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Climate change, social media, and Generation Z

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CLIMATE CHANGE, SOCIAL MEDIA, AND GENERATION Z

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by

Melanie Morris

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This research project, completed by

MELANIE MORRIS

under the guidance of the Faculty Committee and approved by its members, has been

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Abstract

Recent publications report that adults known as Generation Z, between the ages of 18 to 23, increasingly rely upon social media to gain knowledge of social issues. Given social media's embeddedness in Generation Z's life, this study sought to understand if or how social media has influenced and possibly empowered Generation Z to act on social issues, particularly global climate change. This study used a phenomenological research method, which focused on the commonality of Generation Z's lived experience. Emerging themes collected through a literature review and data portray Generation Z as maturing into adulthood as tech-savvy, diverse, and inclusive self-starters. Worry for their future surfaced through data collection as interview participants discussed their concerns of global climate change, racial and female inequality, diversity and inclusion, and homelessness. Future examination of this growing adult population may explore their impact on the world.

Keywords: generation Z, social issues, climate change, technology

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Chapter 1: Introduction

The 2007 launch of the Apple iPhone device in the United States shifted how Americans gain and share information. While the internet was accessible by the late 20th century, it was not conveniently mobile and at our fingertips until the release of smartphones. Many American households did not yet have a computer in their homes and instead relied upon physically delivered newspapers or television news to learn of domestic and global matters. While competitors (e.g., Blackberry, Samsung, Palm, Nokia) also began to release smart mobile devices in and around 2007, the ease of the Apple's iPhone touchscreen made accessing the internet user friendly, even for children.

Priced at $499 USD in 2007, the iPhone was the most expensive of the smartphones available at the time. However, it also was considered the most streamlined and the most competitive. Its consumer-friendly functions and applications were updated frequently. The features met the growing needs of real-time communication and ready access to information that a consumer desktop, usually exceeding $1,000 USD in 2007, could not achieve. The smartphone also fed the American consumer's increasing appetite for advanced technology. Even during the Great Recession, these smart devices became an essential communication tool in American households for every American consumer with purchasing power.

As the reliance on mobile devices increased, smartphone friendly social media and other types of applications were introduced and quickly rose to prominence. The social media application (also known as an app) became a way for people to create personal profiles and get in touch with people in an almost instantaneous manner. The mission statement of one of the largest social media applications, Facebook, is "to give

people the power to build communities and bring the world closer together. People use Facebook to stay connected with friends and family, to discover what is going on in the world and to share and express what matters to them" (Facebook Investor Resources). In the eruption of connectivity and information accessibility, a new generation of curious youth not only observed, but demanded their own devices.

Generation Z, also referred to as Gen Z, was born between 1997 and 2012 (Dimock, 2019). The oldest Gen Z was 10 years old when the first iPhone was introduced. They are the first digitally native generation in the workforce because most individuals in this age range do not remember a time without a mobile device, the internet, or social media. Social media sites (e.g., Instagram, Snapchat, Facebook, TikTok, Twitter) are a convenient way to stay connected to friends and to provide awareness of current events. For Gen Z, social media has become an increasingly important primary source of news and a platform to share opinions on major issues, including global climate change, racial equality, feminism, and poverty. If exposure to social issues began at a young age as a result of access to social media through mobile devices, could Gen Z gain confidence to take on a greater role as global citizens with the use of social media?

Purpose

The intent of this study was to understand how Gen Z's relationship with social media affects their views of different social issues, with a particular focus on climate change. The following research questions were explored:

- Has social media impacted Generation Z's view on social issues?

- What does Global Climate Change mean to Generation Z adults?

- How has social media influenced Generation Z adults' opinions on Global Climate Change?

- Do Generation Z adults feel empowered and accountable to reverse the effects of Global Climate Change or feel polarized by this topic?

Significance of the Study

The dominant greenhouse gases released into the earth's atmosphere (e.g., carbon dioxide, methane, nitrous oxide) have continued to increase (Blunden & Arndt, 2019). Global climate change is a growing risk to the health and safety of our citizens, not to mention the economic basis of the global economy, as evidenced through increasing greenhouse gas emissions, rising sea levels, lengthening droughts, stronger and more frequent super storms, melting ice sheets, and larger and more frequent fires.

Political partisanship has played a strong role in people's beliefs about climate change and their level of knowledge and understanding about science (Punk & Kennedy, 2020). Evidence demonstrates that online users discussing climate change often exist among like-minded communities, with activists and skeptics of climate change remaining polarized (Williams, McMurray, Kurz, & Hugo Lambert, 2015). Further evidence demonstrates political partisanship and age is playing a role in opinions about climate change; 57% of young Republicans (aged 21 to 36 years) believe there is solid evidence of global warming, compared to only 44% of older Republicans (aged 53 to 71). 94% of young Democrats believe there is solid evidence of global warming, similar to

92% of older Democrats (Pew Research Center, 2018a). As a result, the majority of the population is divided, unable to organize and collaborate to reverse the looming and growing threat of climate change (Ross, Rouse, & Mobley, 2019). Should the growing population of Gen Z lean towards recognizing climate change as a real global threat that must be overcome, Gen Z may grow influential enough to demand their governments implement policies to require large organizations to reduce waste and greenhouse gas emissions.

Online social activities are increasingly important for how people consume news and information about a variety of important social issues. Most adults in the United States (62%) get news on social media (Gottfried & Shearer, 2016). Gen Z's exposure to the risk of climate change began at a very young age, perhaps as soon as they gained access to a mobile device. Gen Z are seekers of truth, meaning they value self-expression, avoid labels, mobilize themselves around causes, and make decisions in a highly analytical and pragmatic way (Francis & Hoefel, 2020). This may be a result of more convenient access through smart devices to various conflicting points of views expressed through social media.

While Gen Z is entering the economic world as more analytical, potentially as a result of higher learning from STEM based education available to this younger generation (Rickes, 2016), Gen Z is still without the financial or political power to heighten awareness and influence action to reverse the effects of global climate change in 2020 (Ross, Rouse, & Mobley, 2019). A large percentage of Gen Z does not perceive climate change as a political matter, nor

do they question its veracity (Punk & Kennedy, 2020). Gen Z has demonstrated an increased willingness to collaborate and bring awareness through social media. They also take action through activism, as evidenced by leading Gen Z activist, Greta Thunberg, named "TIME's Person of the Year" in 2019. As a teenager, she spoke at both the 2018 United Nations Climate Change Conference and at the 2019 UN Climate Action Summit to call for stronger action on climate change. Dylan D'Haeze, a climate change film maker, produced multiple documentaries, including *Plastic is Forever*, to inform and empower Gen Z climate change activists. Jamie Margolin, named one of People Magazine's "25 Women Changing the World in 2018," co-founded Zero Hour Organization, a non-profit international movement aimed to spread the message that there is no more time to waste.

Although global climate change has been a growing concern for decades, it begs the question, why does Gen Z seem more inclined than previous generations to solve what is considered potentially our largest global threat? By gaining insight into how the Gen Z population interacts with social media, this study might give organizations, policy, non-profit, and other power holders key information that can help accelerate and or improve the impact of the Gen Z population on climate change issues.

Organization of the Study

This chapter provided a background on the Gen Z usage of mobile devices, access to social media, and general awareness of global issues. It also introduced the purpose and significance of the study. Chapter 2 examines relevant

literature relating to Gen Z usage of mobile devices and potential impact. Chapter 3 outlines the quantitative method used for this study. Chapter 4 reports the study results. Chapter 5 discusses the findings and conclusion.

Chapter 2: Literature Review

The purpose of this study was to explore how Generation Z's relationship with social media affects their views of different social issues. This chapter examines the unique characteristics of the Gen Z cohort. At the time of this study, the oldest Gen Z adult was 23 years old. Hence, very little data is available to correlate Gen Z's usage of social media and how social media has formed their perspectives on social issues. Additionally, at the time of this study, no scholarly data existed to hypothesize Gen Z's viewpoint on climate change. However, a study performed on the slightly older generation of Millennials (born between 1980 and 1997) cites polarization of climate change beliefs and its tie to a conflict in identity (Ross, Rouse, & Mobley, 2019). The findings suggest younger generations, post the Reagan Revolution of the 1980s, is not opposed to environmental policies.

This chapter will examine Gen Z's characteristics as a growing cohort that is both informed and influenced by social media. The resulting portrait suggests that Gen Z is a group of tech-savvy, self-starters that can feel burdened by the information they receive.

Characteristics of Gen Z

Gen Z grew up with cell phones and do not remember a time before the Internet (Twenge, 2017). Today's Gen Z adults grew up in an era of mass school shootings, the Great Recession, and the emergence of mental health issues. Mental health issues became front and center when famous young Millennials, including Miley Cyrus, Demi Lovato, Jared Padalecki, Selena Gomez, and Emma Stone, publicly opened up about their struggles with depression, anxiety, and panic disorders. Gen Z is coming of age during the COVID-19 era, the Me Too movement, and Black Lives Matter.

Tech Savvy

Gen Z is more tech savvy than the older Millennial generation (Elmore, 2019). They spend the equivalent of a full-time job on their devices, not including school assignments (Elmore, 2019). Today's smart devices allow access to nearly all forms of media, which can all be enacted almost simultaneously. Smartphone users figuratively have the world in their hands. For Gen Z, their smart devices have become the hub of entertainment (Palley, 2012). It is worth noting, smartphone use is not limited to rich Gen Z. As of 2013, 87% of teen's surveyed in a household where the family income is over $75,000 reported having their own phones (Turner, 2015). Further, 73% of those raised in households earning between $50,000 and $75,000 owned cell phones, while 76% of teens in household earning between $30,000 and $50,000 possessed a device (Turner, 2015).

Private

Gen Z has been characterized as more private than the previous generation of Millennials, particularly in the use of social media (Elmore, 2019). Millennials were the first generation of adolescents to experience the benefits and consequences of social media. Millennials fell prey to online stalkers and cyber bullying. Millennial oversharing sometimes resulted in posts that were reviewed by scrutinizing employers and resulted in lost employment opportunities. Gen Z observed the mistakes made by Millennials and became more cautious when sharing status and sharing photos (Elmore, 2019).

Anxious

Gen Z has also been characterized as anxious. This generation of children, teens, and young adults suffer from more mental health problems than any other generation in American history (Elmore, 2019). Both secondary schools and colleges report an

insufficient number of counselors available to serve the students seeking help on campus. Gen Z lives a life of paradox, in that their lives are both easier and harder than previous generations. Technology is easier to navigate, but tragedy is more easily accessible. They are exposed to world hardships through their personal devices, yet not prepared to emotionally handle the information (Elmore, 2019).

Inclusive

Gen Z is characterized as more redemptive, diverse, and inclusive. Equality has become a top concern for this generation; they want everyone to be and feel respected (Elmore, 2019). According to 2017 census data, they are the most ethnically diverse generation in American history. While previous American generations seemed to have struggled with diversity, Gen Z does not. This may be in part to their coming of age during the administration of our first Black president. Gen Z is probably the last generation with a Caucasian majority. The racial and ethnic makeup of Gen Z indicates 55% are Caucasian, 24% are Hispanic, 14% are Black, 4% are Asian (Flippin, 2017). Gen Z has grown up interacting with and cooperating with a more varying population of race, ethnicity, religious beliefs, and sexual identity. As a result, this diverse exposure gives Gen Z a broader perspective (Flippin, 2017).

Seekers of Truth

According to multiple sources (Flippin, 2017; Francis & Hoefel, 2018), Gen Z seeks and values truth. They seek transparency in dialogue to pragmatically solve conflicts and improve the world. They relate to data and make decisions in a highly analytical way (Francis & Hoefel, 2018). The value of truth may impact how they vote, though it is too early to tell. According to Flippin (2017), Gen Z shares a general

discontent for politicians. Gen Z would like more transparency, action, and accountability from politicians. They are concerned that there has been little or no progress on major issues of societal needs.

Self-Sufficient and Entrepreneurial

Gen Z grew up with access to search engines, capable of finding information on their own. Research demonstrates Gen Z is comfortable relying upon self-service tools, such as Google search, to find products or information, versus asking experts (Merriman & Valerio, 2016). Gen Z has learned from Millennials. They watched Millennials who believed when their parents told them how going to college would result in a great job and later found out it was not true. Many Millennials did not find jobs that excited them even after earning a college degree (Elmore, 2017).

Gen Z adults' self-sufficiency, combined with observations of older Millennial career struggles, have resulted in Gen Z's eagerness to pursue entrepreneurial opportunities. Elmore (2017) suggests they feel empowered to bypass the corporate world, and instead create their own company or freelance. A 2014 study from the Sparks & Honey consultancy found that 72% of high-school students wanted to start a business. Gen Z are optimistic about their future. The vast majority of Gen Z believe in the American dream. When members of Gen Z were asked if they believe that their version of the American Dream is achievable, an overwhelming 95% said yes (Flippin, 2017).

Access to Social Media and Impact to Gen Z

Mobile devices are unlike previous forms of technology. Applications do not always filter, and they are always on. Nearly all Gen Z sleep with their smartphones (Twenge, 2017). They put them under their pillows or within arm's reach of the bed.

They check social media websites and watch videos just before falling asleep and reach for their phones as soon as they wake up in the morning.

Mental Health

Gen Z does not know a world without instant and convenient access to the internet (White, 2017). The Monitoring the Future (MtF) survey, performed annually from 1976 through 2015, shows a negative correlation between teenage screen time to happiness (Twenge, 2017). The survey asks teens how happy they are in general and how much time they spend on various activities during their leisure time, including screen activities such as social networking sites, texting, and Internet time, and such non-screen activities such as in-person social interaction, exercise, and print media. The results demonstrate that those who spend more time on screen activities are more likely to be unhappy, and those who spend more time on non-screen activities are more likely to be happy (Twenge, 2017). Eighth graders who spend 10 or more hours a week on social media are 56% more likely to be unhappy than those who do not. Those who spend six hours a week or more on social media are 47% more likely to report they are unhappy. However, the opposite is true of in-person interaction. Eight graders who spend more time with friends in person, versus on social media, are 20% more likely to be happy.

Neurological

An excessive volume of technology consumption can potentially disrupt neurological development. According to a 2018 study by the National Institutes of Health, kids under 18 years who use smartphones, tablets, and video games more than seven hours a day are more likely to experience premature thinning of the cortex, the outermost layer of the brain that processes thought and action (Sparks & Honey, 2018).

Cortical thinning can disrupt attention and arousal processes. Researchers also propose that accelerated cortical thinning may be associated with emerging depressive symptoms in adolescence (Bos, Peters, van de Kamp, Crone, & Tamnes, 2018).

Connected Yet Lonely

There are benefits to convenient social media access. Gen Z is comfortable navigating and synthesizing vast and varied information. They are adept at accessing information with a considerable capacity for processing large amounts of information (Flippin, 2017). Connectivity to the internet has also helped Gen Z feel connected to one another even when they are apart. They are able to stay in close touch with their friends through text and social media, exchanging pictures via Instagram or dance videos via Tik Tok, while updating friends on what they are doing. Yet, they are lonelier (Twenge, 2017). In comparing studies performed in 2011 and 2015, 8th and 10th graders felt 31% lonelier and 12th graders felt 22% lonelier. Over time, teens are actually lonelier than at any time since the survey began in 1991.

Social and Political Interest

Gen Z has found creative ways to share their viewpoints through social media; it is where they shine. They are changing their Facebook profile picture to an equality sign or hash tagging a tweet about a cause. Gen Z is distinctive by a sense of wanting to make a difference and believing that they can (Twenge, 2017).

Sejal Makheja, an activist, entrepreneur, and influencer, is an example of Gen Z youth motivated to make a difference while using social media to influence and bring awareness. At the age of 14, Makheja founded the Elevator Project, an organization aimed to lift people out of poverty through apprenticeship, vocational training, and job

placement. Another young influencer, Lily Mandel, 17 years old, is the creator of an organization called BSCAPE (Bucks Students for Climate Action and Protection of the Environment), aimed to inspire sustainable agriculture systems and preserve the environment. These Gen Z influencers use a combination of social media sites, including Twitter, Instagram, Instagram, YouTube, and LinkedIn, as their platform to advocate for causes they feel passionate, gain followership, and broaden their advocacy reach.

Gen Z influencers have demonstrated leadership in heightening awareness of climate change. However, scholars recognize that climate change is an abstract topic for most adults and public opinion is still forming. The impact of information filtered through social media is a complex. Convincing, yet conflicting, opinions shared through mass media can be polarizing. Although, when discussed through concrete experiences by high-profile influencers, climate change can become more tangible and personable (Anderson, 2019). Personalization can reduce the psychological distance between the person and climate change which makes it easier to engage on the issue (Spence, Poortinga, & Pidgeon, 2012).

Research has demonstrated that Gen Z members are dissatisfied with the state of the country. The percentage of 12th graders who believe institutions, including education, government, news media, corporations, and religious organizations, are doing a good job reached an all-time low in 2014 (Twenge, 2017). This was lower than after Watergate, lower than at the peak of violent crime in the 1990s, and even lower than during the Great Recession of 2007 through 2009 (Twenge, 2017). Many Gen Z have also lost trust in government. They believe the government is run for big interests instead of for the people. They look at political debates and congressional hearings as a waste of time and

an opportunity for politicians "willing to act like foolish teenagers throwing a fit in order to make sure that the other side does not get what they want" (Twenge, 2017, p. 282).

Summary

The literature review provided an examination of Gen Z's unique characteristics. The literature has described Gen Z as tech savvy, private, anxious, inclusive, seekers of truth, self-sufficient, and entrepreneurial, which partly may be the result of Gen Z's reliance on mobile devices and social platforms. Early evidence demonstrates not only heightened connectivity but heightened anxiety and depression. This chapter also examined literature on Gen Z's social and political interests. It is too early to determine how Gen Z adults' values and usage of social media will impact their role in politics and social issues. The next chapter describes the methods used in this study.

Chapter 3: Research Method

This chapter describes the methodology used for this research project. It begins with a restatement of the research purpose, followed by the study method, and closes with a summary.

Research Purpose

The purpose of this study was to explore how their relationship with social media affects Gen Z adults' views of different social issues. The following questions were explored.

- Has social media impacted Gen Z's view on social issues?

- What does Global Climate Change mean to Gen Z adults?

- How has social media influenced Gen Z adults' opinions on Global Climate Change?

- Do Gen Z adults feel empowered and accountable to reverse the effects of Global Climate Change, or feel polarized by this topic?

Study Method

A qualitative method was used in the research study for two reasons. First, given that the oldest Gen Z members have reached adulthood in the last five years, very little data is available. Second, existing books and academic resources about Gen Z were published several years ago, might be outdated, and some of the observations, especially about Gen Z's anxieties, need to be verified (Turner, 2015; White, 2016). These studies were performed while Gen Z were teenagers and younger. However, a more recent study suggests Gen Z are more self-sufficient and more eager to have an impact on the world than previous generations (Francis & Hoefel, 2018). These conflicting points of view

suggest that a qualitative approach is appropriate because more data must be collected to understand Gen Z's current social media experience and perspectives on social issues. Note, given the small sample of 12 interview participants for this study, the results for this study are not fully representative of the Gen Z cohort.

The study's intent is to uncover Gen Z's perspective on social issues, particularly global climate change, and the role of social media in the formation and activation of that perspective. Given there is limited academic study in this area, I used a phenomenological research method, which focused on the commonality of a population's lived experience. In this case, I focused on Gen Z's reliance on mobile devices and social media. As a result, the research involved exploring responses and probing for clarification to support an emerging definition of Gen Z adults as savvy in social media usage and advanced in their knowledge of social issues.

Research Setting

Data were collected through one-on-one interviews over a two-week period in July 2020, just four months into the COVID-19 pandemic. COVID-19 shelter-in-place (SIP) mandates required social distancing. As a result, interviews were performed through virtual Zoom technology.

Interview Population

Subjects were enlisted through my LinkedIn network to serve two purposes: (a) to verify the participants' age group and country location and (b) to support assumptions of social media usage as LinkedIn is a social networking site. Participants were required to meet several criteria to participate in the study: (1) age 19 to 29, (2) reside in the United States, and (3) active LinkedIn account.**Protection of the Subjects**

Approval to conduct the study was obtained through Pepperdine University's Institutional Review Board on July 7, 2020. In addition, I completed the MSOD Human Subjects Training course, instituted by the Collaborative Institutional Training Initiative (CITI) Program, on September 25, 2018.

Participants were identified through my LinkedIn network. LinkedIn provides email addresses for direct ("1st connection") contacts, hence participants were invited directly by email message between July 10, 2020 and July 13, 2020. Participants were informed of the research purpose and provided a link to an online form to provide consent and to select an interview date and time. Upon consent and selection of an interview time, I sent a calendar invitation which included a link to a Zoom virtual session with a unique password to gain access.

All participant responses were kept confidential. All participant responses were collected through one-on-one virtual Zoom sessions and recorded via the Zoom record feature. All recordings were securely stored onto a password-protected computer. Participants were asked to not provide identifying information during the recording of the virtual session. Upon completion of the interviews, the recordings were transcribed. All transcriptions were stored on the my Google Drive, which is 2FA protected and only accessible to me. All participant data collected from this study will be destroyed upon approval of this study. Only aggregate data was reported in this study.

Participants faced no apparent risks or cost by participating in the survey, except the time required to participate in an interview session. However, the Zoom virtual meeting experience may be more psychologically stressful because of the number of virtual meetings taking place under COVID-19 SIP orders, resulting in a recently

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identified virtual meeting fatigue. Participants did not benefit from the study; however, I offered to share the summary report upon conclusion of the study.

Data Collection

Direct contact through email was made with 25 individuals in July 2020. Of the 25 potential interviewees, 13 responded to the email message with interest to participate in the study. Of the 13who responded, only 12 qualified. Each interview averaged 15 minutes. Each interviewee was asked to answer 12 questions, as referenced in Table 1.

Table 1

Relationship between the Research Questions and the Interview Questions

Research Questions	Interview Questions
1. Has social media impacted Generation Z's view on social issues?	What is your level of interest in social issues, such as climate change, poverty, or diversity? If interested: Which issues in particular? What are your sources for information? What is your top source to learn about social issues?
2. What does Global Climate Change mean to Generation Z adults?	How interested are you on the subject of global climate change? When and how did you first become aware of climate change? Has learning about climate change had an impact on you? If so, how?
3. How has social media influenced Generation Z adults' opinions on Global Climate Change?	If interested in global climate change: Are there social media influencers you follow who have influenced your opinion on climate change?
4. Do Generation Z adults feel empowered and accountable to reverse the effects of Global Climate Change, or are they polarized by the topic of Global Climate?	If applicable, what actions are you taking in this area? If applicable, what would you like to see change?

The 12 qualified participants were based in two areas of the United States, including California's Bay Area and several east coast states. Nine participants resided in the Bay Area and three resided in New Jersey, New York, and Maryland respectively. The participants ages ranged between 19 to 21 years old. All participants attended four-year universities. There was an even split, six, of women and men. All were active users of multiple social media and social networking sites.

Data Analysis

In accordance with the phenomenological approach of this study, I developed interview questions to support the study's research objectives. I approached the examination of qualitative data by aggregating common themes collected through the interview process. The approach involved using a coding process to organize data into categories, interpret meanings, and find themes (Creswell, 2003). I began by identifying interview questions as they applied to each research question. I then analyzed the results collected from the interviews by grouping common answers. Several common themes were identified across the participants' responses. Next, I recorded the themes that emerged from the summaries for each interview question. Direct quotes from the participants' responses were provided to support noteworthy themes. To ensure anonymity, I avoided identifying the participants in any way.

Summary

This chapter described the methods used to examine how the relationship with social media affects Generation Z adults' views of different social issues, particularly global climate change. The study used a qualitative phenomenological research method which focused on the commonality of 12 U.S. Gen Z members' lived experience. This

chapter also discussed the interview population, protection of the subjects, data collection

process, and data analysis procedures. Chapter 4 presents the results of the study.

Chapter 4: Results

The purpose of this study was to explore how Gen Z's relationship with social media affects their views of different social issues. The relationship and affects are explored through the following research questions:

- Has social media impacted Gen Z's view on social issues?

- What does Global Climate Change mean to Gen Z adults?

- How has social media influenced Gen Z adults' opinions on Global Climate Change?

- Do Gen Z adults feel empowered and accountable to reverse the effects of global climate change, or feel polarized?

This chapter presents the results of 12 interviews with Gen Z adults who own mobile devices, are regular users of social media, and reside in the United States.

Early Access to Personal Devices and Social Media

Table 2 presents the ages when each of the 12 interview participants received their first smartphone. Based on the responses provided, a large majority of interview participants received their first smartphone with internet capability before high school. Eight were given smart phones in middle school and only two of 12 participants were given smart phones in elementary school. Facebook requires users to be 13 years or older to open an account, although one participant volunteered overstating their age to gain access.

Table 2

Participants Age of First Smartphone

Age	N	%
5th grade (elementary school)	1	8%
6th grade (elementary school)	1	8%
7th grade (middle school)	3	25%
8th grade (middle school)	5	42%
9th grade (high school)	2	17%

Gen Z View of Social Issues

The first research question explored if early use of personal devices had impacted Generation Z's view on social issues. To help answer this question, I focused on the respondents' answers to interview questions about their level of interest in social issues and their sources of information for the social issues that most interest them. Table 3 presents the participants' social issue(s) of highest interest. All interviewees provided more than one answer. Nine participants cited climate change as one of their top concerns. Racism, particularly Black Lives Matter, received the same number of responses. However, given all 12 interviews were conducted in July 2020, during the height of racial tensions and an explosion of Black Lives Matter interest, racism overcame climate change as the top concern for two of the participants. Note, diversity and inclusion, also cited a top concern, is different than Black Lives Matter as diversity refers to recognizing the traits and characteristics that make all races of people unique while inclusion refers to the behaviors and social norms that ensure all races of people feel welcome.

Table 3

Interest in Social Issues

Global/Social Issue	N*	%
Climate Change	9	75%
Racism (Black Lives Matter in particular)	9	75%
Female Equality	5	42%
Diversity & Inclusion in the workplace	3	25%
Homelessness	1	8%

The data in Table 3 also suggests and supports the assertion that Gen Z has a high interest in equality and inclusion, as presented in three of the five top concerns: racism, female equality, and diversity & inclusion. These results support the Gen Z characteristic as inclusive.

Table 4 presents all the sources used by the interviewees to gain news and popular information. All participants listed multiple sources, including social media applications, email newsletters, news channels, and websites. All participants had at least one social media app account. 11 had an Instagram account while seven had a Twitter account. There was no discernable theme for email newsletter subscriptions. Seven different email newsletters were cited, and none were common amongst the participants. Only two utilized the more traditional news channels or websites, (e.g., CNN, CNBC, and BBC).

Table 4

Information Sources

Source	Category	N	%
Instagram	social media app	11	92%
Twitter	social media app	7	58%
Facebook	social media app	3	25%
TikTok	social media app	2	17%
NY Times Morning	email newsletter	1	8%
Google News	email newsletter	1	8%
Apple News	email newsletter	1	8%
NPR	email newsletter	1	8%
CA Reports	email newsletter	1	8%
Environmental societies (e.g. Seymour Marine Discovery Center, Oceana, Sierra Club)	email newsletter	1	8%
CNN	news channels or websites	2	17%
CNBC	news channels or websites	1	8%
BBC	news channels or websites	1	8%

Table 5 presents the interviewees' top resources to follow or gain information about the social issues they care most about. Although no common email newsletter was shared amongst the interview participants, email newsletters, as a collective, received the most responses of five. Two relied upon environmental society newsletters to receive reports on the health of the planet or marine life.

Although all participants have social media app accounts, including Instagram and Twitter, only four relied upon a social media app platform as their top resource. One participant specifically mentioned not relying on social media apps for accuracy or news. Instead, social media apps were used to gain a pulse of what friends care most about. Social media apps were great for expressing a point of view but reports and studies through subscriptions were more reliable. A second participant shared how this age group is "more analytical than older groups." This participant was comfortable reading and

analyzing reports instead of relying upon news channels for information or perspective.

The interviewees' statements support a Gen Z characteristic as "seekers of truth."

Table 5

Source Used to Learn about Social Issues

Resource	N	%
Email newsletters (e.g., NY Times Morning, Google News, Apple News, NPR, California COVID-19 Reports)	5	42%
Social Media Platform (e.g., Instagram, Twitter, Facebook, TikTok)	4	33%
Environmental society newsletters (e.g., Sierra Club Seymour Marine Discovery Center, Oceana, Sierra Club)	2	17%
News channels or websites (e.g., CNN, CNBC, BBC)	1	8%

Awareness and Knowledge of Global Climate Change

The second research question explored Gen Z's awareness and knowledge of global climate change. To help answer this question, I focused on the respondents' answers to interview questions that addressed their awareness of climate change, plus how their knowledge of climate change impacted their habits. Table 6 presents the interview participants' level of interest in climate change. Three of the interview participants listed global climate change as their top concern. Six stated they are concerned about climate change, but it was not their top concern at this time.

Table 6

Interest in Global Climate Change

How interested are you in the subject of global climate change?	N	%
Participant's top concern	3	25%
Concerned, but not top	6	50%
Low or not interested	3	25%

Table 7 presents the themes that emerged from the interview data related to when and how the interview participants become aware of global climate changes. The majority of the responses referred to school, specifically science classes, events, and clubs, as the biggest informer regarding climate change. These results demonstrate the influence schools and educators have on youth and young adults and open up a different perspective on the role of social media. One interview participant learned about global climate change in a high school science elective class. The teacher of the class was passionate about the climate and marine life and organized beach cleanup efforts. As a result, the student became more interested in the environment, joined the school ecology club, and subscribed to environment and marine newsletters to stay informed.

The results do not support social media as largely impacting Gen Z's perspective on global climate change. Only one participant learned of climate change through social media, and even then, not until freshman year of university. Climate change was not part of this participant's early education. In September 2019, a social media influencer promoted the 2019 Global Climate Change Project in Facebook. Upon reading the post, the participant became curious and researched the risk and cause of climate change. The participant also followed the 2019 Global Climate Change Project event, which peaked the participant's desire to share climate change learnings.

Table 7

First Awareness of Climate Change

Theme	Sample Comments	N	%
Science class, school events and clubs	- High school science teacher with Santa Cruz ocean cleanup efforts - In middle school, we learned about fossil fuel's impact - Elementary school conversation about conservation. - School events, including science fairs, Earth Day - Open discussions in my high school biology class - High school environment class elective	8	67%
Television	- I recall Bill Nye's statement, "we are not taking care of our planet" - California drought of 2010 as reported on the televised local news channels. "Our family began to conserve resources."	2	17%
Home	"We've been conscientious for as long as I can remember"	1	8%
Social Media	Global Climate Change Protest in September 2019. The protests took place across 4,500 locations in 150 countries.	1	8%

Table 8 presents the themes that emerged from the interview data related to understanding Gen Z's impact upon learning about climate change. Note, several participants provided two or more impacts. Eight of the interview participants stated they became more curious, joined clubs, became more interested in science, and/or subscribed to environment reports or newsletters. Four stated they were concerned about their future. One participant worried that climate change would not be overcome in their lifetime; the real effects would be borne by the next generation.

Three of the interview participants stated they had opened conversations since learning about climate change in high school science class. One interviewee's parents did not believe climate change was a problem, and "they don't talk about it." Instead, conversations with friends on social issues, including climate change, had become healthy debates. These responses correlate to the Gen Z characteristic as "seekers of truth."

Table 8

Impact of Learning about Climate Change

Theme	Sample Comments	N	%
Increase in Curiosity and Learning	• Became interested in environmental science • Joined the high school marine club • Subscribed to environmental reports and newsletters	8	67%
Fear / Concerned About Future	• "Feels like I can't do enough" • "Terrifies me" • Worried not enough people care and are willing to change	4	33%
Opened conversations with friends and family	• "My friends and I are comfortable with having lengthy debates about social issues, like politics, social justice, and climate change" • Reminds parents to re-use containers instead of buying new bottles of water	3	25%
No Change	• "Not my top concern"	3	25%

Impact on Gen Z

The third research question explored how social media influenced Gen Z adults' opinions on global climate change. To help answer this question, I focused on the respondents' answers that addressed who in social media has influenced their opinion on climate change. Table 9 presents all social media influencers cited by the interview participants. Only four of the interview candidates cited influencers. Eight cited no social

media influencer. One interview participant responded, "climate change would be solved much faster if it received the same attention from famous people as Black Lives Matter." This interviewee ranked climate change and racial equality as high concerns. However, the concern was that climate change did not get as much or enough attention. One participant said, "The advice we are given to stop racism is actionable. People want to fix it. Climate change leaders can learn from Black Lives Matter."

The results do not support social media as largely impactful to Gen Z's perspective on global climate change. Eight of the interview participants did not cite an influencer of whom they follow by social media. The interview participants who did provide a social media influencer cited popular celebrities or "Instagramers" instead of climate change activists.

Table 9

Social Media Influencers

Social Media Influencers	N	%
Leonardo DiCaprio	2	17%
Oceans for Oceans	1	8%
Jack Harris, an Instagram Influencer	1	8%
"The Real Tarzan"	1	8%
Elon Musk	1	8%
Cited no influencer	8	67%

Empowered or Polarized

The fourth research question explored whether Generation Z adults feel empowered and accountable to reverse the effects of global climate change or polarized by the topic. To help answer this question, I focused on the respondents' answers to interview questions that addressed the actions taken since learning about climate change. Table 10 presents the themes that emerged from the interview data related to the

participants' actions taken since learning about climate change. Note that several

participants provided two or more responses to this question.

Eight of the interview participants changed their waste and conservation efforts

by using reusable containers, using less water and energy, and composting at home. Four

helped to raise awareness at home and with social media sharing. Two participated in

local awareness events and protests, including the September 2019 Climate Change

Protest. Two actively validated vendor sustainability efforts and tried to support buying

from manufacturers who contribute to social causes, including climate change. Three

have made no changes in their habits.

Table 10

Actions to Address Climate Change

Theme	Sample Comments	N	%
Change in waste and conservation efforts	• Reusable containers • Water and energy conservation (e.g., shorter showers) • Composting	8	67%
Spread the word	• Conversations with friends and family • Social media post sharing	4	33%
Participation in local awareness events and protest	• Beach cleanup • Environment protest	2	17%
More selective buying	• Product selection from makers who are environmentally conscientious • Limit purchases to reusable, sustainable products	2	17%
No Change	• "Not my top concern"	3	25%

Table 11 presents the themes that emerged from the interview data gathered from

participants when asked "what would you like to see change?" Several participants

provided two or more responses to this question. Four want more action from the

government and less polarization. One participant stated the federal government leaders "cause confusion with misinformation." They continued, the leaders are an "older generation" and "don't believe climate change is a problem." Three want corporations to take more responsibility by considering alternative energy sources and by using biodegradable packages. One interview responded stated, "I can't do enough. We need the big companies to change; they do the most damage."

Three want more education and encouragement from the school system, including more STEM based education, school organized events, and activities. One participant shared the encouragement of an environmental science teacher increased the interest and involvement of fellow students. As stated, "I would not have joined a beach cleanup or become involved in climate change activism if it weren't for the passion of my high school environmental science teacher." A second participant stated, "the difference between my friends and older generations is the STEM education." STEM (science, technology, engineering, and mathematics) based education, is promoted as a distinguishing advantage at the interview participant's California Bay Area school district. One participant said, "STEM education gives me the confidence to examine information and challenge it."

Three would like to see more awareness through social media. As one participant explained, "social media does not do enough. I don't think the experts understand the power of social media." Finally, three of the interview participants would like more individual actions, including increased involvement from Gen X and older generations as well as reliance on credible data instead of coverage by popular network news media. As stated by one participant, "my parents just don't care! My Dad believes climate change is

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for my group of friends to solve." Their next statement is particularly relevant in the COVID-19 era of 2020: "Climate change is to Gen X as COVID is to Gen Z. That's bad to say, but that's how my friends feel." When asked to clarify, they explained, "my friends don't feel responsible for solving COVID any more than Gen X feels responsible to solve climate change."

Gen Z does not yet feel empowered to make a real difference on their own. As presented in table 11, the majority of responses indicate that Gen Z wants more action from the government, corporations, and education systems. These organizations are not yet run by Gen Z. As one interview participant stated, "we have passion but no power to make a real change right now." An interview participant, who is an environmental activist, stated our current planet conditions well: "Ice caps are dissolving; gases are going up. Yet, COVID has allowed the earth to take a breath. China is able to see blue sky after a very long time."

Table 11

Themes Desired for Climate Change

Theme	Sample Comments	N	%
Action by the government	• Less politicization by government leaders • More policies and government enforcement	4	33%
Action by Corporations	• More consideration of alternative energy sources (e.g. solar and wind power) • Use biodegradable packaging	3	25%
Increase in school education and activities	• More STEM (science, technology, engineering and mathematics) based education • Encourage students to participate in social work • Increase support of environmental clubs on campus	3	25%
More awareness through social media	• Not enough influencers to raise awareness • "More energy around climate change like Black Lives Matter"	3	25%
Individual action and awareness	• Analyze and question results and sources, versus relying upon network news media • Gen X and older parents - get involved!	2	17%

Summary

This chapter presented the results of the study. The research questions sought to explore how social media influenced Gen Z adults' views of social issues. 12 Gen Z adults participated in the study. The results captured themes that emerged from the interview data.

The results challenge the broad notion that social media impacts the views of Gen Z on global climate change. However, social media has played a strong role in bringing awareness to social justice issues, including racial equality and the "Me Too" movement.

Chapter 5 will discuss the conclusions, implications, and study limitations. Chapter 5 will also discuss the interpretations of the dominate themes and recommend suggestions for future study.

Chapter 5: Discussion

The purpose of this study was to explore how Gen Z's relationship with social media affects their views of different social issues. The relationship and effects were explored by attempting to understand the following questions:

- Has social media impacted Gen Z's view on social issues?

- What does Global Climate Change mean to Gen Z adults?

- How has social media influenced Gen Z adults' opinions on Global Climate Change?

- Do Gen Z adults feel empowered and accountable to reverse the effects of Global Climate Change, or feel polarized by this topic?

This chapter reviews the study conclusions, interpretations, and study limitations. It closes with a summary of learnings.

Conclusions and Interpretations

I drew several conclusions and interpretations based on data gathered from the literature and the interviews. First, this research substantiates Gen Z members are both tech savvy and well connected through technology. The average Gen Z participant in this sample acquired their first smartphone and created their own social media account before high school. Second, given Gen Z's early-age access to social media through their personal smartphones, both the literature and the interview results suggest that Gen Z may be emotionally incapable of handling and processing the information. For example, early studies (Turner, 2015; White, 2016) reported that access to news, combined with constant text and social media following at too young age, might contribute to this generation's reported levels of high anxiety. Interview results validate that Gen Z is

indeed highly connected through internet and social media (all participants have social media accounts) and are aware of the global and social issues (100% listed social justice and climate change as important topics). In addition, four participants do fear for their future, noting that they are terrified and feel not enough is being done. Both the literature and interview results demonstrate Gen Z as savvy in mobilizing behind a cause with the use of social media.

Interview results demonstrate Gen Z care about multiple global and social issues, including climate change, racial and female equality, diversity and inclusion, and homelessness. Some participants expressed that their top concern has recently become social justice and equality over climate change, in light of the recent awareness of police brutality of minorities and institutionalized inequality. However, climate change is still a high concern for most of the interview candidates; some interview candidates have expressed fear for their future. Note, the results might be skewed by the timing of the interview. This study was conducted in July 2020, during the COVID-19 era, followed by a sharp increase in awareness of racial injustice and violence, which have become prominent issues to address and overcome.

The results of the interviews demonstrate that most Gen Z members are environmentally conscientious. However, they did not learn about environmental issues through social media and they do not believe they are sufficiently empowered to overcome climate change solely through personal habit changes. The interview results suggest that Gen Z would like to see government leaders, schools, and corporations become more active through policy enforcement, education, and sustainability practices. Although Gen Z relies on social media to gain a pulse on the issues that matter to their

friends, social media is not the medium for learning the facts of the matter. Some Gen Z cited they do not rely on network news as they do not consider their reports credible, instead subscribe to newsletters they believe more reliable.

Although Gen Z is tech-savvy and connected through social media, they are not yet organized in uniting around climate change. Data gathered from this research demonstrates very little commonality in learning about and discussing climate change. 42% of the participants learn through email newsletters, versus relying on social media to learn climate change fact; however, none cited a common email newsletter source. All Gen Z participants had an Instagram account, but only four relied upon a social media app platform to learn and share climate change information. With the vast amount of data and sources to provide data, whether factual or subjective, there is good reason for Gen Z to feel overwhelmed and polarized, resulting in feeling and fear and powerlessness.

Study Limitations

Although the results are informative, it is important to note that the limitations of sampling might have accounted for the results. This is an exploratory study with a small sample population of 12 interview participants for this study; therefore, the results for this study will not fully represent the Gen Z cohort. The research was applied to Gen Z adults in college who were previously raised in relatively affluent conditions. Nine grew up in the California, a world leader in STEM education. Three of the interview participants credited STEM for gaining the capability to analyze diverse data to reach a conclusion. Many areas within the US do not provide STEM education, hence it is possible many Gen Z adults are not yet confident to analyze environment reports.

Suggestions for Additional Research

First, given the small sample size, I recommend a larger sample and expanded research in a greater variety of states. Second, the research was performed in a notably volatile time, shortly after considerable racial inequality and social injustice awareness and during COVID-19 SIP. Such prominent issues might have overshadowed still important global issues, like climate change. Entering 2020, experts predicted climate change would be the global issue most top of mind. However, feedback from 25% of the participants indicated that climate change is not a concern. As a participant stated, "Definity not a concern given what's happening <at this time>."

Last, given the oldest Gen Z is just completing university and entering the workforce, there is still a great deal to learn about this cohort, the impact of social media, and how they use it to excite and mobilize around causes. I recommend continuous qualitative research of Gen Z and their experiences with mobile devices and social media as they become a more prevalent population in the workforce and as leaders.

Summary of Learnings

I conclude that the results of this study do not provide sufficient evidence regarding Gen Z's usage of smartphones and social media to suggest that these technologies are impacting their view on global climate change. However, there is great potential for Gen Z to mobilize around climate change given social media's proven effectiveness in gaining support for recent movements, including Me Too in 2019 and Black Lives Matter in 2020.

The COVID-19 era of 2020 has resulted in a number of challenges, which may have impacted interview responses, and therefore the results of this study. These

interviews were conducted in July 2020, amidst COVID-19 and a heighted racial

injustice awareness era, just six weeks following a smartphone capture and mass social

media share of George Floyd's killing by law enforcement. Under the current conditions

of COVID-19 shelter in place and rising racial injustice awareness, equality was the top

concern of this interview sample. The majority of the sample (nine participants) were

concerned about climate change. Three stated climate change is low interest or not a

current concern.

      The majority of the sample (nine participants) stated that learning about climate

change changed their behavior and daily habit, however, the interview participants

believe their individual change is not enough. The majority of the sample (nine

participants) want to see larger organizations, including our government, corporations,

and schools, to take more of a leadership in overcoming global climate change.

      Gen Z is still very young with the oldest just graduating from high school in 2015

and four-year graduates completing university in 2019. The oldest Gen Z are just

beginning to enter the workforce. More still needs to be discovered as to how Gen Z will

mature, contribute to the workforce, and assume leadership. Studies prior to 2017, just

prior to the oldest Gen Z reaching adulthood, characterized Gen Z as anxious, immature,

and possibly unprepared for adulthood (Twenge, 2017). In contrast, more recent articles

have praised Gen Z as highly analytical, pragmatic, and self-sufficient (Francis & Hoefel

2018). If more recent reports are true, Gen Z may be positioned to overcome social

injustices, including racism, unequal pay, and poverty with the use of social media. Gen

Z may have the potential to reverse the effects of global climate change, although an

important uncertainty looms: will Gen Z reach positions of power and influence before it

is too late to stop climate change and reverse global warming? Also, will Gen Z carry their passion to mobilize around causes as they mature in their lifetime?

Given the current SIP conditions, much of the world's population is observing and evaluating the social environment by media images and less by physical interaction because SIP has also enabled more time to interact through social media and examine global and social issues, opinions and passions. Social media users watched the brutal killing of George Floyd, an unarmed Black man, killed during an encounter with law enforcement, which allowed many to experience the shock of the injustice together through social media. We watched demonstrations and more clashes with law enforcement and, again, expressed our reactions through social media. Due to the sharing of images of the injustices through social media, American interest in injustice, particularly black equality, heightened in mid 2020 (Cohn & Quealy, 2020).

The Black Lives Matter ("BLM") movement increased their mobilization in 2020 with the use of social media, but this could not have been accomplished without the unfiltered, real-time access of information through sites, including Twitter, Instagram, Facebook, and even LinkedIn. As the BLM movement demonstrated, social media is an effective channel to bring energy and attention to excite passion around a cause. BLM advocates use social media to bring awareness of injustice with the use shocking images and thought-provoking statements. BLM social media also promotes personal stories of those who are harmed by injustice, their impact and hardship. It reminds us all lives matter, including those disadvantaged. It grabs empathy to incite readers to learn more and take action.

In comparison, climate change experts have mounted significant and convincing evidence, all accessible through the internet. Climate change experts have also provided lifestyle and industry change recommendations to reverse the effects of climate change. However, the climate change campaign will need to influence organizations that have the greatest impact, specifically government and large corporations. The government and corporate leaders are not led by Gen Z. In comparison, government and corporate leaders are predominately not led by Black Americans. The social media strategy used by BLM, specifically the use of personal and provocative stories to incite emotion and action, may prove to be the model to expand action to overcome more social and global issues, including climate change.

Perhaps the 2020s will the decade we experience a real change in social justice and learn the power of uniting behind a cause, whether through other social media or other medium. It could be Gen Z, reported as more eager to have an impact on the world than previous generations (Francis & Hoefel, 2018), will carry the promise of real change of social justice for all, plus a healthy planet. Gen Z is a rapidly growing cohort, already 27% of the world's population, recently outnumbering Baby Boomers (Fry, 2020), who will soon assume the world's leadership.

Through blue skies as a result of SIP and less cars on the road burning fuel, we are able to see the potential of a state without global warming. We could overcome climate change, but this effort may require Gen Z's advanced ability to mobilize and influence using social media. Additionally, with higher emphasis on environmental education, policy enforcement, and sustainability practices, there may be hope for saving the planet before it is too late.

References

Anderson, A. (2017). Effects of Social Media Use on Climate Change Opinion, Knowledge, and Behavior. In Oxford Research Encyclopedia of Climate Science.

Blunden, J. & Arndt, D. S. (2019). State of the Climate in 2018. Bull. Amer. Meteor. Soc., *100* (9), Si–S305, doi:10.1175/2019BAMSStateoftheClimate.1.

Bos, M. G., Peters, S., van de Kamp, F. C., Crone, E. A., & Tamnes, C. K. (2018). Emerging depression in adolescence coincides with accelerated frontal cortical thinning. *Journal of Child Psychology and Psychiatry*, *59*(9), 994-1002.

Dimock, M. (2019). Defining generations: Where Millennials end and Generation Z begins. *Pew Research Center*, *17*, 1-7.

Elmore, T. (2019) Generation Z Unfiltered: Facing Nine Hidden Challenges of the Most Anxious Population. Poet Gardner.

Flippin, C. S. (2017). *Generation Z in the workplace: Helping the newest generation in the workforce build successful working relationships and career paths*. www.CandaceSteeleFlippin. com.

Francis, R., & Hoefel, F. (2018). 'True Gen': Generation Z and its implications for companies, McKinsey & Company

Fry, R. (2016). Millennials overtake Baby Boomers as America's largest generation. *Pew Research Center*, *25*.

Funk, C., & Kennedy, B. (2020). How Americans see climate change and the environment in 7 charts. *Pew Research Center Fact Tank*.

Jenco, M. (2020) Study: COVID-19 pandemic exacerbated hardships for low-income, minority families. AAP News & Journals

Merriman, M. & Valerio, D. (2016). One Tough Customer: How Gen Z is Challenging the Competitive Landscape and Redefining Omnichannel. Ernst & Young Report.

Pew Research Center. (2018). "The Generation Gap in American Politics." Pew Research Center.

Rickes, P. C. (2016). Generations in flux: How Gen Z will continue to transform higher education space. *Planning for Higher Education*, *44*(4), 21.

Ross, A. D., Rouse, S. M., & Mobley, W. (2019). Polarization of Climate Change Beliefs: The Role of the Millennial Generation Identity. *Social Science Quarterly*, *100*(7), 2625-2640.

Sparks & Honey. (2014). Meet Generation Z: Forget Everything You Learned About Millennials. LinkedIn SlideShare

Spence, A., Poortinga, W., & Pidgeon, N. (2012). The psychological distance of climate change. *Risk Analysis: An International Journal*, *32*(6), 957-972.

Turner, A. (2015). Generation Z: Technology and social interest. *The Journal of Individual Psychology*, *71*(2), 103-113.

Twenge, Jean M. (2017). iGen: Why Today's Super-Connected Kids Are Growing Up Less Rebellious, More Tolerant, Less Happy--and Completely Unprepared for Adulthood--and What That Means for the Rest of Us. Atria Books.

White, J. E. (2016) Meet Generation Z. Baker Publishing Group.

Williams, H. T. P., McMurray, J. R., Kurz, T., & Hugo Lambert, F. (2015). Network analysis reveals open forums and echo chambers in social media discussions of climate change. Global Environmental Change