

Abstract

In the face of COVID-19, we have a window of opportunity to make changes towards sustainability. Society, the economy, and the environment have all been disrupted by this global pandemic, and now is the time to rethink our “business as usual” practices and develop a strategic plan for a more sustainable path forward. In this article, we look at how people envision learning and growing from this experience to progress towards a more desirable and balanced future. To gather insights from the public, a team of educational sustainability researchers designed and implemented a survey with adults from a range of fields, ages, and from around the world. Our research questions explore the ways in which can we turn the fear and uncertainty of the pandemic into hope and strategic action for sustainability. Four-hundred and twenty-eight respondents completed the survey, from the United States, Europe, South America, and Africa during April and May 2020. Almost 50% of the respondents agreed that that their lives will not return to their pre-COVID-19 status quo and more than 65% were optimistic about the future. When envisioning what the future could look like, participants valued the time spent with their families, space for mindfulness, and reflection. They also saw the need for change, particularly in the health care sector. In this article, we will share statistics and themes derived from the research. These themes include both difficulties and surprising benefits encountered during the quarantine, visions for a potential post-COVID 19 future, and individual, systemic, and structural changes that would improve our lives. A final piece of the discussion will examine how this traumatic shock to our system can be harnessed to build greater social, economic, and environmental resilience.

Strategically Redesigning the Future in the Time of the Covid-19 Disease Outbreak

Dr. Belinda Rudinger, Alumna, University of Wisconsin-Stevens Point (corresponding author)

BelindaRudinger@alumni.uwsp.edu

Belinda.Rudinger@tamuc.edu

940-220-9848

2100 Main Street

Stevens Point, WI 54481

USA

Dr. Erin Redman, Assistant Professor, Director of Educational Sustainability Ed.D. program, University of Wisconsin-Stevens Point

Dr. Jess Gaffney, Alumna, University of Wisconsin-Stevens Point

Dr. Elizabeth Potter-Nelson, Alumna, University of Wisconsin-Stevens Point

Introduction

In December 2019, an outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection occurred in Wuhan, Hubei Province, China and spread across China and beyond. On February 12, 2020, WHO officially named the disease caused by the novel coronavirus as Coronavirus Disease 2019 (COVID-19). In just over five months, COVID-19 has been diagnosed in every continent in the world, infecting over 16.5 million people and claiming the lives of over 655,000 people by July 2020 (CNN Health 2020). Due to the high transmissibility rate of the virus, entire nations have declared stay-at-home orders, essentially shuttering business and halting the global economy. It is estimated that the pandemic could trim global economic growth by 6% in 2020 (Congressional Research Service 2020).

The impact of COVID-19 has had detrimental effects on the social structures around the world. Unemployment in the United States alone has skyrocketed to 11% (BLS 2020) with a total of 148,298 people dying as of July 2020 (CNN Health 2020). Protests at state capitals demanding that the economy reopen in spite of CDC guidelines only further highlight the tensions and desperation of people, while also highlighting the deficiencies of our health care system and the fragility of our economic model as a whole.

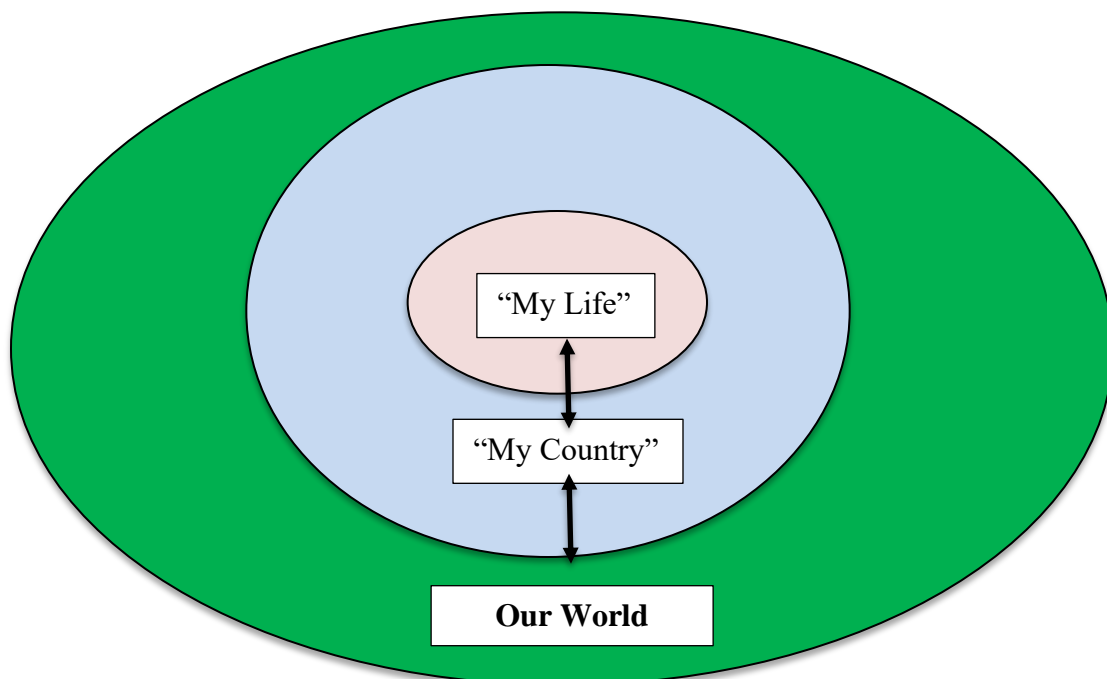
Although the losses associated with COVID-19 are devastating, there have been some positive unintended consequences. Air pollution has dropped 30% in northeastern cities and major drops in NO₂ levels have been seen in multiple cities (NASA 2020). The Himalaya Mountains were visible from the northern Indian state of Punjab, more than 100 miles away for the first time in 30 years. Wild animals have been documented wandering through once crowded streets and fish have returned to once barren canals (Capra & Henderson 2020). Industry is looking towards more local, accessible resources due to delays in the international supply chains (Cohen 2020; Sarkis et al. 2020) and new approaches to the workforce, such as remote workers, may decrease operational costs for companies and offer flexibility to employees for shorter commutes and more time at home (Brynjolfsson et al. 2020).

Sustainability as a field emerged to study wicked problems and complex solutions, while typically focusing on the interconnectedness of economic development, social development, and environmental protections (Hakovirta & Denuwara 2020). With a global pandemic leading to higher mortality rates, higher unemployment rates, limited access to education, and a strained health system, we must revision what sustainability means in the time of COVID-19. Similar to the redefining sustainability work done by Hakovirta and Denuwara, we advocate for including a fourth “pillar” to the core of sustainability, to focus on human health. In building upon this fourth pillar view of sustainability, our research launched to explore how people think about the future of their health and health care system, the economy, environment, and social development, given the COVID-19 pandemic. Envisioning a post COVID-19 society, an opportunity exists to redefine the current norms and look for ways to change current consumption habits to create long lasting changes to behaviors of consumerism (Cohen 2020). In looking at COVID-19 through the lens of sustainability, we aim to focus on solutions for fostering a better, more just, and balanced future.

Objective

This study sought to examine the reverberations of COVID-19 on an individual, countrywide, and an international basis. To consider how this traumatic shock could be harnessed to build greater social, economic, and environmental resilience, research questions were considered as follows:

- What are our hopes for the future?
- What strategic actions can be taken to design this future at an individual level?
- What strategic actions can be taken to design this future at the level of each country?
- What strategic actions can be taken to co-create this future at a worldwide level?



The objective of this survey is to use the results of participants to imagine different visions of the future. COVID-19 has created a global reset button, a pause and a shift from our current trajectory. With this departure from the status-quo, we can be mindful and reflective about where we have been and what we would like to change in the post-COVID-19 future. We cannot begin to build these different future scenarios without broad input from the public. This survey is a start at eliciting insight from a broad range of people around the globe so that the path forward is intentional, responsible, and inclusive.

Methods

The survey was collaboratively developed by educational sustainability researchers and deployed using Qualtrics. The survey was written in English and translated into Spanish and the analysis was done using N-Vivo and R statistical software. We piloted with three key informants that reside in three different continents. The suggested revisions were substantial and included changes in wording to every question, the removal of three questions, the addition of two questions, and edits to the Spanish translation.

The final survey instrument started with a statement of consent and anonymity procedures for this research, as approved by our university Institutional Review Board. The next section included demographic questions about age, gender, level of education, and place of residency (see Tables 1-3 below). Then we asked 5 Likert scale questions, using a 5-point scale from *Strongly Agree* to *Strongly Disagree* and concluded with seven open-response questions (for full survey see appendix).

The survey was disseminated through students and faculty in the Educational Sustainability doctoral program at University of Wisconsin-Stevens Point from April 3rd to May 25th, 2020. The students and faculty used their social media accounts and personal contacts to share the survey. However, with this convenience sampling model, we understand that our respondents are not a representative sample.

Results

Demographics

The respondents included 482 people from 36 countries on four continents. The majority of the responses, however, are from the United States, with Ukraine, Colombia, and South Africa collectively making up almost one quarter of the non-US based responses. General demographics for these participants are detailed in tables 1-3. The respondents were largely female (69%). Additionally, the respondents of this study have completed higher levels of education than the global average, with more than 67% of our survey respondents having a bachelor's degree or higher.

Table 1. Age (N=482)

18-25	56
26-35	73
36-45	129
46-55	81
56-65	42
65+	58
Not Stated	43

Table 2. Gender (N=482)

Female	331
Male	98
Not Stated	44
Gender Variant	3
Not Listed	2
Prefer not to say	4

Table 3. Education level (N=482)

Primary/Elementary School	3
Some high school (no diploma)	2
High school diploma or equivalent	22
Trade/technical/vocational training	29
Some college credit, no degree	30
Associate's Degree	24
Bachelor's Degree	129
Master's Degree	151
Doctorate Degree	44
Not Stated	48

Likert Responses

Participants in this study came from 36 countries and although their experiences with COVID-19 policies, levels of lockdowns, economic support structures, and health care systems varied greatly, the responses in Table 4 demonstrate that there is broad global agreement about many of the areas surveyed. When asked about health care policies in their own countries, 84% of respondents were in agreement (somewhat/strongly) that their country's public health policies will need to change. Participants also generally agreed that their economy may take years to recover, with 75% either selecting somewhat agree or strongly agree. In spite of the broad concern about the economy and desire for change in public health policies, more than three-hundred respondents were optimistic about the future and over 90% of participants believe that due to COVID-19, we have an opportunity to create a better society.

Table 4. Likert Scale Responses

Question:	N	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
My life will go back to normal (same as pre-COVID) after the COVID-19 crisis is over.	424	63 (14.9%)	137 (32.3%)	48 (11.3%)	139 (32.8%)	37 (8.7%)
I am optimistic about the future.	425	13 (3.1%)	52 (12.2%)	77 (18.1%)	147 (34.6%)	136 (32%)
My country's public health policies will need to change as a	423	13 (3.1%)	25 (5.9%)	28 (6.6%)	102 (24.1%)	255 (60.3%)

result of this pandemic.						
It will take years for my country's economy to recover.	425	20 (4.7%)	55 (12.9%)	36 (8.5%)	199 (46.8%)	115 (27.1%)
We have an opportunity to create a better society as a result of lessons learned.	424	10 (2.4%)	11 (2.6%)	22 (5.2%)	111 (26.2%)	270 (63.7%)

Open-answer responses

One of the key themes that was present in the open-ended responses was that of family or family members. We coded the responses to tabulate family-related words and those that appeared more than twice can be seen in Table 5 below. Participants expressed happiness in spending more time together, cooking and eating meals together or just catching up because “now there was time.” In addition to the word family(s) occurring 265 times, we coded for 26 other terms related to family members, including words like children, grandparents and spouse, and these terms occurred a total of 422 times throughout responses.

Table 5. Word Count for family-related terms

Word	Count
Family (s)/Familia(s)	265
Children/child (Kids)	83
Husband	16
Grandchildren (Grandkids)	10
Mom (Mama)	9
Son	8
Daughter	8
Spouse	7
Dad (father)	4

While the family-related terms were present throughout the survey, they were especially prevalent when asked, “What is one thing you have enjoyed during the COVID-19 social distancing/quarantine/shelter in place time?”. Some sample responses include: “family meal-times with good conversation;” “planning and spending time together;” “closer connection to family and friends;” “time with family, slowing down, less travel;” “having more time for outdoor activities with the family.” In addition to the theme of family, other themes emerged in response to this question, including, the idea of more time for activities other than work and commuting to/from work. Respondents wrote: “more free time, no commuting;” “more time to engage in my hobbies and connect with my partner;” “healthy sleep;” “re-evaluation of everyday things I thought were important;” and “time to read & time to think/meditate/pray.” Below, Table 6, we present a word count for words/terms that were found in multiple responses regarding what participants have

enjoyed during the COVID-19 quarantine. When looking at the word count, in conjunction with the specific quotes, it is clear that the additional time people have because remote work and/or distance learning has allowed for more balance.

Table 6. Word Count for question “What is one thing you have enjoyed....”

Word	Count
Family time (familia)	23
Spending time	13
Free time	7
Quality time	7
Slower pace	6
Staying home	5
Spend time	4
Extra time	3
Distance learning	2
Do things (Hacer cosas)	2
Life balance	2
Read books	2

While many participants expressed the happiness of being together, being separated from other family members who were not in their immediate homes proved difficult for many respondents. Some shared that simple things like “hugging my granddaughter” or “not being able to take care of elderly family members” was the most difficult part of the stay at home orders. We live in a globally connected world and it was also clear that people were missing, “interaction with wider family” and missing “interacting with people.”

When asked about changes participants could personally make to improve their lives, many of the responses focused on self-development, including changing unhealthy habits, identify goals and routines, and a greater focus on mindfulness. Many participants shared that they had begun new routines, including more time with family members, daily exercise, or healthier eating during the beginning of their isolation at home and had a desire to continue these practices as quarantining measures relaxed. Participants also articulated a desire to change their relationship with work. Some participants shared that they wanted a different work-life balance while others wanted to acquire a job or more stable income. Overall participants shared that they had were experiencing a reprioritization of what they felt was important in their life and wished to maintain that post-COVID-19.

The short answer items yielded some guidance as to how participants optimistically thought about the future. For instance, when asked, about envisioning your post-COVID future, one participant shared, “It looks more positive than negative.” Others expressed a desire for people to be “kinder and help each other out more.” Many responses also mirrored what participants shared about changes they could make, expressing a desire to achieve greater balance in their life, and to attend to their social and mental wellbeing. Participants also expressed a desire to “slow down and enjoy life.” Yet another wrote, “My hope is that people will adjust their attitudes towards each other. They will remember how to share. How to be strong. How to use what we have and not be wasteful.” This sentiment around hope was echoed in desires for better health care,

changes in elected officials, changes to existing systems, and taking care of each other as humans.

The focus on health care was wide-reaching, even though none of the open-ended questions explicitly asked participants about health care. Regardless of the wording of the specific item, responses about health care were similar among participants. There was an acknowledgement of the need for change and explicit calls for “universal health care;” “better health care;” and “improved health care.” In addition, some expanded on the idea of improved health care and addressed a need for “universal health care” or “basic health care.” Some participants recognized that there is a lack of equity in many of the current health care systems. There were a number of responses that built on the idea of universal or basic health care, calling for more “equitable health care.” In addition to discussing different delivery models for health care, some participants articulated a desire for an increased focus on “preventative care” and the inclusion/normalization of treating and taking care of mental health care in the health care system. While the majority of responses around health care focused on the government taking care of its people, there were a few responses that identified this as an unhealthy relationship for people to build with their governments.

The health care system and public health was a theme present in many responses and that is especially evident in the responses to the question, “How do you think we can learn and grow from the COVID-19 pandemic to create positive change?” (Table 7). As shown below, four of the top six most frequently written works were related to health care (health care, care system, public health, healthcare system). Many of these calls for health care and universal health care are coupled with the concerns about health disparities and the call for greater social supports.

Table 7. Word count for “How do you think we can learn and grow...”

Word	Count
Health care	22
Covid 19	9
Care system	6
Public health	5
Climate change	4
Healthcare system	4
Basic income	3
Essential workers	3
Grocery store	3
Health disparities	3
Be more (ser más)	3
Social support	3
Supply chain	3
Systemic change	3
Universal health	3

Universal healthcare	3
Care coverage	2
Care opportunities	2
Collective action	2
As beings (como seres)	2

Overall, there were key themes that emerged throughout the open-ended responses. These themes call for a “better” way forward, a re-prioritization or evaluation of “time,” and the importance of “family.” In Table 7, you can see the most frequently mentioned terms throughout the open-ended responses. The word count was done to determine the top 10 word occurrences from a total of 1,000 most frequent words found in participants responses.

Table 7. Word Count for Open-Ended Responses

Word	Count
People	373
Time	346
Family(s)/Familia(s)	265
Need	200
Work	184
Think	168
Better	159
USA	156
Home	155
COVID	149

Discussion

In analyzing the data there are three areas that warrant further discussion. First, while the losses around COVID-19 are devastating on a number of different levels, individuals who took the survey were able to identify positive changes in the midst of such turmoil, including work/life/family balance. Second, individuals spoke at length about the desire for changes to their health care systems. Finally, participants were overall optimistic about the future.

Social scientists have long recognized that out of disasters comes opportunities to rebuild more resilient systems if we can use the disasters as a catalyst for change (Cohen 2020; Brundiers & Eakin 2018). Based on our survey results, we can see that people have enjoyed having more space to do things like spend time with family, reading, or even meditating. While it should not take a global pandemic for people to get healthy sleep or occasionally go at a slower pace or eat with their family, we must consider that our unhealthy relationship with work has brought us to the place we are at and reverting back to the pre-COVID normal is not healthy under any circumstances. Similarly, other researchers have called for long-term changes to our approach to work. Sarkis et al. (2020) have suggested fewer workdays in work week to reduce the demand for commuting, while increasing productivity, as well as maintaining a percentage of telecommuting days.

One of the limitations of our study was that we did not have a representative sample, rather the respondents to our survey had higher levels of educational attainment and we had more female than male respondents. Brynjolfsson et al. (2020), researched remote work during COVID-19 and found that occupations that are management, professional, and information-related were more likely to shift to remote work and had fewer furloughs and laid offs. Given the high level of education of our respondents, it is possible that we did not capture as many responses from people in the labor or service sectors, who still physically went into work as essential workers or were laid off. Regarding gender Brynjolfsson et al. found that men were slightly more likely to be recently furloughed or laid-off and men were also more likely to continue to commute to work. These factors could influence people's perspective on work, positivity regarding extra family-time, as well as optimism about the future.

One of the other key findings of our survey was the focus on health care. There was a clear call to change health care systems. The high prevalence of health care responses in short answer items and the high percentage of participants who expressed a desire to change the health care system in the Likert-scale item lends additional traction to the call for health to be a fourth pillar of sustainability (Hakovirta & Denuwara 2020). Participants expressed an open desire for a changed health care system, but there was large variation on exactly what that change should be. There was a call for more equitable systems of health care and universal health care. This topic is a key area for future research in connecting sustainability to human health and well-being and is a critical leverage point for discussions about a post-COVID society.

COVID has disrupted everyday life for almost everyone, worldwide. And, while the impacts have been arguably catastrophic, people are continuing to find hope about the future. Participants of the study shared a number of different actions that they could take to envision a healthier, equitable world, post-COVID. Similar to the work of Brundiers and Eakin (2018) that talks about "disaster-to-sustainability" transitions, we see this "during disaster context" as a window of opportunity to create a more sustainable post-disaster future. Like many sustainability challenges and opportunities, there is an urgency, complexity, and uncertainty with how to best develop strategies for the future, yet we must use this window if we hope to use this time in history as a catalyst for positive change.

Conclusion

In reflecting back upon our research questions, it is clear that respondents hope for a future where they can commute less, keep work in balance with life and carve out more time for family. On an individual level, many people expressed that they would re-prioritize, find balance, and be more mindful about their time so that they can spend more time with loved ones. A focus on individual health including better eating, cooking at home and with local foods and more time for exercise was realized as a continued desire for the future. On a country level, this research suggests that we need to consider new ways of thinking about work; potentially a thirty-hour work week, or remote working half of the week to reduce commutes. Developing concrete strategies is an ideal next step for future research. Globally, there is a call to use this moment to create positive change. We do not want to resume the status quo or return to the pre-COVID-19 normal. Rather there is a desire to seize this time to develop a plan for how to realize this hope and optimism for a sustainable future.

As we conclude this paper, months have passed since this initial survey. Though participants characterized this pandemic as a wake-up call, a subset of respondents indicated a belief that no matter what, nothing will change. These comments mention prior crises and how human behavior seems to reset where it was after an initial perturbation. Whether these concerns will ring true remains to be seen. Individuals, countries, and world as a whole all have roles to play in co-creating the future to come during this window of opportunity. Given the early deployment of this survey, it would be valuable to collect a second wave of data that can help differentiate between different countries approaches to lock-down, health-care, economic support and the impact on people's perspectives regarding the desirable paths forward.

This study sought to address how people were envisioning their lives in a post-COVID-19 world. The majority of participants were optimistic both in their reflection of positive changes they had made in their life as a response to COVID-19 and in envisioning the future. In envisioning the future participants identified a need to correct unsustainable behaviors and practices to ones that embody sustainability including creating time for self, and much larger scale changes, like universal health care. In addition, they shared hopes for what their countries and the world could work to achieve a more desirable post-COVID future. The resilience of the human spirit is evident in how the participants have shared their experiences, lending hope and credence to actual change occurring instead focusing solely on what has been lost.

Appendix A

Countries Represented

AUSTRIA
BANGLADESH
BELARUS
CHINA
COLOMBIA
CZECH REPUBLIC
DENMARK
EL SALVADOR
GERMANY
GHANA
GUATEMALA
HONG KONG
INDIA
ITALY
LATVIA
MALTA
MEXICO
MONGOLIA
NIGERIA
NORTH MACEDONIA
PAKISTAN
PANAMA
POLAND
PORTUGAL
RUSSIA
SOUTH AFRICA
SPAIN
SWITZERLAND
TAJIKISTAN
THE NETHERLANDS
TURKEY
UKRAINE
UNITED KINGDOM
USA
VENEZUELA
VIETNAM

Appendix B
Survey

Dear Participant,

Dr. Erin Nicole Redman, Professor from the School of Education at the University of Wisconsin-Stevens Point, would appreciate your participation in a research study designed to explore possibilities for change post-COVID 19. You are being asked to complete a survey that should take no more than 15 minutes of your time. Your participation is completely voluntary. We anticipate no risk to you as a result of your participation in this study other than the inconvenience of the time to complete the survey. While there may be no immediate benefit to you as a result of your participation in this study, it is hoped that we may gain valuable information about how we can reflect, learn, and grow from the COVID-19 pandemic. The information that you give us on the questionnaire will be recorded in anonymous form. We will not release information that could identify you. Your participation in this study is completely voluntary. If you want to withdraw from the study, at any time, you may do so without penalty or loss of benefit entitled. Only anonymous information provided will be retained. All identifiable information will be removed from the study and destroyed or deleted. Once the study is completed, you may receive the results of the study. If you would like these results, or if you have any questions in the meantime, please contact:

Dr. Erin Nicole Redman,+1(715)346-2542 Erin.Redman@uwsp.edu

If you have any complaints about your treatment as a participant in this study or believe that you have been harmed in some way by your participation, please call or write:

Anna Haines, PhD

Professor, Natural Resource Planning

Director, Center for Land Use Education

800 Reserve Street

College of Natural Resources

University of Wisconsin, Stevens Point and Extension

Stevens Point, WI 54481

715.346.2386

irbchair@uwsp.edu

Please indicate your consent by selecting the appropriate option below:

Yes, I consent to participate in this study

No, I do not consent to participate in this study

What is your age?

To which gender identity do you most identify?

Where do you live (country, state, city)?

What is your occupation?

What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.

What changes could YOU make in the post-COVID-19 future that would improve your life?

Please select the response that best describes your level of agreement with the following statements:

My life will go back to normal (same as pre-COVID) after the COVID-19 crisis is over.

I am optimistic about the future.

My country's public health policies will need to change as a result of this pandemic.

It will take years for my country's economy to recover.

We have an opportunity to create a better society as a result of lessons learned.

When you envision your desired post-COVID-19 future, what does it look like?

How do you think this traumatic shock to our system can be harnessed to build greater social, economic, and environmental resilience?

How do you think we can learn and grow from the COVID-19 pandemic to create positive change?

Please feel free to use this space to leave any other comments or feedback.

References:

- Brundiens, Katja; Eakin, Hallie C. 2018. "Leveraging Post-Disaster Windows of Opportunities for Change towards Sustainability: A Framework." *Sustainability* 10, no. 5: 1390.
- Brynjolfsson, Erik; Horton, John J.; Rock, Daniel; Ozimek, Adam; Sharma, Garima; Yi Tu Ye, Hong. 2020. "COVID-19 and Remote Work: An Early Look at US Data." *The National Bureau of Economic Research*. Working Paper 27344: 1-25. <https://www.nber.org/papers/w27344>
- Bureau of Labor Statistics Data. n.d. Accessed May 9, 2020. <https://data.bls.gov/timeseries/LNS14000000>
- Capra, Frithof., & Henderson, Hazel. 2020. "Pandemics: Lessons looking back from 2050." <https://www.fritjofcapra.net/pandemics-lessons-looking-back-from-2050/>
- Cohen, Maurie J. 2020 "Does the COVID-19 outbreak mark the onset of a sustainable consumption transition?" *Sustainability: Science, Practice and Policy*, 16:1, 1-3, DOI: 10.1080/15487733.2020.1740472
- Coronavirus. n.d. Accessed May 9, 2020. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>.
- CNN Health 2020. Accessed July 28, 2020. <https://www.cnn.com/interactive/2020/health/coronavirus-maps-and-cases/>
- United Nations. 2020. COVID-19: Disrupting lives, economies and societies. <https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-april-2020-briefing-no-136/>
- Hakovirta, Marko; Denuwara, Navodya. 2020. "How COVID-19 Redefines the Concept of Sustainability." *Sustainability* 12, no. 9: 3727.
- Pongsiri, Montira. J., Roman, Joe., Ezenwa, Vanessa. O., Goldberg, Tony. L., Koren, Hillel. S., Newbold, Stephen. C., Ostfeld, Richard. S., Pattanayak, Subhrendu K., & Salkeld, Daniel. J. 2009. "Biodiversity loss affects global disease ecology." *BioScience*, 59 (11), 945–954. <https://doi.org/10.1525/bio.2009.59.11.6>
- Rajkumar, Ravi Philip. 2020. "COVID-19 and mental health: A review of the existing literature." *Asian Journal of Psychiatry*, 52. <https://doi.org/10.1016/j.ajp.2020.102066>
- Sarkis, Joseph; Cohen, Maurie J.; Dewick, Paul; Schroeder, P. 2020. "A Brave New World: Lessons from the COVID-19 Pandemic for Transitioning to Sustainable Supply and Production." *Resources, conservation, and recycling*, vol. 159 doi:10.1016/j.resconrec.2020.104894
- U.S. Centers for Disease Control. 2020. "Situation summary: Coronavirus disease 2019

(COVID-19).” <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/summary.html>

International Monetary Fund. 2020. “World Economic Outlook, April 2020: The Great Lockdown.” <https://www.imf.org/en/Publications/WEO/Issues/2020/04/14/weo-april-2020>