final report? This could be done by using your full name, just a first name, or confidentially, whichever you prefer. My final report and deliverables will be available once the project is completed in mid-May if you would like a copy. I was wondering if I could record this interview for future reference for my research? I can also take notes instead if you prefer. [If permission to record the interview is granted: Do I also have your permission to use clips from this interview in a video for my project? If not, that is completely fine.] If you need to stop at any time or do not wish to answer a specific

question just let me know! Thank you in advance for helping me! Do you have any questions before we begin?"

Interview Questions*:

1. What is your name?
2. What college/university do you attend and what is your year of graduation?
3. Can you give me an idea of what a typical day of college life was like for you before COVID-19, say in January or February?
    a. Did you live on or off-campus?
    b. Did you have a part-time job?
    c. What did your course load look like?
    d. How often did you spend time with friends and what would you guys do?
    e. What are you involved in on-campus outside of classes (clubs, sports, Greek Life, etc.)?
4. What was this semester/quarter/trimester meant to look like for you?
    a. Were there any big events that you were looking forward to?
5. How closely were you following news about COVID-19 before your school responded to it?
    a. What were your concerns as the virus moved throughout China and Europe?
    b. What did you think would happen here in the US?
    c. Did you begin taking precautions to help slow the spread of the virus?
6. Since the COVID-19 outbreak, have you moved home or kept living at school?
    a. What are the biggest differences you've found between living and working on-campus and being home? **
    b. What are some of the biggest things you miss about being on campus?
7. What was your school's response to COVID-19?
    a. Do you remember when this response was announced?
    b. How did you first find out your school's initial response to COVID-19 (email, webpage, etc.)?
8. Were you expecting/anticipating this response? Why or why not?
9. How would you describe your initial feelings when you found out your school's response to COVID-19?
    a. What emotions were you feeling during this time?
10. When you found out your school's response, was there a rationale given along with it to explain why they made this decision?
    a. Do you think this affected your attitude towards their response?
11. Has your school provided any expansion on their rationale in the weeks since their initial response?
    a. Has this changed your opinion of their response in any way?
12. How much communication has your school had about their response? For example, did you only hear about their initial decision or has the school been keeping students updated throughout their decision-making process?
    a. Have you found this communication to be helpful, timely, inclusive, or not?
    b. Has this communication elicited any sort of emotional response from you?
        i. Have you found that the school expressed sympathy for students or were their responses more blunt and to the point?
13. To your knowledge, what factors influenced your school's decisions related to COVID-19?

14. In what ways do you think your school made the right decision?
    a. How much transition time were you provided from knowing that classes were going to be remote and when classes [began/resumed]?
        i. Was there enough transition time for the students and the professors to figure out how to use remote learning tools like zoom?
    b. Were you provided any refunds for housing, tuition, student life fees, etc.?
    c. Were you given the option to choose a pass/fail grade for courses or projects that were now being provided remotely?
15. Has your attitude towards your school's response changed as the pandemic has progressed? If so, how and why?
16. When did you find that your opinion of your school's response changed? ***
17. Did this change in attitude come as a result of statements made by your school, the progression of the pandemic, or something else? ***
18. Is there anything your school could have done differently that would change your attitude towards their response, either for better or for worse?
    * These questions are subject to change by interview as are semi-structured.
    ** This question will only be asked to students who moved home.
    *** This question will only be asked to students who indicated a change in attitude towards their school's response.

APPENDIX B - Timelines of College and University Responses to COVID-19
*The timelines were created using each school's COVID-19 response web pages, Finlaw, 2020, and The Associated Press, 2020

BRYANT UNIVERSITY'S RESPONSE TO COVID-19

REMOTE LEARNING
BEGAN
3/17/2020

NONESSENTIAL BUSINESSES
CLOSED BY GOVERNOR
3/28/2020

PASS/FAIL GRADING
OPTION INTRODUCED
4/17/2020

PASS/FAIL GRADING
OPTION DEADLINE
5/20/2020

3/10/2020
BRYANT REMOTE UNTIL
MARCH 27

3/26/2020
BRYANT REMOTE UNTIL
APRIL 17

4/17/2020
BRYANT REMOTE REST
OF SEMESTER

4/17/2020
ROOM AND BOARD
REIMBURSED

OLIVIA HAUBER
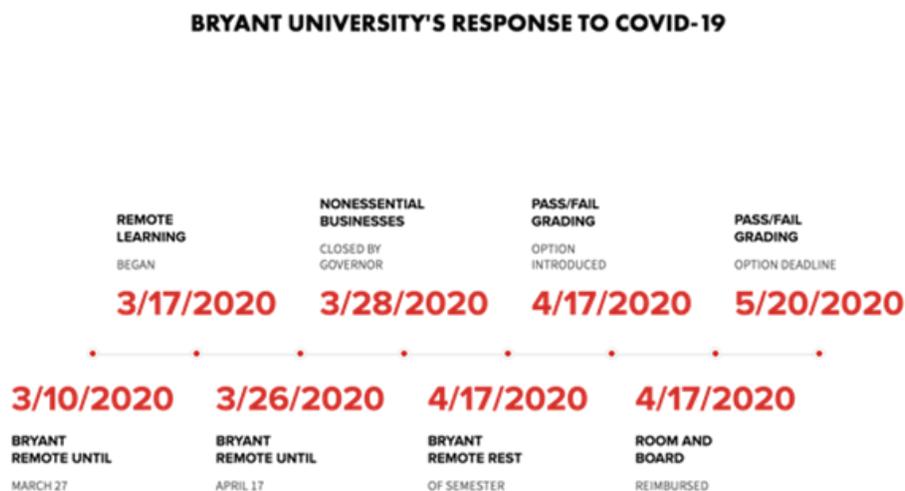
MANHATTAN COLLEGE'S RESPONSE TO COVID-19

REMOTE LEARNING BEGAN
3/11/2020

ROOM AND BOARD
REIMBURSED
3/19/2020

PASS/FAIL GRADING OPTION
INTRODUCED
3/30/2020

3/9/2020
COLLEGE REMOTE UNTIL
MARCH 30

3/17/2020
COLLEGE REMOTE REST OF
SEMESTER

3/20/2020
NONESSENTIAL BUSINESSES
CLOSED BY GOVERNOR

6/15/2020
PASS/FAIL GRADING OPTION
DEADLINE

SYRACUSE UNIVERSITY'S RESPONSE TO COVID-19

SYRACUSE REMOTE
REST OF SEMESTER
3/16/2020

PASS/FAIL DEADLINE
EXTENDED TO APRIL 3
3/18/2020

REMOTE LEARNING
BEGAN
3/23/2020

PASS/FAIL DEADLINE
EXTENDED TO APRIL 10
4/1/2020

3/10/2020
SYRACUSE REMOTE
UNTIL MARCH 30

3/16/2020
STUDY ABROAD
PROGRAMS ENDED/CANCELED

3/20/2020
NONESSENTIAL BUSINESSES
CLOSED BY GOVERNOR

3/24/2020
HOUSING AND DINING
REIMBURSED

4/10/2020
PASS/FAIL DEADLINE

WPI'S RESPONSE TO COVID-19

WPI REMOTE UNTIL
APRIL 10
3/11/2020

HOUSING AND DINING
REIMBURSED
3/18/2020

REMOTE LEARNING
BEGAN
3/25/2020

STUDENT LIFE FEE
REIMBURSED
4/1/2020

3/4/2020
D-TERM IQP'S
CANCELED

3/18/2020
WPI REMOTE REST OF
D-TERM

3/23/2020
NONESSENTIAL BUSINESSES
CLOSED BY GOVERNOR

3/27/2020
PASS/FAIL GRADING
OPTION INTRODUCED

5/21/2020
PASS/FAIL DEADLINE

OLIVIA HAUBER

APPENDICES - THE EFFECT OF THE CORONAVIRUS PANDEMIC ON COLLEGIATE ATHLETES

APPENDIX A - ATHLETE INTERVIEW PROTOCOL

Interview with:

Date:

Time:

Location:

Attendees:

Introduction:

Hello _____, I'm Amanda, a junior on the WPI volleyball team and I am currently working on my IQP [for athletes who don't go to WPI: The IQP is a social science project everyone at WPI completes junior year]. The goal of my project is to determine how athletes are emotionally affected by the cancellation of sports and how they are coping during the pandemic. The purpose of this interview is to hear your story and experiences. With your permission I would like to record this interview to potentially use video or audio clips from it, however if you prefer that I do not that is no problem and I'll continue by taking notes. If at any point in the interview you don't feel comfortable answering a question just let me know and we can move on to the next one. Do you have any questions for me before we start?

Interview Questions:

1. How long have you been playing your sport?
2. What do you enjoy most about playing your sport?
3. Why are sports important to you?
4. What were your individual and team goals or aspirations for this season?
5. In what ways was your sport affected by the cancellation of athletics due to the pandemic?
6. What were your initial feelings when you learned about the NCAA cancellations?
   a. Why did you feel this way?
7. How have those feelings changed since then?
8. What do you feel like you are missing out on most by not being on campus and playing your sport?
9. If you were on campus now, how much time would you be putting into your sport?
   a. If they would be out of season -> how much time do you put into your sport during the season.
10. How are you coping with not being able to participate in your sport?
    a. Have you developed any new interests now that you don't have to focus all of your time on sports?
11 How are you staying connected to your sport during this time?
12. If you could give advice to the underclassmen on your team after going through this experience what would it be?
13. What have you learned from this experience?
14. Do you know anyone that you would recommend I talk to?

*These questions are subject to change by interview as they are semi-structured

Conclusion:

Thank you so much for meeting with me today! Do you have any questions for me or information you think I would find valuable that I did not ask about? Would it be possible for you to send me a picture of you playing your sport? I would love to be able to quote you in my report however any information you provided me can be quoted as anonymous if you prefer. I can send you a copy of the interview transcript if you would like. If you think of any other questions or want to contact me for any reason my phone number is (605)759-1113 and my email is amwetmore@wpi.edu.

APPENDIX B - COACH INTERVIEW PROTOCOL

Interview with:

Date:

Time:

Location:

Attendees:

Introduction:

Hello _____, I'm Amanda, a junior on the WPI volleyball team and I am currently working on my IQP [for non-WPI coaches: The IQP is a social science project everyone at WPI completes junior year]. The goal of my project is to determine how athletes are emotionally affected by the cancellation of sports and how they are coping during the pandemic. The purpose of this interview is to get a coach's perspective on the current situation. With your permission I would like to record this interview to potentially use video or audio clips from it, however if you prefer that I do not that is no problem and I'll continue by taking notes. In addition, any information you provide me can be quoted as anonymous if you prefer. If at any point in the interview you don't feel comfortable answering a question just let me know and we can move on to the next one. Do you have any questions for me before we start?

Interview Questions:

1. How long have you been coaching?
2. What do you enjoy most about coaching?
3. What were your individual and team goals for this season?
4. In what ways was your sport affected by the cancellation of athletics due to the pandemic?
5. What were your initial feelings when you learned about the NCAA cancellations?
   a. Why did you feel this way?
6. What was the overall feeling or atmosphere when yourself and the team found out?
7. From what you are experiencing with your team, how do you think student-athletes are affected physically and emotionally?
8. How are you keeping yourself busy now that you can't put all your efforts into coaching?
9. How are you staying connected with your team?
10. How do you think this pandemic will affect yourself and your team moving forward and in the future?

APPENDICES - DOCUMENTING THE DIFFICULTIES THAT WPI STUDENTS FACED AMIDST THE COVID-19 CRISIS AT HOME

APPENDIX A - INTERVIEW PROTOCOL

The goal of these interviews is to document the difficulties WPI students have been facing during the COVID-19 Pandemic. Through these Interviews I hope to draw out themes among challenges students are facing. I will Interview participants twice. The first time will be as soon as possible. The second round of Interviews will happen with the same students as necessary.

Passage below to be read to interviewee:
Thank you for taking the time to meet me. I am a student at Worcester Polytechnic Institute (WPI) in Massachusetts, working with other WPI students to document the COVID-19 pandemic from a variety of perspectives and approaches. In my research, I am documenting the difficulties a sample of WPI students living at home are facing during this time. The goal of these documentations will be to draw out common themes of challenges students are facing to learn from our response to the COVID-19 Pandemic.
Do you consent to having your identity disclosed?❏ Yes❏ No
Do you consent to me using quotes, audio recordings, or photos produced during this interview in my IQP report? Please clearly mark which of the following that you consent to being used:❏ Quotes❏ Audio Recordings❏ Photos
I, _____, consent to the above being used in:❏ WPI Research Papers❏ WPI Video Presentations and Other Media
Signed……………………………………… Date………………………

1. A lot of things have changed in the last month in how students study, where we eat, how we interact with people and ultimately how we all live our lives. Can you take me through a typical day in quarantine.
   a. What are some of the biggest changes that you've faced during this transition?
   b. How has it affected your daily life?
   c. Have you had difficulty adjusting to this change or has it been easy for you?
   d. What are some of the ways in which you procrastinate
2. Tell me a little about the pictures you took.
   a. How do they highlight your life in quarantine?
   b. What makes this picture important to your life right now?
   c. More specific question based on picture
3. Do you see a change in the dynamic of your experience with your family?
   a. Do you see yourself parenting their parents?
   b. Do you think other members of your family are being overly cautious?
   c. Do you feel like other family members are prying into your school life?
4. How are your classes going?
   a. Is it any easier or more challenging for you to be doing schoolwork remotely?
   b. If so, what are some of the challenges you are facing?
   c. Tell me more, about why that makes it more challenging.
   d. If not have you made changes in your study habits compared to before the Crisis.
5. How do you think the change in living situation has affected your ability to learn?
   a. How does it feel being home all the time with your family?
   b. Do you leave the house for anything? If so, what.
6. How does your physical activity compare to that of before the Coronavirus ?
   a. Why are some challenges you face with staying active if any?
7. The CDC and WHO originally recommended that people all around the world practise "Social Distancing", which they recently rephrased to "Physical Distancing". Staying physically apart can make it difficult to stay connected with people we are close with.
   a. How does your social circle now compare to that of before the Crisis?
   b. What are some of the new ways in which you are staying connected to people
8. Have you developed any new hobbies during your time in isolation?
   a. If not, have you built on any of your existing hobbies?
9. Have you noticed or experienced any silver linings during the COVID-19 Crisis?
   a. Why is that important to you?

APPENDICES - EFFECT OF SOCIAL MEDIA AND THE INTERNET ON COLLEGE-AGED FRIENDSHIPS DURING THE PANDEMIC

APPENDIX A - INTERVIEW PROTOCOL

Date:

Time:

Interviewee:

Preamble: Hey! How are you doing? [Pause for response] Obviously I know who you are, but for the sake of the interview could I have you briefly state your name, where you go to school, and what year you are? [Pause for response] And my name is Connor Skinner. I'm currently a Junior at WPI working on my junior year social science project. For my contribution to the project I'm investigating access to social media and the internet during the pandemic has changed the dynamics of people's friendships. Now, with your permission, I'd like to record this interview so I can later transcribe parts of it or use audio clips. Is that something you'd be comfortable with? If not I can always rely on just my notes. [Pause for response]. Awesome! Are there any questions you have for me before we get started?

Interview Questions:

1. How are you doing?
2. What are you doing to keep busy during the quarantine?
3. In what ways has your social media use changed now that you're at home all day?
4. How has the way you view social media changed now that you have to stay isolated?
5. When was the last time you got to see your friends in person?
6. How have you been staying in touch with the friends you can't see anymore?
7. Traditionally, what do you look for in someone you consider a friend? This could be personality traits, or what you would expect of someone you consider a friend
8. How has what you expect of friends changed during the pandemic?
9. What is your experience with making friends online or through social media?
10. Do you have different expectations for friendships formed online, and if so, how are they different?
11. What unique challenges have you noticed in maintaining friendships solely through the internet?
12. How do you feel that this isolation experience may affect your friendships when life returns to normal?

APPENDICES - THE ROLE OF VIDEO GAMES IN THE COVID-19

APPENDIX A - INTERVIEW PROTOCOL

Introduction: Hi, my name is Cameron Walsh and I am currently completing a social science project for Worcester Polytechnic Institute (WPI), as part of my junior year curriculum. After seeing that a lot of my online friends are active more often and witnessing others that I know buy their first video game consoles, I thought it would be interesting to learn about how the role of video games in people's daily lives has changed as a result of the recent pandemic.

Interview questions for avid gamers:

1. How are you doing today?
2. Would I be able to use audio/video recordings of your answers?
3. If you don't mind, could you state your age?
   a. If they are school-age: Are you currently enrolled in classes?
   b. If they are in the working force: Are you currently working from home?
4. Before the outbreak of the coronavirus, how many hours would you say you played video games each week?
5. How many hours per week do you spend playing games now?
6. (If they play more now): Why do you think you play more now?
   a. (If they play less now): Why don't you play as much now?
7. Are there any new games you have started playing because of the pandemic?
   a. If so, what games?
   b. Are any of them free?
   c. If so, which ones?
8. What games have you played the most during the outbreak?
9. Do you play these games alone or with friends?
   a. If with friends, what role does this fulfill? Do you interact differently with friends online rather than in person?
   b. Have you made any new friends online that you play with?
10 Have you played any "serious games" about viruses or pandemics?
   a. If so, what games have you played?
11 If you play an online game, have you noticed a difference in the number of players over the last few weeks?
12 Do you play any games that involve a lot of decision-making?
   a. If so, what's the biggest decision you remember from one of them?
13 Do you play any games that involve a lot of resource allocation or budgeting?
   a. If so, what games?
14 Have you thought about any of the games you've played in terms of the pandemic? (i.e., in the decisions you made, in the resources you allocated, etc.)
   a. If so, how have you related it?
15 At any point during this pandemic, have you felt alone or isolated?
   a. What have you been doing to help feel better/cope with this?

Interview questions for new gamers:
1. How are you doing today?
2. Would I be able to use audio/video recordings of your answers?
3. If you don't mind, could you state your age?
   a. If they are school-age: Are you currently enrolled in classes?
   b. If they are in the working force: Are you currently working from home?
4. Before the outbreak, had you played any video games before?
   a. If so, what games?
5. What video games have you started playing?
   a. Are any of them free?
      i. If so, which ones?
6. How many hours a week do you play them?
7. Do you play these games alone or with friends?
8. What made you want to get more into gaming?
9. Have you ever tried a "serious game" about viruses or pandemics?
   a. If so, what game?
10. Have you played a game that involves a lot of decision making?
    a. If so, what game?
11. Have you ever played a game that involves resource allocation/budgeting?
    a. If so, what game?
12. Once the pandemic is over, do you think you'll still play often?
13. Have you thought about any games you've played in terms of the pandemic?
    a. If so, how?
14. During this pandemic, have you ever felt alone or isolated?
15. What have you been doing to help feel better/cope with this?

Interview questions for non players:
1. How are you doing today?
2. Would I be able to use audio/video recordings of your answers?
3. If you don't mind, could you state your age?
   a. If they are school-age: Are you currently enrolled in classes?
   b. If they are in the working force: Are you currently working from home?
4. Why don't you play video games?
5. Do you have a lot of friends who play?
6. Do they play with other friends?
7. Do they explain what they like about games, or do you understand why they play?
8. Do you think that gaming could be a good way to be connected with friends?
9. Have you ever considered getting into gaming?
10. What have you been doing in your free time during this pandemic?
11. During this outbreak, have you felt alone, isolated or depressed?
    a. Is there anything that you have found that helps you through this?
12. If so, what?

APPENDICES- THE ADJUSTMENT OF SMALL BUSINESS AMIDST THE COVID-19 PANDEMIC

APPENDIX A: SAMPLE INTERVIEW QUESTIONS

1. How long have you been in business for?
2. How did the business get its start?
3. How would you describe your business/client base before the pandemic?
4. How many employees did you have before the pandemic?
5. Have you begun employing less people?
   a. If yes, how has this affected your business?
   b. How did you decide who would stay employed?
   c. Will employees who have been temporarily let go be asked back once this pandemic ceases?
6. What is the most challenging thing your business has faced since people were told to stay home?
7. Have you experienced a decrease in sales at all?
   a. Have sales of specific items increased in any way?
8. How can customers access your services during this time?
9. What is your main form of business advertisement?
10. How do you try to keep your customers coming back?
11. How does social media play any role in your busines?
    a. How much of your advertising is done over social media?
       i. How has the use of social media impacted the amount of business you are getting at this time?
       ii. When was social media introduced into your business?
       iii. Has social media allowed you to experience any community support?
    b. Do you have any difficulty using social media?
12. Have the hours you spend working changed at all?
    a. If hours have decreased, have you experienced any difficulty adjusting to a lifestyle with less commitment to long hours at work?
    b. If hours have increased, how has this affected your personal quarantine?
13. If the quarantine is to last further than expected, how will that continue to affect your business?

APPENDICES- RETURNING TO WORK: CHALLENGES ON THE PRODUCTION LINES

APPENDIX A: SAMPLE INTERVIEW QUESTIONS

1. What is your job title and what does that consist of?
2. Can you explain your work schedule before the Pandemic?
   a. How has your work schedule changed since the pandemic?
3. Before the pandemic how many workers were employed?
   a. Can you explain which workers are furloughed and which workers are considered essential to the company?
   b. What is the current status of the number of people working as of now and what is projected for the future weeks?
4. Have you seen an increase in public demand for firearms because of the pandemic?
   a. How does that play a role with the amount of workers working there at the moment?
5. How are supply lines affected by the pandemic and are they backed up?
   a. How long will the production be backed up with the current demand?
   b. How are supply lines affected by the pandemic and are they backed up?
   c. Are the suppliers international or just the United States?
6. Does Remignton receive any funds from the CARES Act?
   a. Do the workers who were furloughed temporarily receive any funds from the CARES Act?
7. Does Remington have sick leave or any employee benefits?
8. How will the process of starting the company backup full time work?
   a. Are you going to stagger the workers when they can come back on?
      i. Will you be utilizing the facility for night shifts?
   b. Do you feel comfortable with your health and safety as an employee?
      i. Are you guys supplying the employees with gloves and masks to use daily?
   c. How do you determine which employees come back first?
      i. Is it going to be based on experience, job related, or those who are prone to becoming infected?
9. What would need to be done to start that process of producing medical equipment given the fact the factory is a 200 year old factory?
   a. How realistic would that be to produce the medical equipment?
   b. Can you describe the condition of the factory?
10. How is the relationship between the union and management?
11. Do you see certain challenges we face in the community because of the shutdown?
    a. From an economic standpoint?
    b. From a social standpoint?
12. What is the percent of workers at Remington from the village of Ilion?
    a. How does Remington play a role in the community by balancing the safety of the workers while promoting economic growth with the community?

APPENDICES- DETERMINING HOW COVID-19 HAS AFFECTED WORKERS

Constant script
Preamble
Hi ___, my name is Colin Gordon. Thank you for agreeing to ask you questions today about your work life. I am a junior mechanical engineering major at Worcester Polytechnic Institute. I am conducting a research project for school to determine the different perspectives and stories of how workers are adjusting to this new normal during the Coronavirus outbreak.
If it's okay with you, could I get your permission to record this interview on my phone to make sure I capture your responses? If you would rather not, it's perfectly fine, I can just take notes instead. Any information you share with us is completely confidential and will only be used for research purposes with your permission. Do I have your permission to quote you in my final report? If you'd prefer, . I will not identify you by name in any of my writing to make sure the information you share with me is confidential, unless you would like to be quoted. Do I have your permission to use video or audio recordings from the interview in my final report? Again, if you would like to remain anonymous, or not use video or audio recordings that is perfectly fine.

Ending Remarks
That is all the questions that I wanted to ask, if you have anything else you would like to tell me feel free. Thank you for taking the time out of this stressful period to be part of my research! If you have any more questions about my project feel free to ask them now or you can contact me at scgordon@wpi.edu

APPENDIX A: RESEARCH PROFESSOR AT A UNIVERSITY, JOHN

1. How was work before all this happened?
   a. How many grants did you have?
   b. Did you teach many classes?
   c. How often did you go into work?
2. Where there any signs from your office that things would be changing because of the pandemic?
   a. What were they?
   b. Did your school tell you that you had to work from home or was that you and your co-worker's choice?
3. How is your work life doing right now?
   a. Do you have reduced hours or still work a 40-hour week?
   b. With everything going on what are you struggling with in reference to completing work (meeting deadlines, assignment)?In what ways have you had to adapt?
      i. In what ways have you had to adapt?
   c. Being that you have cells and mice that you use for your research, how do you take care of them and do you have to put your research on hold?
   d. Are your coworkers still completing their jobs from home?
4. Do you have any difficulties in focusing while working at home?With your family being around, etc.?
   a. With your family being around, etc.?
5. If this continues what are your future plans?
6. Does your salary continue without interruption?

APPENDIX B: PHOTOGRAPHIC JOURNALIST AT A PRIVATE NEWSPAPER, SARAH

1. What was work life before all this happened?
   a. What was a day typically like for you?
2. Where there any signs from your office that things would be changing because of the pandemic?
   a. What were they?
3. How is your work life doing right now?
   a. I know that you are still working, do you go into work and work in the office or has your office closed?
      i. Do any of your coworker's do that as well?
      ii. Do you have reduced hours?
      iii. Are you struggling in reference to completing work (meeting deadlines, assignments)?
         1. In what ways are you adapting?
         2. Are some of your other coworkers still working as well or are they laid-off?
      iv. How is the newspaper doing with the pandemic going on?
   b. Do you still go out and talk to people for your job?
4. What precautions are you taking when you work?
   a. Are you using protection, or staying away from people?
5. When is your work planning on going back to normal?
6. Are you worried about what may happen to your work in the near future involving the pandemic?

APPENDIX C: A SMALL BED AND BREAKFAST OWNER, MARGRET

1. What was work life before all this happened?
    a. What was a day typically like for you?
    b. How busy at the inn were you?
2. Where there any signs that things would be changing because of the pandemic?
    a. What were they?
        i. Did people start canceling reservations?
            1. Did you have to compensate them?
3. How is your work life doing right now?
    a. Do you have anyone staying with you now?
    b. Do you still have other workers on?
        i. Less hours?
    c. What concerns do you have with you bed and breakfast?
    d. What ways are you changing how you're running the inn?
4. In what ways is the inn struggling financially and what will you have to do to compensate?
    a. How have your workers been handling this situation financially?
5. When this is over, do you have plans for what is next both for yourself and your business?
    a. When do you believe you will be able to reopen fully?

APPENDIX D: AN ASSISTANT MANAGER AT A BED AND BREAKFAST, EMMA

1. What was work life before all this happened?
    a. What was a day typically like for you?
    b. How busy at the inn were you?
2. How is your work life doing right now?
    a. Do you have anyone staying with you now?
    b. What type of work are you currently doing or are you not really working anymore?
        i. Have you hours changed and are you stressed that you may not be working anymore?
    c. What concerns do you have?
3. Have you started to prepare or think about what you may have to do if you lose this job?
4. What do you think you will do as this pandemic continues?

APPENDIX E: VOLUNTEER COORDINATOR AND INSTRUCTOR AT A NON-PROFIT THERAPEUTIC HORSE FACILITY, AVA

1. What was work life before all this happened?
   a. What was a day typically like for you?
2. Where there any signs that things would be changing because of the pandemic?
   a. What were they?
3. How is your work life now?
   a. Are you still working at Winslow partly?
      i. Are you getting paid the same?
      ii. What do you have to do with the facilities and the horses?
   b. What concerns do you have as time moves on for your job?
4. How have you started to prepare or plan for what to do if this puts you out of work for the near future?
5. When this is over, when do you think Winslow will be up and running?

APPENDIX F: A RETAIL MANAGER AT A NON-PROFIT ORGANIZATION, CHARLOTTE

1. What was work life before all this happened?
   a. What was a day typically like for you?
2. Where there any signs that things would be changing because of the pandemic?
   a. What were they?
   b. Did your office give you any heads up about changes?
3. How is your work life now?
   a. Are you still working?
      i. Part time?
         1. What has changed for you at the office?
         2. Is it busy or has it slowed down?
   b. Or are you laid-off?
      i. Have you applied for unemployment?
      ii. Have you started doing anything else now that you aren't working?
         1. In terms of work-life
      iii. How do you feel towards this?
         1. Are you concerned for the future?
4. Have you started to plan for the future at all?
   a. What concerns do you have as we move forward in this pandemic?

APPENDIX G: A FORMER MANAGER AT A GEAR RENTAL COMPANY, LIAM

1. What was work life before all this happened?
   a. What was a day typically like for you?
2. Where there any signs that things would be changing because of the pandemic?
   a. What were they?
   b. Did the office let you know a little before that you would get laid-off?
3. How is your work life now?
   a. Now that you are laid-off, what have you been doing?
      i. Are you applying for unemployment?
         1. How was that process?
      ii. Are you doing anything else to help your situation?
      iii. How do you feel towards the situation of being laid-off? Do you agree with it?
      iv. Is it busy were you are? (Zion National Park)
       v. Is your former shop busy?
      vi. What about your coworkers?
      vii. Did they tell you anything about the future of hiring people back or not?
         1. How so?
4. What concerns do you have moving forward with this situation?
5. Have you started to plan for the future at all?

APPENDIX H: A SELF-EMPLOYED BUSINESS OWNER OF A SUCCESSFUL DOG WALKING BUSINESS, SOFIA

1. What was work life before all this happened?
   a. What was a day typically like for you?
2. Where there any signs that things would be changing because of the pandemic?
   a. What were they?
3. How is your work life now?
   a. Are you still working?
      i. Part time?
         1. What has changed for you?
         2. Is it busy or has it slowed down?
   b. Or are you laid-off?
      i. What are your plans now that you aren't working?
      ii. What concerns do you have?
4. What worries do you have for the future if the pandemic continues to cause issues?
5. Do you plan on reopening your business completely after the pandemic?

APPENDIX I: A HOSPICE SOCIAL WORKER, AMELIA

1. What was work life before all this happened?
   a. What was a day typically like for you?
2. Where there any signs that things would be changing because of the pandemic?
   a. What were they?
3. How is your work life doing right now?
   a. Do you still have the same clients now before the pandemic started?
      i. How have you had to adapt to continue connecting with them?
   b. Has your work increased or decreased since the pandemic began?
      i. New clients?
   c. Have you had to adapt your work in any respects?
      i. No in person meetings?
      ii. Taking more precautions to stay safe?
   d. How has working in the hospice changed?
      i. Do you still go in and work normally?
      ii. Are people there scared more than before the pandemic?
4. What concerns do you have for your job currently?
5. What worries you about the future and continued challenges of the pandemic?

APPENDIX J: A WORKER AT A DOG TRAINING COMPANY AND A YARN SHOP, EMILY

1. What was work life before all this happened?
   a. What was a day typically like for you?
2. Where there any signs that things would be changing because of the pandemic?
   a. What were they?
3. How is your work life doing right now?
   a. Are you still working?
      i. Yes:
         1. Do you have reduced hours working from home?
         2. How have you had to adapt?
         3. What do you find difficult with it, any health precautions?
      ii. No:
         1. What concerns do you have now that you aren't working?
         2. Have you applied for unemployment? How was that?
         3. What are you doing now?
4. What concerns do you have for the future?
   a. Will you return to the same job?
   b. Any timeline for when you can go back to work?

APPENDIX K: A FORMER WORKER IN A CASINO'S FINANCE DEPARTMENT, JOE

1. What was work life before all this happened?
   a. What was a day typically like for you?
2. Where there any signs that things would be changing because of the pandemic?
   a. What were they?
3. How is your work life doing right now?
   a. Are you currently working?
      i. Yes:
         1. Do you have reduced hours working from home?
         2. How have you had to adapt?
         3. What do you find difficult with it, any health precautions?
      ii. No:
         1. What concerns do you have now that you aren't working?
         2. Have you applied for unemployment? How was that?
         3. What are you doing now?
4. What concerns do you have for the future?Will you return to the same job?Any timeline for when you can go back to work?
   a. Will you return to the same job?
   b. Any timeline for when you can go back to work?

APPENDIX L: THE OWNER AND INSTRUCTOR AT A TENNIS COMPLEX, BEN

1. What was work life before all this happened?
   a. What was a day typically like for you?
2. Where there any signs that things would be changing because of the pandemic?
   a. What were they?
3. How is your work life doing right now?
   a. Are you still working?
      i. Yes:
         1. Do you have reduced hours working from home?
         2. How have you had to adapt?
         3. What do you find difficult with it, any health precautions?
      ii. No:
         1. What concerns do you have now that you aren't working?
         2. Have you applied for unemployment? How was that?
         3. What are you doing now?
      iii. What have you had to do with your coworkers/employees?
4. What concerns and worries do you have for the future?
   a. When will you try to reopen the business?
      i. Will it be a slow opening and for the next few months?

APPENDIX M: THE DIRECTOR OF GLOBAL AVIATION AND VERTICAL DEVELOPMENT AT A LOGISTICS SHIPPING COMPANY, MARY

1. What was work life before all this happened?
    a. What was a day typically like for you?
2. Where there any signs that things would be changing because of the pandemic?
    a. What were they?
3. How is your work life doing right now?
    a. Are you working at home?
        i. What is that like?
        ii. Do you still have lots of deadlines to meet?
        iii. Is it hard to focus at points?
        iv. Do you find working at home difficult? Stressful?
        v. Are your co-workers also working from home?
    b. When do you think you will go back into work?
    c. How is your company doing with employees working from home?
4. What concerns and worries do you have for the future?

APPENDIX N: AN OWNER OF MULTIFAMILY HOUSING UNITS, MASON

1. What was work life before all this happened?
    a. What was a day typically like for you?
2. Where there any signs that things would be changing because of the pandemic?
    a. What were they?
3. How is your work life doing right now?
    a. What have you had to do with your estates?
        i. Are you still having people pay rent or less, or person to person basis?
        ii. maintenance
    b. What concerns do you have for this business?
        i. How are you adapting?
4. What concerns and worries do you have as time continues moving on and the economy gets worse and the pandemic continues?

APPENDICES- SPECIAL EDUCATOR EXPERIENCES AND ADAPTATIONS DURING THE COVID-19 PANDEMIC

APPENDIX A: CONSTANT SCRIPT

Thank you for taking the time to meet with me. Hi, I'm Maddie Blake, and I'm also a Bedford alumnus. I'm currently working on a social science project as a part of my Junior year studies at Worcester Polytechnic Institute. Originally, I was supposed to travel to Greece and carry out a very different project there. Unfortunately, my project site was one of the few that had to abandon their projects and come up with a new one for our fourth quarter. My site thought it would be best to do projects on COVID-19, since it is such a relevant topic. After seeing my brother and mom transition to online school, I thought it would be interesting to research how different teachers have had to adapt their teaching styles to fit the constraints of online school. I will be using this interview as a part of my final deliverable (not sure how yet).

Your participation in this study is voluntary. If you agree to participate you will take part in an interview lasting no more than 30 minutes. Your identity will be kept confidential.

Do you consent to WPI using quotes or audio recordings produced during this interview?Please clearly mark which of the following that you consent to being used:
❑ Quote
❑ Audio Recordings
I, _____, consent to the above being used in:
❑ WPI Research Papers
❑WPI Video Presentations and Other Media
Signed_____
Date_____

APPENDIX B: INTERVIEW QUESTIONS

Interview Questions for Special Education Teachers
1. How are you today?
2. Can you tell me what your workday looks like now?
3. I've noticed that my mom is having to spend time outside of the typical school hours in order to stay prepared for the next, is the same thing happening to you?
   a. How many hours, on average, would you say you spend time on work during the day? Has this changed since the shift to online started?
   b. Does this seem like more or less than what you were spending on it before school got moved online?
4. Due to your specialty in (insert teacher's specialty), what are some of the inherent constraints to delivering your services?
   a. How have you been able to modify your teaching to get past those constraints?
   b. Is there any part of your service that you have found to be impossible to provide in an online format?
   c. What are some of your frustrations since distance learning has started? Is any of this surprising to you?
5. What are some of the ways you are delivering your services?
   a. If at all, how have you found it necessary to include the parent in the teaching?
6. Overall, how do you feel that your services have been helped or hindered from the transition to online school?
   a. What are some of your concerns about a student not getting proper services?
7. Do you think that this shift into online teaching has benefited your teaching in any way? If so, how?
8. Would you be willing for me to use direct quotes from you, assuming confidentiality and anonymity?

APPENDICIES- A CONTROVERSIAL JOURNEY

APPENDIX A

Hello! My name is Emma Bennett and I am currently studying Chemical Engineering at Worcester Polytechnic Institute. Before the coronavirus outbreak, 3 other students and I were working to complete our Junior year qualifying project in Greece. During this project, we take a step back from "engineering" to focus more on problems of societal importance, or problems that matter to people and communities. This project was cancelled due to travel concerns and our focus was shifted to topics relating to COVID-19. From here, I chose to research Appalachian Trail Thru-Hikers and the impact coronavirus has had on their journeys. I was hoping to interview you about the AT and your experiences thus far in relation to the outbreak.

If it's okay with you, could I get your permission to record this interview on my phone to make sure I capture your responses? If you would rather not, it's perfectly fine, I can just take notes instead. Any information you share with me is completely confidential and will only be used for research purposes with your permission. Do I have your permission to quote you in my final report? You have the option to remain anonymous. I will not identify you by name in any of my writing to make sure the information you share with me is confidential, unless you would like to be quoted. Do I have your permission to use video or audio recordings from the interview in my final report? Again, if you would like to remain anonymous, or not use video or audio recordings that is perfectly fine.

My final deliverable will likely consist of a webpage including different tabs for the people I interview. Each tab would have a map of the AT with different points on the trail, signifying where they started, where they ended, or points of high significance. Each point would then be linked to a specific quote, short video, or picture signifying what happened at that point. I also plan to include a short biography on each person and other information that couldn't be included on the map. It will be available online after I finish creating it, and I can also email it to you if you wish. If I ask a question that you do not want to answer, just let me know and I will move to the next one. If you don't understand a question, let me know and I can try to rephrase it. Do you have any questions for me before we start?

APPENDIX B

Logistical Questions for All
    1. Tell me about yourself! Some background, what got you into hiking?

General Questions for All
    1. Why the AT?
        a. What purpose does hiking serve for you?
        b. What motivated you to want to do the hike?
        c. What were you most looking forward to?
        d. What were you looking to gain from the experience?
        e. What did it feel like to walk through the amicalola arch?
    2. How long have you been preparing to thru-hike?
    3. What kinds of things have you done to prepare?
    4. In what ways were you/did you leave your "normal life behind"?
    5. What sacrifices did you have to make in order to hike the AT?
    6. How have your feelings about the coronavirus evolved over your time on the trail?

Hikers Who Didn't Begin their Journey
    1. Can you tell me about when you decided not to hike?
        a. What were you feeling when you made this decision?
        b. How do you feel about this decision now?
    2. Were any arrangements made that you couldn't get out of?
    3. What do you think about the hikers who are still on trail?
    4. Will you try again later this year/next year?
    5. What are you doing now to stay optimistic/busy?

Hikers Who Had to Stop Mid-Journey
    1. How far into the trail were you when you decided to stop?
        a. Can you tell me about the moment when you knew things were changing?
        b. Where were you when you heard about the AT urging people to leave trail?
        c. What sort of conversations were you having with other hikers about stopping?
        d. What was running through your mind?
        e. What do you remember most vividly about leaving the trail?
    2. How was returning to "normal" life? What does this look like for you after you stopped hiking?
    3. What do you think about the hikers who are still on trail?
    4. Will you try again later this year/next year?
    5. What are you doing now to stay optimistic/busy?

Hikers Who are Still on Trail
    1. Can you tell me about your decision to stay on the trail?
        a. Are you thinking about it day to day, just continuing to trek no matter what?
    2. What precautions are you taking to stay safe and avoid the virus?
    3. How are resupply/town stops/camping situations panning out?
        a. How do you feel when you go into town?
    4. How have you been able to manage the closings of national parks and forests?
    5. What are you most looking forward to by continuing on trail?
    6. What are your biggest fears or worries when continuing to hike?
    7. Do you feel like your missing out on the "AT Experience"?
        a. Community, trail magic, hostels, camping sites
    8. What has been your favorite experience or memory so far?

APPENDIX C

Thank you for taking the time out of your day to talk with me about your experiences. I really enjoyed getting to learn everything that you've gone through. Is there anything you think we missed or wish to talk about more? Would you like a copy of the interview transcript or recording of the interview? If any more questions or comments come to mind, please feel free to reach out to me via email hikerstacklecovid@gmail.com!

APPENDICIES- MINDFULNESS AMIDST THE MADENESS

Appendix A

Four Day Challenge Discussion

Interview Date:
Time:
Interviewee:

Preamble: My name is Hannah Schulz, I am a Junior at WPI. I am looking to document how our relationship with nature has changed during this pandemic and how it has affected us. This interview over Zoom will be recorded, and notes will be taken. A copy of the interview recording and notes will be provided after the interview. Parts of this interview may be used in the final deliverable of this project in the form of quotes, audio clips, and/or footage. If you would like any of this information to be kept anonymous please let me know. Do you have any questions for me before we start?

Semi-structured Interview Questions:

1. How have you been, while sheltering at home?
   Alternative rephrase:
      a.What's it been like living through a pandemic for you?
2. What's a typical day usually consist of?
3. How has your family been doing through all this?
   a.What have you and/or your family done to stay connected with others?
4. What have been some of your biggest worries during this time for you?
5. Do you have any methods or things that you do to stay positive or keep your spirits up in light of these worries?
6. Has nature played a role in your life staying at home?
   a. Do you go to certain areas in your town? If so, where are these places?
   b. How have these experiences of being outdoors affected you?
   c. How did they make you feel?
7. Do you think since staying at home you've been spending more time outdoors? What's that been like?
8. Has your behavior outdoors changed?
   a. Do you find yourself with more time to be observant and slow down?
9. Out of the four days of activities, which did you find to be your favorite and why?
10. After completing your activity how did you feel? Did it differ between days?
11.Looking to the future, do you think you will use any of these practices to help unwind or relax during your day?

*Other questions will be crafted for the individual interviews. These are dependent on the daily submissions and what intrigued me/or something I want to know more about from what they did. Conclusion: Thank you for being a part of this project. As I mentioned before, I can provide you with the notes I took during this interview and the recording of the Zoom. If you have any questions in the future you can reach me at my phone number, (860) 930-9429 or email hkschulz@wpi.edu.

Appendix B

Interview with Dave Dishaw

Interview Date:
Time:
Interviewee:

Preamble: My name is Hannah Schulz, I am a Junior at WPI. I am looking to document how our relationship with nature has changed during this pandemic and how it has affected us. This interview over Zoom will be recorded, and notes will be taken. A copy of the interview recording and notes will be provided after the interview. Parts of this interview may be used in the final deliverable of this project in the form of quotes, audio clips, and/or footage. If you would like any of this information to be kept anonymous please let me know. Do you have any questions for me before we start?

Semi-structured Interview Questions:
1. What inspired you to start ROAM?
2. Can you provide me a synopsis of the mission of ROAM?
3. What's an outdoor adventure like?
4. What role has the outdoors played in your life since starting ROAM?
5. Now that we are amidst the pandemic how has the outdoors changed for you?
6. How have the experiences of staying at home affected you?
7. What have been some of your biggest worries or challenges during this time for you?
   a. Do you have any methods or things that you do to stay positive in light of these?
8. Do you have any recommendations for my programming?

Conclusion: Thank you for being a part of this project. As I mentioned before, I can provide you with the notes I took during this interview and the recording of the Zoom. If you have any questions in the future you can reach me at my phone number, (860) 930-9429 or email hkschulz@wpi.edu.

APPENDICIES-PEACE, MINDFULNESS, THE OUTDOORS

APPENDIX A

Introduction:
   Hi, my name is Mia DiBattista and I am currently researching how people interact with nature during a pandemic and how they document these occurrences, for my junior level project at Worcester Polytechnic Institute. I personally think looking at the outdoors in this light is extremely important, as nature is one of my only escapes from all that is going on in the world today. I have put together a series of questions that relates to this topic, in an effort to hear your stories and how nature directly impacts you. If it is okay with you, I will be recording this interview so that I can look back on the things we discuss today and use them in a later report. If you wish, I will keep your identity confidential. Thank you so much for your help with my research, I cannot express how grateful I truly am.

Questions:
   1) Have you found yourself in nature more often than before?
         A) Is nature a part of your day-to-day routine?
         B) Do you believe this is caused by social distancing? If so, why do you think that may be?
   2) Do you find yourself going to outdoor locations in/around town?
         A) If so, where are these areas and what do you do there?
         B) Are you interacting with anyone else while at these locations?
   3.) How have you felt when connected to the outdoors during these unprecedented times?
         A) If so, would you be comfortable sharing how/why?
   4) How have experiences while being immersed in nature impacted your "new" daily life during the COVID-19 pandemic?
   5) Walk me through a situation that you found left a positive impact when you needed some sort of escape and nature helped.
         A) Why do you believe specifically being outside helped you in this case?
   6) Are there any ways that you would recommend other people use nature to their advantage during the pandemic?
         A) How have these recommended experiences impacted you personally, if at all?
         B) Are these activities things that you were used to doing prior to the pandemic(sports, hiking, etc.)?
   7) Once the pandemic calms down, do you see yourself going outside more?
         A) If so, why?
         B) How does it impact you?
   8) Could you please walk me through the snapshot(s) of nature that you submitted and describe to me what these pieces mean to you during the COVID-19 pandemic/throughout social distancing?
   From here, I will probe based on their submissions to figure out if this is a place of reflection, how the submission makes them feel, if nature creates a positive space for them during social distancing, and if it helps them further, past their physical health.

APPENDIX A- **ASSESSING THE EFFICACY OF STATE GOVERNORS IN FOLLOWING RISK COMMUNICATION GUIDELINES**

Massachusetts

Press Conference - 18/19 = 94.7%

Principle	Yes	No	N/A
Be First:	X		
Be Right:	X		
Be Credible:	X		
Express Empathy:	X		
Promote Action:	X		
Show Respect:	X		
Consistent messages are vital			X
Don't over-reassure	X		
Acknowledge uncertainty	X		
Express wishes ("I wish I had answers")		X	
Explain the process in place to find answers	X		
Acknowledge people's fear	X		
Give people things to do	X		
Ask more of people (share risk)	X		
Accept and Involve Stakeholders as Legitimate Partners	X		
Listen to People	X		
Be Truthful, Honest, Frank, and Open	X		
Coordinate, Collaborate, and Partner with Other Credible Sources	X		
Meet the Needs of the Media	X		
Communicate Clearly and with Compassion	X		
Plan Thoroughly and Carefully			X

New York

Press Conference - 19/19 = 100%

Principle	Yes	No	N/A
Be First:	X		
Be Right:	X		
Be Credible:	X		
Express Empathy:	X		
Promote Action:	X		
Show Respect:	X		
Consistent messages are vital			X
Don't over-reassure	X		
Acknowledge uncertainty	X		
Express wishes ("I wish I had answers")	X		
Explain the process in place to find answers	X		
Acknowledge people's fear	X		
Give people things to do	X		
Ask more of people (share risk)	X		
Accept and Involve Stakeholders as Legitimate Partners	X		
Listen to People	X		
Be Truthful, Honest, Frank, and Open	X		
Coordinate, Collaborate, and Partner with Other Credible Sources	X		
Meet the Needs of the Media	X		
Communicate Clearly and with Compassion	X		
Plan Thoroughly and Carefully			X

California

Press Conference - 18/19 = 94.7%

Principle	Yes	No	N/A
Be First:		X	
Be Right:	X		
Be Credible:	X		
Express Empathy:	X		
Promote Action:	X		
Show Respect:	X		
Consistent messages are vital			X
Don't over-reassure	X		
Acknowledge uncertainty	X		
Express wishes ("I wish I had answers")	X		
Explain the process in place to find answers	X		
Acknowledge people's fear	X		
Give people things to do	X		
Ask more of people (share risk)	X		
Accept and Involve Stakeholders as Legitimate Partners	X		
Listen to People	X		
Be Truthful, Honest, Frank, and Open	X		
Coordinate, Collaborate, and Partner with Other Credible Sources	X		
Meet the Needs of the Media	X		
Communicate Clearly and with Compassion	X		
Plan Thoroughly and Carefully			X

Washington

Press Conference - 17/19 = 89.5%

Principle	Yes	No	N/A
Be First:		X	
Be Right:	X		
Be Credible:	X		
Express Empathy:	X		
Promote Action:	X		
Show Respect:	X		
Consistent messages are vital			X
Don't over-reassure	X		
Acknowledge uncertainty	X		
Express wishes ("I wish I had answers")	X		
Explain the process in place to find answers	X		
Acknowledge people's fear	X		
Give people things to do	X		
Ask more of people (share risk)	X		
Accept and Involve Stakeholders as Legitimate Partners	X		
Listen to People	X		
Be Truthful, Honest, Frank, and Open	X		
Coordinate, Collaborate, and Partner with Other Credible Sources	X		
Meet the Needs of the Media		X	
Communicate Clearly and with Compassion	X		
Plan Thoroughly and Carefully			X

Connecticut

Press Conference - 19/19 = 100%

Principle	Yes	No	N/A
Be First:	X		
Be Right:	X		
Be Credible:	X		
Express Empathy:	X		
Promote Action:	X		
Show Respect:	X		
Consistent messages are vital			X
Don't over-reassure	X		
Acknowledge uncertainty	X		
Express wishes ("I wish I had answers")	X		
Explain the process in place to find answers	X		
Acknowledge people's fear	X		
Give people things to do	X		
Ask more of people (share risk)	X		
Accept and Involve Stakeholders as Legitimate Partners	X		
Listen to People	X		
Be Truthful, Honest, Frank, and Open	X		
Coordinate, Collaborate, and Partner with Other Credible Sources	X		
Meet the Needs of the Media	X		
Communicate Clearly and with Compassion	X		
Plan Thoroughly and Carefully			X

New Jersey

Press Conference - 18/19 = 94.7%

Principle	Yes	No	N/A
Be First:		X	
Be Right:	X		
Be Credible:	X		
Express Empathy:	X		
Promote Action:	X		
Show Respect:	X		
Consistent messages are vital			X
Don't over-reassure	X		
Acknowledge uncertainty	X		
Express wishes ("I wish I had answers")	X		
Explain the process in place to find answers	X		
Acknowledge people's fear	X		
Give people things to do	X		
Ask more of people (share risk)	X		
Accept and Involve Stakeholders as Legitimate Partners	X		
Listen to People	X		
Be Truthful, Honest, Frank, and Open	X		
Coordinate, Collaborate, and Partner with Other Credible Sources	X		
Meet the Needs of the Media	X		
Communicate Clearly and with Compassion	X		
Plan Thoroughly and Carefully			X

Florida

Press Conference - 13/19 = 68.4%

Principle	Yes	No	N/A
Be First:	X		
Be Right:	X		
Be Credible:	X		
Express Empathy:		X	
Promote Action:	X		
Show Respect:		X	
Consistent messages are vital			X
Don't over-reassure	X		
Acknowledge uncertainty	X		
Express wishes ("I wish I had answers")	X		
Explain the process in place to find answers	X		
Acknowledge people's fear		X	
Give people things to do	X		
Ask more of people (share risk)		X	
Accept and Involve Stakeholders as Legitimate Partners	X		
Listen to People		X	
Be Truthful, Honest, Frank, and Open	X		
Coordinate, Collaborate, and Partner with Other Credible Sources	X		
Meet the Needs of the Media	X		
Communicate Clearly and with Compassion		X	
Plan Thoroughly and Carefully			X

Georgia

Press Conference - 19/19 = 100%

Principle	Yes	No	N/A
Be First:	X		
Be Right:	X		
Be Credible:	X		
Express Empathy:	X		
Promote Action:	X		
Show Respect:	X		
Consistent messages are vital			X
Don't over-reassure	X		
Acknowledge uncertainty	X		
Express wishes ("I wish I had answers")	X		
Explain the process in place to find answers	X		
Acknowledge people's fear	X		
Give people things to do	X		
Ask more of people (share risk)	X		
Accept and Involve Stakeholders as Legitimate Partners	X		
Listen to People	X		
Be Truthful, Honest, Frank, and Open	X		
Coordinate, Collaborate, and Partner with Other Credible Sources	X		
Meet the Needs of the Media	X		
Communicate Clearly and with Compassion	X		
Plan Thoroughly and Carefully			X

APPENDIX - **AN INVESTIGATION OF PANIC PURCHASING DURING THE PANDEMIC**

General Resident Protocol:
Name:
Date:
Interview Type (eg. face to face, phone, etc...):
Short Description:
Here I would briefly describe the interviewee. I would describe details that are important to them individually such as their background, occupation, or any other detail that may provide some significance to my data.

Initial Introduction:

Hi, my name is Connor Craigie. I am performing research for Worcester Polytechnic Institute investigating the social impact of COVID-19. I'm sure in recent news you have seen reports of items flying off the shelves. Products like masks, toiletpaper, and even ammunition have experienced temporary shortages around the nation. I'd just like to ask you a few questions and get your input on these current events and what action you have taken in response.

Semi Structured Interview Questions:
*Given that we are in the middle of the crisis right now, how do you see this playing out?
*How have others around you taken measures to protect and prepare for the coronavirus?
*How have the actions of others on social media influenced your purchasing decisions in recent months?
*How, if at all, has news or professional media influenced your purchasing history during the pandemic?
*(The following question is for those who have disclosed recent bulk purchasing) Why did you decide to purchase more items than usual?
*Now that you have more of (insert item name here), do you feel more secure or comforted by its presence in the household?
*How do you feel this panic purchasing could be reduced in the future?

Conclusion:
That sums up our interview. Thank you for meeting with me today, I really do appreciate the time you took out of your day. This interview will be incredibly helpful in analyzing the social impact of panic purchasing. I would just like to verify that you consent to the use of this interview in our analysis (Wait for interviewee verification). If you would like to reach out again at any time my email is cacraigie@wpi.edu and my personal cell is 603-717-8788. Also if you wish to see the final report you could give me your contact information and I will forward it to you at the end of our term.

Grocer Businesses Protocol:
Name:
Business:
Date:
Interview Type (eg. face to face, phone, etc...):
Short Description:
Here I would briefly describe the interviewee. I would describe details that are important to them individually such as their background, occupation, or any other detail that may provide some significance to my data.

Initial Introduction:

Hi, my name is Connor Craigie. I am performing research for Worcester Polytechnic Institute investigating the social impact of COVID-19. I'm sure in recent news you have seen reports of items flying off the shelves. Products like masks, toiletpaper, and even ammunition have experienced temporary shortages around the nation. I'd just like to ask you a few questions and get your input on these current events and what action you have taken in response.

Semi Structured Interview Questions:
*Given that we are in the middle of the crisis right now, how do you see this playing out?
*How has your store taken measures to protect and prepare for the coronavirus?
*What actions are you taking to limit panic purchasing?
*Would you consider these actions effective?
*What actions do you think could be taken in the future to prevent or limit panic purchasing?
*What are the repercussions of sudden stockpiling?
*Who do you see purchasing these goods?
*Is it a handful of people buying ludacris quantities?
*Or do you see almost every customer adding the same one or two items to their cart?
*How have others around you taken measures to protect and prepare for the coronavirus?
*(The following question is for those who have disclosed recent bulk purchasing) Why did you decide to purchase in bulk?

Conclusion:
That sums up our interview. Thank you for meeting with me today, I really do appreciate the time you took out of your day. This interview will be incredibly helpful in analyzing the social impact of panic purchasing. I would just like to verify that you consent to the use of this interview in our analysis (Wait for interviewee verification). If you would like to reach out again at any time my email is cacraigie@wpi.edu and my personal cell is 603-717-8788. Also if you wish to see the final report you could give me your contact information and I will forward it to you at the end of our term.