THESIS

IN TIMES OF EXTREME WEATHER EVENTS: GEN Z AND INFORMATION SEEKING ABOUT CLIMATE

CHANGE ON DIGITAL MEDIA

Submitted by

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ABSTRACT

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CHANGE ON DIGITAL MEDIA

This study aimed to examine the factors that motivate Gen Z members to seek information and

engage in conversations in digital media around the topic of climate change. The current study

adopted some individual-level factors from the original Risk Information Seeking and Processing

model. An ordinary least squares regression model was used to explore data from an online

survey administered to students (n=76) at Colorado State University. Results showed that

informational subjective norms, current knowledge of extreme weather events, and

perceptions of extreme weather events are related to climate change information seeking. In

addition, information seeking, and the approach taken to process information leads to

interactivity around climate change issues on digital media. One of the ways people get

involved with climate change is seeking and having conversations on the topic. This research

provides practical insights for reaching members of Generation Z. Stakeholders should utilize

young adults' social networks to encourage more engagement on the topic, make an effort in

writing articles that can alleviate people's hope not bash it. Encouragement of deeper

engagement with the issue through alternative modes of communication and adding

technological features that encourage interactions on online articles are recommended.

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CHAPTER 1: INTRODUCTION

Climate change is one of the major challenges of the 21st century. It affects everyone on the planet. Some of the impacts of climate change are extreme weather events such as hurricanes, flooding, droughts, hotter summers, and colder winters (Leiserowitz et al., 2017). These impacts have the potential to destroy human lives and properties, unimaginably affecting humans, and sometimes have lasting effects on them (IPCC, 2018). Despite these vast impacts on human life, people are less likely to seek information about climate change except when they are motivated to do so. (Griffin et al., 1999). Climate change is a challenging issue that raises people's emotions and worries, and people avoid such information and hold it at a distance to help manage their feelings (Norgaard & College, 2006; Ojala, 2012). Yet, when they seek climate change information, it will help them learn how to cope with the impacts of climate change— extreme weather events (EWEs). Motivation to seek information in risk situations can be triggered either by a) personal experience with extreme weather events caused by climate change, b) the need for more information to fill a gap in knowledge (Information insufficiency), or c) expectations about engaging in a conversation with another person about the topic (Information subjective norms) (Griffin, Dunwoody, & Neuwirth, 1999). However, with motivation gained from personal experience with the impacts of climate change, people are likely to conquer their emotions and seek information (Johnson & Meischke, 1993; Kievik & Gutteling, 2011; Lang, 2014; Lenz, 1984).

The recent UN report warns that we have ''twelve years'' to limit the climate change catastrophe or else the impacts will befall us at almost the same time a toddler now will be in high school as a youth (IPCC, 2018). Generation Z members fall into this category. Interestingly,

unlike other generations, they have started taking actions about the impacts of climate change.

A 16-year-old Swede girl, Greta Thunberg has started a climate change movement. Greta is a Gen Z member who single-handedly led a global climate strike for over ten thousand of school children in 112 countries on March 15, 2019[1]. This act shows the high level of engagement of people in this generation on the issues of climate change, even though they are not in policy making positions yet. Adopting strategic approaches for example making use of digital media while communicating challenging and politicized issues like climate change are likely to be effective in changing people's attitudes. The story of Greta was able to catch-on especially to her peers because of the interactive nature of digital media. One way to reach younger generations is to identify the communication channels where their interests lie. Using digital media to disseminate climate change information could stimulate young people to seek information and discuss about it. According to the Pew Research Centre (2018), 98% of young adults (19- 29 years) use the internet, and 50% get their information online. Gen Z members are technology savvy and have not known a world without the internet, most of their information is gotten by utilizing digital media (Rothman, 2014). People born into Gen Z (57%) rarely watch TV unlike others in older generations that have a mix of traditional (81%)[2] and digital (35%) media as their information-consumption channel. Although all generation consume different media at varying degrees daily, comparing digital and traditional media consumption between younger generation, for example, Gen Z— who have similar characteristics with millennials, and older generation, younger generation (Gen Z) identifies digital media as the topmost media channel

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they use. Analyzing this sole information consumption outlet for this generational cohort is important alongside the motivation to seek risk information on digital platforms. A lot of researchers have investigated how young people get their information about a specific topic from digital media and how they seek for their everyday life information on such media (e.g., Agosto & Hughes-Hassell, 2005; Lang, 2014; Williamson et al., 2012). Yet, there are limited studies that have investigated what motivates the youngest generation, Gen Z — people born from 1997 till 2018, or people under the age of 22 (Dimock, 2018) — to seek information in times of extreme weather events such as a drought, wildfires, flood or hurricane. A large number of this population gets their information using digital media, and the generation has never experienced a world without technology and digital media (Prensky, 2001; Rothman, 2014). There is a chance that when they seek climate change information during extreme weather events, it could lead to a possible engagement and interaction on any digital media platform that allows such discursive affordance, and in turn, raises climate change discourse.

This proposed study will address the extent to which 3 factors (personal experience, informational subjective norms, and information insufficiency) adopted from the Risk Information Seeking and Processing model (RISP) (Griffin et al., 1999) play a role in motivating Gen Z to seek information during extreme weather events on digital media. The population segment (Gen Z) for this study has a high preference for the internet and getting their news online (Anderson & Jiang, 2018; Pew Research Center, 2017; Seemiller & Grace, 2016). Seeking extreme weather events information on such platforms may also motivate them to participate in interaction around the topic with friends and family who use the same media because young people trust their friends, parents, and role models (celebrities) when discussing the climate

change issue (Arnold, Cohen, & Warner, 2009). Digital media is the only media that provides the affordance for immediate discursive practice around a topic (Barr, 2011). Total engagement on climate issues from Gen Z is essential because they will feel the negative impacts of climate change more than any other generation. It is likely that inadequate engagement of this population segment (Gen Z) could be attributed to the politicized nature of climate change, use of traditional media, and perceived self-efficacy (Jordan et al., 2013). It will be important to engage young people with the issue of climate change on a range of behaviours, with information seeking being one of them. This study will (1) identify the factors that encourage Gen Z to seek out information about climate change, and (2) explore how that information seeking encourages digital media interactions about climate change.

CHAPTER 2: LITERATURE REVIEW

Communication with Generation Z

Who is Gen Z?

According to the Pew Research Centre, anyone born between 1997 and 2018 is considered as a Gen Z (Dimock, 2018). This study will maintain this definition. Following research on generational grouping, a generational theory proposed by Mannheim in 1928 suggest that each generational cohort eternally shares a common view based on events that happened during their life stage, and not necessarily based on their geography or social class (Sessa, Kabacoff, Deal, & Brown, 2007). Although people in the generation Z cohort have shared experiences like experiencing the Afghanistan wars, Hurricanes (Sandy, Katrina, Michael, Irma, and Harvey), they do not all act in accordance with their shared experiences, as there are outliers in every generation (Bolton et al., 2013; Seemiller & Grace, 2016). Indeed not all the characteristics that match with an individual in a generational cohort will be mutually exclusive and exhaustive to that generation. Here, we review the features of Gen Z relevant for this study, including climate change and environmental perceptions and digital media use.

Gen Z and Millennials: Perceptions, And Attitudes of Climate Change

Regarding young people's perception of climate change, Seemiller and Grace (2016) researched with 1,143 members of Gen Z with 16 institution partners both public and private. Results showed that 67% of Gen Z is concerned about climate change. Another study showed that more than two-thirds of Gen Z believe that the federal government should place priority on the issue of climate change and address it (Eagan et al., 2014). For their predecessor—millennials—81% believe that climate change is occurring and that the federal government needs to do more to help mitigate the issue (Kurtz, 2018).

Other research shows that younger generations form perceptions about climate change based on characteristics, such as political affiliation, that older generations use to shape opinions about climate change. In terms of political parties, Gen Z is liberal (40%) to moderate (38%) on social issues such as climate change (Seemiller & Grace, 2016). Millennials tend to hold perspectives that are more in line with political liberal than the generation before them when it comes to climate change. Even Republican millennials (57%) believe that there is strong evidence that the earth is warming (Meyer, 2018). The overwhelming majority of their Democratic counterparts (94%) have the same beliefs (Kurtz, 2018). Nearly half of Millennials Republicans believe that the government is putting little effort to combat the issue of climate change compared to Boomers and the older generation. Only 18% of Boomers and older generation believe that earth is warming due to human activity compared to more than a third of Millennials Republicans (Meyer, 2018). Democrats from all generations widely believe in climate change and the role of humans in contributing to it, hence, the same beliefs are similar with their Gen Z and Millennial members (Kurtz, 2018). It is beneficial to study younger generations because their views about climate change are favourable compared to older generations. Also, it is likely that the issue of climate change will be relevant to this group because there has been a push for youth to get involved in social issues like climate change because any decisions and policies made now will overlap with their adult life period (Jordan et al., 2013). Gen Z members are very compassionate and thoughtful, hence their involvement and concern in various social issues (Seemiller & Grace, 2016).

Gen Z: Communication and Digital Media

Gen Z as Digital Natives

Gen Z is the first generation born into the internet connected world. This generation has never experienced life without the internet, and they are called digital natives (Rothman, 2014; Prensky, 2001). They access the world with their smartphone and stay connected with friends and family as well as get all their entertainment from it. 95% of teens (18 - 24 years) have a smartphone (Anderson & Jiang, 2018). 28% of young adults (18 - 29 years) are dependent on smartphones to have online access to information (Pew Research Center, 2018). This is because their phones provide calls, text messages, emails, and access to different social media platforms from one location at any time and anywhere (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). 93% of teens (12 – 17 years) have a personal computer or access one at home, and 74% of them access the internet on their cell phones (Madden et al., 2013)

Some scholars (Rothman, 2014; Seemiller & Grace, 2016; Turner, 2015) have assessed Gen Z 's preference to digital media and what they do with the array of technology such as personal laptops and mobile devices at their ''beck and call.'' They found that this group has a fear of missing out on any information. They prefer staying connected to the world at every point in time, and they access all sorts of social media like Twitter (32%), Facebook (51%), Snapchat (69%), and Instagram (72%) (Anderson & Jiang, 2018). Sharing opinions and getting advice, getting new knowledge, and sharing information are some of the activities they engage in (Seemiller & Grace, 2016). The excessive use of the internet by Gen Z has caused them to have a short attention span, and they prefer visuals for learning (gaining new knowledge) over text-based information (Rothman, 2014).

Notably, Gen Z has not known a world without digital media as a mode of communication (Seemiller & Grace, 2016). This has made Gen Z to continually have access to any type of information at their fingertips from different digital media platforms. They are completely embedded in digital media. The constant exposure of the variable information on social media platforms with a few seconds of imaging on this generation has caused them to expect information to be delivered with a rapid surge (Rothman, 2014). Subsequently, digital media is the only media that can afford such function conveniently and this has made Gen Z members grow so attached to it that is detrimental to their emotional well-being. (Turner, 2015). According to a survey of about 2,000 members of Gen Z, more than 90% indicated that they would be unhappy if they gave up the internet and cell phones as a form of punishment if they don't stay in ethical behaviour. Gen Z indicated that they would prefer not to receive an allowance or be able to buy new video games as a form of punishment (Palley, 2012, as cited in Turner, 2015).

Notwithstanding the negative effects of the internet, Gen Z utilizes it to search for relevant information. For instance, they use the internet to watch YouTube videos that are beneficial for a class. They supplement class work with YouTube videos because of YouTube videos have the ability to summarize content (Rothman, 2014; Seemiller & Grace, 2016). With the internet and cell phones, seeking different information that resonates with their values and needs have been made easier for this cohort.

Information Seeking

Definition

In 1597, Francis Bacon stated, ''Knowledge is power'' (Marchionini, 1997). Information is knowledge. Hence, the intelligent citizens in society have become strategic in seeking information because it is a valuable resource for the development and growth of any great

society (Marchionini, 1997). Marchionini (1997) defined information seeking as ''the process in which humans purposely engage in, to enable them to change their state of knowledge'' (Marchionini, 1997,p. 5). For information seeking to occur, it involves a ''search'' by humans that indicates their behavioural intention (Marchionini, 1997). The extent of the ''search'' is solely dependent on the individual and the amount of effort he or she wants to put in getting information (Marchionini, 1997). Information seeking requires some effort to be put in by the seeker. Thus, it can be in two parts; passive and active (Marchionini, 1997). Active seekers usually have a goal they want to accomplish like reducing tension or being more knowledgeable about a topic. This motivates them to get information, while passive seekers have a habit of seeking information not necessarily to fulfil any goal, for example, reading the early morning newspaper. However, the main difference between these two information seeking attributes is the level of motivation and the ease to access an information channel. These attributes (motivation to seek and the ease of access) can help one realize his or her informational needs (McGuire 1974 as cited in Kahlor, Dunwoody, Griffin, & Neuwirth, 2006). Motivation drives people to get information, especially in order to fulfil a goal.

For this study, information seeking is the active process a person engages in to get information about climate change during extreme weather events. The active information seeking process by Gen Z can be done on digital media, granting them ease of access to climate change information on their smartphones or personal computer and subsequent engagement with the issue of climate change. In addition to "ease of access," motivation is a key factor of information seeking in the current study. Unfortunately, information seeking on the subject of climate change is low. Only 1 in 10 Americans say they are well informed about climate change,

and 75 % said they would like to learn more about it (Leiserowitz, Smith, & Marlon, 2010). It could be likely that people have not gotten any inspiration to seek and learn about the issues of climate change. This study explores what factors encourage members of Gen Z to seek out information on the issue.

Information Seeking in Risk Situations

Risk Information Seeking and Processing Model (RISP)

The Risk Information Seeking and Processing Model (RISP) was developed to see what factors motivates people to seek and process information during a risk (environmental and health-related risk) (Griffin et al., 1999) Climate change is an environmental risk. Hence, the use of this model determines what factors will motivate people to seek information during an environmental risk (EWEs caused by climate change). The RISP model focuses on the characteristics of an individual that is likely to influence them to seek risk information. For this study, some of the characteristics in the RISP model are likely to predispose a member of Gen Z to seek climate change information during extreme weather events. The RISP Model proposes seven factors that help individuals to seek and process health information. These factors are; individual characteristic, perceived hazard characteristics, affective response to risks, felt social pressures to possess relevant information, information sufficiency, one's capacity to learn, and beliefs about the usefulness of information in the various channels (Griffin et al., 1999). This model adapted concepts from two prominent models, the Heuristic-Systematic Model of Information Processing (Eagly & Chaiken, 1993) and Theory of Planned Behaviour (Ajzen, 1985). The Heuristic-Systematic Model (HSM) helps to explain how individuals seek and focus on information about risk, while the Theory of Planned Behaviour (TPB) allows people to understand

the relationship between a communicated behaviour and its effect on how an individual behaves in risk-related situations (Griffin et al., 1999). In sum, this model intends to explain how people seek risk information (e.g., health) and the amount of effort they put into analyzing such risk. Some scholars have applied this model in studying climate change as a risk (Kahlor, 2007), the health of the Great Lakes (L. Kahlor et al., 2006) and risk found in the digital world – web risk (Zhang, York, Pavur, & Amos, 2013). According to the RISP model, affective response (e.g., anxiety, worry, anger, and uncertainty) and informational subjective norms (perceived social pressure to be informed about a risk) can influence an individual's confidence in their knowledge level about a risk-related topic. In turn, the individual might feel he or she doesn't have adequate information to cope in risk situations (Information insufficiency). However, if they think that the gap between the knowledge held to the knowledge needed is too big, it motivates them to seek information about the topic (information seeking) until they are satisfied with their knowledge level and feel confident enough to cope with the situation effectively. The need to seek information is facilitated if a person feels comfortable to access information (perceived information gathering capacity) and have confidence in where the information can be derived from (channel beliefs) (Griffin et al., 1999). This study will adopt different concepts from RISP model to understand what factors motivate Gen Z to seek information about climate change on digital media platforms during extreme weather events (EWEs) and if it leads to interactivity (for example, sharing, commenting, and liking) of such information.

Adapting RISP to Gen Z Climate Change Information Seeking on Digital Media

The proposed study adapts concepts from the RISP model (Griffin et al., 1999). However, some concepts were excluded because the purpose of this study is slightly different. The current

study intends to analyze risk in terms of climate change during extreme weather events and how a Gen Z member seeks such information on digital media platforms. This study will have three main concepts from the RISP model: personal experience, information subjective norms, and information insufficiency. Personal experience is the perception of the extent of risk posed by related hazard, information subjective norms are the perceived social pressure that influences information insufficiency, and information insufficiency is the perceived gap between information held and need for information (Griffin et al., 1999). Concepts were altered to fit this study better, concepts such as channels beliefs and perceived information-gathering capacity, affective response, and perceived hazard characteristics were not included. These concepts were excluded because they might influence an individual to avoid information, for example, affective response leads people to worry and subsequently avoid the information (Case, Andrews, Johnson, & Allard, 2005). This study incorporates factors that might reinforce a member of Gen Z to take part in more information seeking rather than information processing in risk situations. Past research has not found extensive support for the role of perceived information-gathering capacity and channels beliefs about information sources in shaping information seeking and processing (L. Kahlor & Rosenthal, 2009). They suggested that this effect was a result of little coverage on global warming in the news before the time they carried out their research. Also, the researchers suggested that the reason why their result was not consistent with the previous study was that no single information source (television, radio, and internet) related directly to the information seeking and processing that increased knowledge. The model for this proposed study is depicted in figure 1.
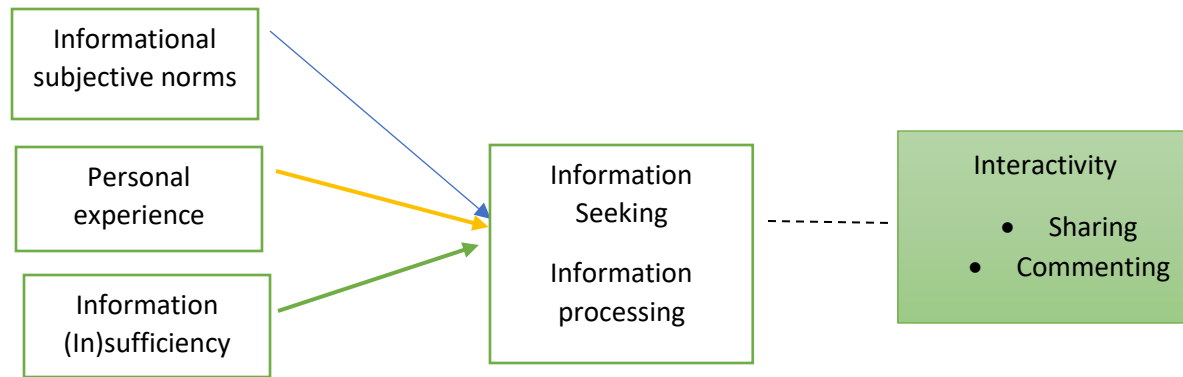
Figure 1: Relationship between individual-level factors and information seeking

What Motivates People to Seek Information During Risk Situations?

Personal Experience

The personal experience concept used in this study was adopted from the individual characteristics of the RISP model (Griffin et al., 1999). The model proposed that personal experience with risk will affect people's information seeking and processing. Hence, evidence shows that there is a positive relationship between personal experience and information seeking (Kievik & Gutteling, 2011; Lang, 2014). Personal experience with a climate change risk could be an experience with climate change impacts, such as extreme weather events (e.g., flooding, drought, landslides), either when experienced directly or indirectly (Carlton et al., 2016; Griffin et al., 2008; Lang, 2014; Weber, 2010; Whitmarsh, 2008). With the understanding that extreme weather events will increase with the changing climate (IPCC, 2018), they are a useful tool for understanding how exposure to climate change risk shapes behaviours around climate change, such as information seeking.

This study defines personal experience as the experience one had with any extreme weather events either directly or through those close to them. The concept of the distance of personal experience with risks has been analyzed by Spence, Poortinga, & Pidgeon (2012). They

categorised distance in four psychological ways (spatial, uncertainty, social, and temporal). Spatial distance is the physical distance to experiencing the impact of climate change. Uncertainty is the extent to which an individual believes that climate change is taking place and what they believe will be the resulting consequences. Social distance is when one feels that climate change is happening and will have an impact on people like them. Temporal distance is the measurement of how soon people think the effects of climate change will be. The Spence et al. (2012) study was not able to differentiate if personal experience or their distance (proximity) to such an experience played a role in determining the way people respond to climate change. The study suggested that people were more concerned when they perceived climate change as having the potential to harm them or people like them in the area where they live. Lujala, Lein, & Rød (2015) examined how living in a hazard-prone area, or one's personal experience can influence one's concern about climate change. The study showed that respondents believed in climate change after they had direct personal experience with climate-related impacts like flooding or landslide in their local area. Also, people who are attached to a place that is likely to be affected by climate change tend to change their attitudes by becoming more engaged with the issue of climate change (Scannell & Gifford, 2013).

Scholars have investigated the effects of direct personal experience with extreme weather events caused by climate change on people (Lujala et al., 2015; Myers, Maibach, Roser-Renouf, Akerlof, & Leiserowitz, 2013; Niles & Mueller, 2016; Scannell & Gifford, 2013; A Spence, Poortinga, Butler, & Pidgeon, 2011; S. Van Der Linden, 2014; Wachinger, Renn, Begg, & Kuhlicke, 2013; Weber, 2010; Whitmarsh, 2008). Direct personal experience is the most significant predictor of people's risk perception on climate change, creating a feeling of concern and worry

in people (Sander van der Linden, 2015; Wachinger et al., 2013). People who experienced extreme weather events, for example, flooding, as a result of climate change perceived climate change as a risk, and with this comes a shift in attitude (A Spence et al., 2011). Myers et al., (2013) for example, found that perceived personal experience of global warming led to belief certainty. Also, people with direct personal experience with climate change impacts changed their attitudes and became more engaged in energy saving activities (A Spence et al., 2011).

In contrast, some researchers have shown that personal experience with climate change impacts can have little or no effects on people's attitudes. Whitmarsh (2008) found that flood victims differed very little from people who have not experienced flooding: there was little to no difference between these cohorts in their understanding of climate change. Similarly, principles that people hold like values, ideologies, worldviews, and political orientation played a better role than personal experience with climate change impacts in changing people's perception about climate change (Hornsey, Harris, Bain, & Fielding, 2016). People who experienced drought did not have any significant change in their attitudes toward adaptation (Carlton et al., 2016). These findings were because people did not believe that flooding was evidence for human-induced climate change. People viewed flooding as separate from climate change. They also did not believe that a single experience with extreme weather (drought) is enough to change climate change beliefs and attitudes. Furthermore, people search and remember information about climate change when it is in line with their political ideologies and worldviews.

Specifically, with personal experience of climate-related impacts, comes a change in attitude, and invariably, this change in attitude could be that people might want to learn more about the risk. Therefore, they may seek information related to it. Some studies have shown how

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people's personal experience in risk situations leads them to seek information (Johnson & Meischke, 1993; Kievik & Gutteling, 2011; Lang, 2014; Lenz, 1984). Lang (2014) found that weather fluctuations affected people's climate change information seeking. Results showed that weather fluctuations are related to more people searching climate change on Google. Kievik & Gutteling (2011) found that high levels of direct personal experience with flood activities led people to seek information and have higher intentions to engage in self-protective behaviours than people who had not experienced it.

Previous research has shown that personal experience with climate-related impacts like flooding can influence risk perceptions about climate change and in turn, increase their beliefs and a change in attitudes. Rresearch is yet to explore information seeking about climate change among Gen Z, an important demographic that is likely to experience adverse extreme weather effects in their adulthood. This study proposes to explore if Gen Z's personal experience with extreme weather events is related to information seeking around climate change on digital media, because of the importance of digital media to this generation.

RQ1: Does having personal experience with extreme weather events increase information seeking around climate change on digital media platforms?

Information Subjective Norms

According to the Theory of Planned Behaviour, subjective norms are the perceived social pressures to engage in the behaviour of information seeking (Ajzen, 1985). The RISP model adopted this concept to help analyze how subjective norms will affect a person's practice of risk information seeking and processing (Griffin et al., 1999). The RISP model poses that informational subjective norms represent one's perceived feeling that people around them (e.g., friends,

parents, and spouses) expect them to have knowledge about an issue, thus, motivating them to learn more and fill the gap in knowledge (Griffin et al., 1999). Studies have investigated the effects on informational subjective norms in areas like impersonal risk (L. Kahlor et al., 2006), global warming (Griffin, Neuwirth, Dunwoody, & Giese, 2004; L. A. Kahlor, 2007) and found a positive relationship between information subjective norms, information seeking and people's change in attitudes and intentions. The more a person feels he or she has a social pressure to be informed about a risk, the more they discover there is a gap between what they already knew about that risk and what they need to know (Kahlor et al., 2006). Although in RISP informational subjective norms are depicted to have a relationship with information insufficiency, in TPB, subjective norms are described as related to behavioural intent (Griffin et al., 1999). Drawing upon this, there has been extensive research done on subjective norms and people's behavioural intent (Park, 2000; Trafimow & Finlay, 1996) and in different research fields like health (Dunn et al., 2001; Lytle et al., 2003; Pender & Pender, 1986), environment (Mead et al., 2012; Terry, Hogg, & White, 1999) and purchasing consumer goods (Tarkiainen & Sundqvist, 2005; Titah & Barki, 2009). People tend to behave in a way that will have an outcome that meets the expectations of others whose opinions matter to them. For instance, Lytle et al. (2003) found that parents had a high influence on the increase in their child's fruits and vegetable intake, because of children modelling their parents' behaviours. With climate change, the impacts are caused by billions of people, but behaviours that will mitigate it are done on an individual level or family level (for example, children modelling the behaviours of their parents like setting the home temperature at a certain level). Hence, parent behaviours will have an impact on the children as well (Mead et al., 2012). This is in line with the social cognitive theory (Bandura, 2001) where people learn

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through observation. Reviewing such influence is important for this study because most Gen Z still lives with their parents and are likely to learn some appropriate behaviours from them. Those who live alone, for example, college students who live in the residence halls might have just left their parents' home for the first time. They are likely to model some behaviours learned from their parents at home in their new location.

However, Park (2000) argued that subjective norms are impactful if the change in attitudes intended is social. He said that social views are the perceived behavioural outcomes that affect others while subjective norms are basically what people think about the behaviour itself (Park, 2000). Hence, the attitudinal component is more impactful for behavioural intention than subjective norms. In addition, some studies also support the low impact of subjective norms on behavioural intent. Dunn et al. (2001) suggested that attitudes were a better predictor of intentions to get people to use dietary supplement than subjective norms. In as much as attitudes play a better role than subjective norms in getting people to change their behavioural intent, subjective norms account for a significantly small variance in intentions (Trafimow & Finlay, 1996). Young people are more susceptible to listen to their friends, partners, and parents and at times have a peer pressure to fit into the society or group they identify with. Mitigation against climate change comes with a lot of actions either learned willingly or observed and further put into practice. This study will examine if informational subjective norms influence behavioural intent of Gen Z. It analyses whether people seek out more information about climate change to fill the gap in knowledge expected by friends and family.

RQ2: Do Gen Z's informational subjective norms increase climate change information seeking on digital media platforms?

Information Insufficiency

One of the components of the RISP model is information sufficiency, described as a motivator for individuals to seek and process information. Information sufficiency is defined as the way an individual measures the amount of information he or she has to help cope with a risk (Griffin et al., 1999). The model adapts and extends variables from the heuristic-systematic model (HSM) (Eagly & Chaiken, 1993). Seeking and processing information requires effort from an individual (Griffin et al., 1999). The HSM focuses on the individual's ability to seek and process information either heuristically (less effort) or systematically (more effort). Either of these effortful routes taken by a person depends on how motivated they feel. The sufficiency principle posits that an individual ''exerts whatever effort is required to attain a 'sufficient' degree of confidence that they have satisfactorily accomplished their processing goals'' (Eagly & Chaiken, 1993, p. 330). People undergo this process when they feel a gap in knowledge between their information need and their current information (information insufficiency), which will help them cope with a risk (Griffin et al., 2004). According to the RISP model when an individual's information insufficiency is high, it increases the urge to engage in information seeking (Griffin et al., 1999). In the RISP model, information insufficiency is based on two components; sufficiency threshold and current knowledge. Sufficiency threshold is the need to know about a given topic while current knowledge is what one already knows about the topic. A lot of studies have supported or refuted the relationship between sufficiency thresholds, current knowledge, and information seeking in risk situations. Research has supported the RISP model, showing a positive relationship between sufficiency thresholds and information seeking while controlling for current

knowledge (Griffin et al., 2008; L. A. Kahlor, 2007; L. Kahlor et al., 2006; Lu, 2015; Yang, Kahlor, & Li, 2014).

At times people might feel they have enough information about a topic. This can make them decide that they have satisfied such informational need and there is no point seeking more information on that topic. Notably, some health studies found that there was no effect of sufficiency threshold (need for information) on information seeking (Clarke & McComas, 2012; L. Kahlor, 2010; Yang et al., 2011). The findings of these studies were not consistent with previous studies that have supported information insufficiency and information seeking. The rationale behind this is that using one item measurement for information insufficiency, i.e., one's current knowledge (Clarke & McComas, 2012) instead of two item measurement as used by (Griffin et al., 2004) gave a different result. Affective response played a role and possibly made people avoid seeking more information by priming them to believe that they do not need more information. (Yang et al., 2011). Health risks that are not related to the environment made people feel that they have enough information owing to the exponential growth of health websites in the last decade. Also, thinking about a health risk generally might impact one's sense of need for additional knowledge and to further seek information on a specific health risk or a particular risk situation (L. Kahlor, 2010).

Griffin et al., (2004) surveyed individuals living near Great lakes to determine what they know about the risks of the lakes. The research suggested that information insufficiency predicted people's information seeking behaviours. They also found that there was a positive relationship between one's affective response (worry, anxiety, and uncertainty) and information seeking. Affective response played a role in making people perceive a gap in knowledge and a

subsequent push to seek information. People who tend to perceive climate change as a risk might become worried of all the extreme weather events that will come with it and are likely to discover that they do not have enough information about such risks and are finally propelled to seek information about it in order to protect themselves when necessary. However, it has been found that even people who already have information about the risks (current knowledge) are motivated to learn more because they have the right information-seeking capabilities (Griffin et al., 2008; L. Kahlor et al., 2006; Yang et al., 2011). A recent meta-analysis suggested that the key predicting factor of information seeking is current knowledge (Yang, Aloe, & Feeley, 2014). In contrast, Hwang & Jeong (2016) in their experimental study argued that current knowledge did not have an impact on information seeking of people. Instead, sufficiency thresholds resulted in greater information seeking behaviours.

The proposed study will examine Gen Z information insufficiency about climate change primarily in times of extreme weather events by controlling for their current knowledge. It is likely that emotions – for example, fear of the unknown – can lead them to want to learn more about climate change regardless of the information they already had about climate change. For example, if a Gen Z member that has friends and family in areas where a hurricane hits might seek updated information on such events notwithstanding his or her prior knowledge about how the changing climate can lead to hurricanes. They may seek more information because they want to gain more information to enable them to cope with the risk.

This study will analyze how informational insufficiency will lead young people to seek climate change information during extreme weather events. Therefore, the proposed study predicts:

H1: There is a positive relationship between levels of current knowledge that members of Gen Z hold and their information seeking.

H1a: There is a positive relationship between levels of need for information that members of Gen Z hold and their information seeking.

<div align="center">

Information Processing

</div>

The heuristic -Systematic model (HSM) analyzed how people put a different level of efforts to process information (Eagly & Chaiken, 1993). These efforts either systematic or heuristic assist people when making a judgment of an argument. Heuristic processing requires less effort and less cognitive resources while systematic processing requires more comprehension effort to understand the information. Research has found that information insufficiency leads individuals to exert either systematic or heuristic effort in processing information (Clarke & McComas, 2012; Griffin et al., 1999; Griffin, Dunwoody, & Yang, 2013; Yang, Aloe, et al., 2014). For example, if an individual discovers that he or she needs more information on how to take preventative measures on a health risk, it is likely that they exert a systematic effort in processing the information (Griffin et al., 1999). They will critically evaluate the message to help them understand such information. Likewise, people take a heuristic approach in processing information. They use certain cues such as; the length of the message, statistical data, trusted spokesman to enable them to process the information. The idea of information sufficiency and information processing is mostly adopted from the HSM's sufficiency principle— ''people will exert whatever effort is required to attain a 'sufficient' degree of confidence that they have satisfactorily accomplished their processing goals'' (Eagly & Chaiken,

1993, p. 330). Part of the processing goals could be ensuring that the message and the source are credible enough to enable them to engage in discussion with others.

Credibility is a commodity that is linked to information processing (Trumbo & McComas, 2003). HSM shows that source credibility act as an information cue that affects systematic and heuristic processing. Trumbo & McComas (2003) examined how credibility affects the way people process information and how it changed their perception of the risk associated with the information. Similarly, Petty and Cacioppo's (1981) elaboration likelihood model (ELM) suggests that source credibility also influences how individuals think about a message. For issues of low involvement and sources of high credibility, individuals are less motivated or able to process information and will likely fall back on pre-existing attitudes to guide their opinions – related to heuristic processing. In other words, they seem to accept the information without much thought.

In comparison, for issues of low involvement and sources of low credibility, individuals are more likely to think about the information, that is, process it more systematically. In comparison, for issues of high involvement or when individuals carry much prior knowledge of the issue, they are more motivated and able to process the information. Information credibility is likely to influence people to process the message deeply and discuss the issue.

Research in social psychology has shown the relationship between information seeking, information processing and anticipated discussion with others (Xenos, Becker, Anderson, Brossard, & Scheufele, 2011). When people perceive that they are expected to discuss a topic with another person, they are motivated to seek information about that topic and process it carefully (Xenos et al., 2011). A Political communication scholar identified that individuals are more likely to process political information in the media carefully if they notice that their friends

or associates are interested in the topic (Scheufele, 2002). Another reason that motivates people to process certain information in the news media carefully is the anticipation of future discussions with others (Eveland, JR., 2004). It is likely that people scrutinize information because they want to gain knowledge that will support their interaction with others. The level of interaction an individual chooses to engage in could be supported by how deeply he or she processes the information.

Previous research has examined the relationship between information processing, information sufficiency, credibility, and anticipated discussion with others. However, to the current researcher's knowledge, this is the first study that will examine the relationship between information processing and interactivity. The present research will explore the amount of effort (systematic or heuristic) used by a Gen Z to process climate change information after they have sought it from digital media. It will also analyze if the level of effort put into processing climate change information is affected by the level of interaction (for example, like, share, comment or reply another person's comment) done by them. Subsequently, the current study will examine which of the processing approach will trigger a further use of the interactive features on digital media to engage others in climate change discussion. Hence,

> **RQ3**- Does adopting a systematic approach to climate change information processing lead to interactivity on digital media?
>
> **RQ3a**- Does adopting a Heuristic approach to climate change information processing lead to interactivity on digital media?

Interactivity

In this study, interactivity is defined as a digital media function that enables people to be active consumers of information online, either by commenting or sharing such information with another person (Boczkowski & Mitchelstein, 2012; Sundar, 2008). People choose to get their information through different media, either traditional (print, television, and radio) or digital (online news, Google/Wikipedia search, social media, online discussion forums). The study population, Gen Z, prefer to get their information by using digital media through internet access (Anderson & Rainie, 2018; Pew Research Center, 2017). In recent times the idea of ''media'' has changed from newspapers, radio, and television to a new communication technology that enables people to interact from their phones or personal computers through the internet or cable in different venues like social networking sites. The new media gives users the ability to interact with other users and the media as well, a function that is not found in tradition media (Sundar & Limperos, 2013). New media gives people the means to generate, seek and share content with others; an affordance was not as available with traditional mass media (Lievrouw & Livingstone, 2002). Sundar & Limperos (2013) suggested that the affordances of digital media have transformed people's digital experiences to become active consumers of the media.

Sundar's (2008) MAIN MODEL identifies four classes of technological affordances in digital media. They are modality, agency, interactivity, and navigability. The model asserts that these affordances provide cues to media users and such cues signal cognitive heuristics (mental shortcuts) about the attributes of the content they consume. Specifically, coined from two-word interaction and activity, he defined interactivity as an affordance that gives the user the ability

to serve not just as a receiver of information but as a source of information. Responsiveness, activity, choice, and control are the gratification of the interactivity nature of digital media.

The use of digital media is a good approach that scientists should utilize while communicating the issue of climate change to the younger population because the internet has become the most widely used source of science communication among Americans (National Science Board, 2018). 83% of individuals aged 18 to 24 said their primary source of learning about science and technology is the internet (National Science Board, 2018). A study conducted by Ipsos CT media in 2013 revealed that with Gen Z, 100% of this population stays online at least one hour per day and 46% are connected to at least 10 hours within five minutes of waking up (''Generation Z: A look at the technology and media habits of today's teen,''2013). Pew Research Centre found that 98% of United States adults use the internet and 88% use social media (Pew Research Center,2018).

In addition to expanded use of digital media to consume news and information, the amount of online information is increasing. Nowadays, scientists go online to educate the broader public through the use of blog posts (Bonetta, 2007). They use this medium to increase scientific discussions around environmental science like climate change (Schäfer, 2012). Creating weblogs helps them publicize their results and get feedback from people more quickly in the early stages of their research owing to the interactive nature of online media (Ashlin, 2006). Also, scientists use online communication platforms like blogs to encourage lay audience participation through discussion forums because they know that journal articles are not a platform for debate and discussion (Bonetta, 2007). Scientists can now reach more audience, unlike the times when they utilized solely traditional media. In addition, communicators have to be strategic if they

intend reaching the younger generation (Gen Z) with challenging issues like climate change. The release of the IPCC fifth assessment report sparked discussion among individuals who seek information about it on a social media platform, Twitter. Newman (2017) found that that the individual bloggers and concerned citizens were the ones who tweeted a lot about the IPCC fifth assessment report as they tried to understand the details of the report. By tweeting about the IPCC fifth assessment report on Twitter, it raised a lot of discussions around the issue of climate change.

Discussions on digital media can be done with the affordance it can provide—interactivity features. Interactivity has three parts; medium (search features), human-medium (topic customization feature), and human (online forums) (Chung & Yoo, 2008). Most news companies now have an online presence to grant multiple choice for their readers. Readers of news stories, especially young ones, are likely to go to a platform that gratifies their needs. Choosing the media, one uses to get information comes with a motivation to do so and the satisfaction obtained from it. People become motivated to pick one media over the other because of what the media offers them — for example; online digital media offers interactivity. Chung & Yoo (2008) found that information seeking among other motivations, predicted the use of interactive features on a newspaper's website (e.g., send the article to a friend). This implies that information seeking and interactivity are related.

Engaging in information seeking through digital media comes with further actions given to the fact that interactivity is the most prominent feature of digital media that is lacking in traditional media. Such a function (interactivity) can trigger a cue in an individual, making them realize the participatory nature of digital media: users can be responsive by choosing their

content and exchanging messages with other users either by giving a reply to what they have read or sharing relevant information with other people.   Boczkowski & Mitchelstein (2012) examined how people use multiple interactive features on news sites. The study showed that people use interactive features of digital news media more in heightened situations than in routine conditions. In this case, a heightened situation is public affairs news stories dealing with politics, government, economics, events, and, developments. While routine situations are stories about sports, entertainment, and technology; People commented on heightened political activities more and had a high propensity to click-on, email, and comment on such heightened activity. The interactive nature of websites gives a young adult the motivation to seek information; for example, they feel more informed and confident about politics (Tedesco, 2006).

Young people get involved with issues when it is important and have the capability of affecting many people. Climate change has become a heightened situation in recent times (IPCC, 2018). 42% of Americans believe that the impacts of climate change – extreme weather events (droughts, flooding, hurricanes, wildfires) will harm them (Leiserowitz et al., 2017). Communicating such a heightened issue like climate change to the younger population (Gen Z) should be done with the media they prefer— digital media. This strategy will ensure that they make use of the media's interactive features such as; search features, sending a news article to a friend, using the ''chat button''. Making use of these interactive features can lead to young people's engagement on the issue of climate change by raising discussions around the topic and purposeful information seeking climate change. For example, a person can use the interactive feature of digital media like the ''chat button'' to start a discussion with another user after reading a climate change related article, which will, in turn, lead to information exchange

between them and further information seeking. Also, people can decide to ''email'' a climate change article to a friend or family member to help increase their knowledge on such topics.

Notably, climate change information is not information that people usually seek except during extreme weather events. Given the recent wildfires in California, it is likely that people have started seeking information about it and having discussions with their peers on digital media platforms like Twitter. In the study carried out by Center for Climate Change Communication on Americans' Global Warming Beliefs and Attitudes in November (2013) found that 12% of Americans who have experienced extreme weather events share a picture of the aftermath of the event using Facebook. The proposed study will examine if the Gen Z climate change information seeking leads to the interactivity on digital media. Hence, the study hypothesizes;

H2: Climate Change Information seeking and interactivity on digital media are positively related.

CHAPTER 3: METHODOLOGY

Study Design

This study used a quantitative survey to collect data. Students in the residence halls at Colorado State University were used to examine the research questions and hypotheses. The survey had approximately 33 questions. Approval was obtained from the Colorado State University Institution Review Board (IRB) before the distribution of the survey. The questionnaire was put together in Qualtrics, and an email containing the survey link was sent to students in the selected residence halls. The residence halls have a response rate of 10 – 13% for bigger national surveys, while internal surveys go up to 20- 25% (Colorado State University Housing and Dining Services, Director of communication and sustainability).

Population and Sampling

The sample included 913 students from two different residence halls at Colorado State University that were chosen due to the different socioeconomic makeup of each. The first, Parmelee hall is located on the North side of the university and is occupied by 526 students mostly of a higher socio-economic class since it costs more to live there due to its suite-style design. The second is Edwards's hall located on the south side of the university, occupied by 387students of a lower socioeconomic class because it costs less to live there with its community-style design. A university residence hall sample works well with my study because it allows me to easily target Gen Z – people born from 1997 to 2018 (Dimock, 2018). Most students in the residence halls are freshmen, and they fall into this birth year range. In total, 90 questionnaires were received, (response rate 10%, number of questionnaire useful for analysis= 76). More female 57 (75%) than males 18 (23.7%), and one unidentified gender (1.3%) participated in the

study. Respondents ranged in age from 18 to 21 years. Of the respondents, 66 (86.8%) identified as white. Approximately 15%-55% of the participants have a political philosophy that is very liberal to moderate/middle of the road. Only 5%-8% are conservative.

Survey Design

A survey that has questions from all the variables was used to collect information from the participants. The survey was administered to 913 students in the two selected residence halls by email. The survey contained an introduction that told the students what the study is about and assures them that their answers will be kept confidential. The Qualtrics survey measured their individual- level factors (predictor variables) and the effects of those variables (criterion). Finally, the control variables and the demographics questions followed. Participants could access the survey within two weeks period between Feb. 21 through March 3. The survey was administered twice. The second time was a reminder to get more responses. On average, it took 5 minutes to complete the survey.

Study participants were eligible to win a $15 Starbucks gift card as an incentive. The study participants took the survey from the comfort of their homes or wherever they deem fit using their laptops or their smartphones. The response rate of the students was tracked from the back end of Qualtrics. 90 students responded to the survey, with 76 usable data points. The low response rate gotten from this survey could be attributed to the time of the semester and the type of incentive provided. While large sample size is better for data analysis, this number of respondents is enough according to guidelines described in Field (2013). For a large effect size of at least $R^2 = 0.26$, a sample size of 77 is adequate for a linear regression model with up to 20 predictors (Field, 2013). The sample size can be even smaller with fewer predictors. A meta-

analysis of the Risk Information Seeking and Processing Model that forms the basis for many of the information-seeking relationships explored in this study found effect sizes for models that predicted information seeking ranged from .10 to .66, with the median being .37 (Yang et al., 2014). Thus, it is likely that the model explored in this thesis will have a significant effect.

Measures

See appendix 1 for the exact wording of all measures.

Predictor Variables

Personal Experience with Extreme Weather Events. This study operationalizes personal experience as a perception of the risk in the changing weather in the United States of America because of climate change. With the study population, it is likely they have not personally experienced any extreme weather events in their life but have noticed the changing weather over time. Despite the low likelihood that people participating in this survey have experienced extreme weather events, the researcher asked about it before broadening the items to explore perceptions of extreme weather events more generally. All the respondents (*n*=76) have experienced at least one extreme weather event (e.g., drought, hurricane, flooding, extreme temperature) either personally or by loved ones in the past two years. A summative index was created to reflect the number of weather events they have experienced (μ = 2.19, *SD* = 1.16).

Informational Subjective Norms. Items measuring the respondents' perceptions that others believe they should become informed about a topic were pulled from a previously published study (Kahlor, 2007). Items include, "People whose opinion I value would prefer me to stay on top of the information about climate change," and, "It is expected of me I seek

information about climate change." See Appendix 1 for the full index of items. Four items were combined into a mean index to capture subjective norms (α= .84, μ= 3.42, *SD*= 0.89).

Information Insufficiency. This is the gap between perceived current knowledge and the perceived need for more information. To determine whether respondents feel a need to fill the gap in knowledge, the current study will measure respondents' current knowledge and sufficiency thresholds based on a list of items. This approach is consistent with research on metacognition, which indicates one's ability to know what they know. Metacognition examines how people know that their current knowledge about a topic is adequate to cope with issues in the future (Koriat & Levvy-Sadot, 1999; Shimamura, Mazzoni, & Nelson, 2000). These two measurements (current knowledge and sufficiency thresholds) are consistent with previous research (Huurne & Gutteling, 2008). In developing analysis for information insufficiency, procedures that can lead to unreliability were avoided. This study avoided difference scores, for example, subtracting current knowledge from sufficiency thresholds (Huurne & Gutteling, 2008). Consistent with (Huurne & Gutteling, 2008) this study uses two indices for information insufficiency that were developed using exploratory factor analysis. The first is current knowledge. The second is the information need. Both indices are entered in a linear regression model independently to predict information seeking. See Appendix 1 for the full wording of question items related to information insufficiency. Three items were employed to capture current knowledge (α= .80, μ= 3.40, *SD*= 0.86). Two items were used for to capture the sufficiency thresholds, Pearson's R (r=.26, ρ < .05, μ= 3.42, *SD*= 0.78).[3]

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[3] While the Pearson's R is lower than is usually acceptable, previously published work has shown a correlation of 0.40 between these two items (Huurne & Gutteling, 2008). It is likely the Pearson's R is lower in this study due to a smaller sample size.

Information Processing. The heuristic -Systematic model (HSM) analyzed how people put different level of efforts to process information (Eagly & Chaiken, 1993).To determine whether respondents process information, measures were adopted from Kahlor et al.,(2006) to the represent either systematic or heuristic approach of information processing. For systematic processing, a mean index of 3 items were created (α= .75, μ= 3.84, *SD*= 0.70). Out of the three items used to measure heuristic processing, one item was used, "when I encounter information on this topic, I focus only on few points" (μ= 2.57, *SD*= .87) because the Cronbach's alpha was not high for the 3-heuristic items combined (α=.53).

Criterion Variables

Information seeking. It is the conscious effort an individual makes to acquire information in response to a need or gap in knowledge. To determine whether respondents are motivated to seek information about climate change, some items of measurement adopted from (L. Kahlor et al., 2006) were used to measure information seeking. One item of measurement used is: "When the topic of climate change comes up, I'm likely to read it," and "Whenever climate change information comes up, I go out of my way to avoid learning more about it."

Individuals' attention to the climate change topic when seeking information will also be measured. Seven items were used to capture information seeking and combined into a mean index (α=.88, μ=3.76, *SD*=0.79)

Interactivity on digital media. First, the researcher asked a question about the likelihood of engaging in an interaction with another user: *"How likely are you to interact with another user about any climate change article you just read?"* Five items were used to measure what interactivity feature respondents prefer to engage in after reading an article about climate

change: 'like it', 'share it', 'comment on it', 'reply to another reader's comment', and 'ignore it' (Boczkowski & Mitchelstein, 2012; Salzer et al., 2010). A mean index of six items (see Appendix) were employed to capture interactivity (α= .76, μ=2.64, *SD*= .78)

Pilot testing

The questionnaire was tested with 10 students who fall under the criteria for this study. Participants were recruited using SONA, a software package used by the Department of Journalism and Media Communication to help researchers and graduate students to recruit participants for their study. Participants accessed the questionnaire online.

Data Analysis

The data were analyzed using SPSS software. Ordinary Least Squares regression was used to regress predictor variables onto criterion variables. Results were statistically significant if the resulting *p*-value was equal to or less than .05.

CHAPTER 4: RESULTS

Analysis

Two hierarchical linear regression was run using three blocks of variables.

Information seeking about climate change during extreme weather events is significantly related to one demographic variable (see Table 1). Political philosophy (β= -.397, p≤.001) is significantly related to climate change information seeking, which means that those who identified as more liberal are more likely to seek climate change information during extreme weather events. Age, gender and race were not significantly related to information seeking about climate change during extreme weather events. Demographic variables account for 20.6% of the variance as an individual-level factor in seeking climate change information.

Table 1.

Impacts of individual-level factors on climate change information seeking

		Model 1	Model 2	Model 3
Demographics	r	β	β	β
Male	.135	.204	.193	.037
Age(years)	-.191	-.210	-.161	-.102
White	.129	.089	.152	.046
Political philosophy	-.320***	-.397***	-.228	.007
Incremental R^2 (%)		20.6%		
Hazard Experiences				

Extreme Weather perceptions	.414*	.323[*]	.195*
Extreme Weather Experiences	.318	.161	.162
Incremental R^2 (%)		12.8%	
Knowledge			
Current Knowledge of Weather	.314*		.181[*]
Need for Knowledge of Weather	.288		.032
Informational Subjective Norms	.742***		.613[***]
Incremental R^2 (%)			34.6%
Total R^2 (%)			63.1%

$***p≤.001; **p≤.01; *p≤.05.$

Note: Entries are standardized regression coefficients.

The second block of the regression examined how individuals' extreme weather experiences predict their likelihood of information seeking about climate change, which was the first research question (RQ1) of this study. People's experience with extreme weather events was not significantly related to their likelihood of climate change information seeking. Their perceptions about extreme weather events, however, were significantly related to

information seeking about climate change (β=.195, p≤.042). The variables in block 2 account for 12.8% of the variance of individual-level factors in climate change information seeking.

The third model explored how knowledge-related items predict information seeking about climate change. H1 proposes that there is a positive relationship between current knowledge and information seeking, and this relationship was supported. Individuals who hold more knowledge about extreme weather events were more likely to seek information (β=.181, p≤.05). H1a proposed a relationship between sufficiency thresholds (need for information) and the likelihood of information seeking. This relationship was not significant, and, thus, H1a was not supported. The second research question (RQ2) explored the relationship between informational subjective norms and information seeking. The last individual-level factor— informational subjective norms— was significantly related to information seeking (β=.613, p≤001). Individuals who perceive that people around them expect them to have knowledge about an issue (i.e., climate change) were more likely to seek climate change information. The variables in block 3 account for 34.6% variance of climate change information seeking. The total R^2 is 0.631, which indicates that the model explains 63.1% of the variance in information seeking.

The second regression (Table 2) examined predictors of interactivity. There were no relationships between any demographic variables and interactivity on digital media. Demographics account for 5.8% of the variance in interactivity on digital media.

The second block examined the third research question (RQ3) that explored a relationship between systematic processing and interactivity on digital media. Systematic information processing variables were significantly related to interactivity (β= .323, p≤.01).

Adopting a heuristic approach to information processing, on the other hand, is not significantly related to interactivity on digital media. This model accounts for 10.5% for variance in interactivity.

As predicted in the second hypothesis (H2), climate change information seeking is significantly related to interactivity on digital media (β=.493, $p\leq$.001). This block accounts for 11.9% of the variance of interactivity on digital media. The total R^2 for the regression is .207, which indicates that the model explains 20.7% of the variance in interactivity.

Table 2

Impacts of climate change information engagement on interactivity in digital media

	r	Model 1 β	Model 2 β	Model 3 β
Demographics				
Male	-.046	-.009	-.038	-.079
Age	-.104	-.132	-.083	.005
White	-.014	-.037	-.073	-.053
Political Philosophy	-.204	-.210	-.171	.000
Incremental R^2 (%)		5.8%		
Info Processing				
Systematic	.341**		.323**	.083
Heuristic	.072		.080	.182
Incremental R^2 (%)			10.5%	
Info seeking				

CC Info seeking	.479***	.493***
Incremental R^2 (%)		11.9%
Total R^2 (%)		20.7%

***p≤.001; **p≤.01; *p≤.05.

Note: Entries are standardized regression coefficients

In summary, political philosophy, perceptions of extreme weather events, current knowledge, and informational subjective norms are related to climate change information seeking among members of Generation Z. Interactivity after seeking climate change information on digital media is related to the approach people take in processing the information— systematic approach—and their likelihood of seeking out climate change information.

CHAPTER 5: DISCUSSION

This study investigated the factors that motivate members of Generation Z to seek

climate change information in times of extreme weather events. Some factors were adopted

from the RISP model to explain which individual-level factors prompt information seeking for

this audience. It found that perceptions of extreme weather experiences and informational

subjective norms, as well as knowledge of extreme weather events, are important predictors of

information seeking about climate change among members of Generation Z. It also had the

objective of providing empirical evidence that the RISP model can be extended to show what

people do with the risk information they seek and process in their lives. In other words, it

provides evidence that information seeking about climate change is an essential component of

the next step – interactivity about the topic of climate change online.

This study reveals that political ideology is an important factor when it comes to

information seeking about climate change. Public polarizations about the issue of climate

change increases due to political partisanship (Hart & Nisbet, 2012; Mccright & Dunlap, 2011).

Individuals are more likely to pay attention to and interpret information in ways that reinforce

their political views. This is because one factor responsible for people's perception of climate

change is political views. This result is consistent with previous research, which indicates that

an individual who identifies strongly with a group behaves by the perceived norms of that

group (Terry et al., 1999). This means that individuals who identify as liberals support seeking

information about climate change because their political party believes that tackling climate

change issue is paramount.   Results found that political orientation doesn't matter when it

comes to social media discussions around the issue of climate change. The level of education

between Democrats and Republicans affects concern about climate change and interaction

(Hamilton, 2011). It is likely that the education and digital-literacy level of Gen Z members

rather than their political orientation motivated them to interact with others when it comes to

climate change issues. This group is savvy with the use of digital devices, and as such, they

communicated regardless of their political philosophy.

Additional results showed that personal experience with extreme weather events didn't

motivate people to seek information, but that perceptions about extreme weather events do.

Although some previous research has shown that there is a relationship between experiencing

a weather event and information seeking (Kievik & Gutteling, 2011; Lang, 2014), other research

suggests that people were more concerned when they perceived that such experience was as a

result of climate change (Spence et al., 2011; Spence et al., 2012). People's perceptions of

climate change encompasses other issues not necessarily environmental issues, for example,

socioeconomic standards, cultural backgrounds, age, and gender (Wolf & Moser, 2010). Also,

pre-existing cultural worldviews motivate people to perceive climate change through the lens

of social justice and fairness. Perception of climate change is influenced by the way the

message is framed. Positive frames, which gives people a sense of self-efficacy is more

beneficial than negative frames, which leaves them hopeless (Spence & Pidgeon 2010). It may

be that perceptions of extreme weather events made people concerned about the issues of

climate change. Those who perceived that extreme weather events were a result of climate

change reported they were likely to seek information. The likelihood of this result could be that

Gen Z members' climate change perceptions were modified by other factors other than

extreme weather events. The articles they read when seeking climate change information could

be the ones that uplift their hope and give them a sense of feeling that adaptation and

mitigation policies are created.

Interestingly, this study shows that one's current knowledge supports the intention to

gather additional information. This result is supported by past research that suggests that

people engage in seeking behaviours even though they know the issue (e.g., climate change).

People do this when they believe that seeking information will increase their awareness (L.

Kahlor & Rosenthal, 2009). Sustainability Tracking, Assessment & Rating System (STARS), an

independent program that measures comprehensive sustainability efforts at more than 800

universities around the world recognized the location of this study (CSU) twice as the first

university in the world to have its sustainable efforts go platinum. This recognition is due to a

lot of environmentally-friendly activities conducted on campus. The likelihood of participants

knowing the issues of climate change cannot be over-emphasized. However, this knowledge

didn't sway the Gen Z members from seeking additional information.

One's need for information, on the other hand, was not significantly related to

information seeking. One possible reason for no relationship between information insufficiency

and information seeking is due to the discrepancy between the way it was measured here using

two separate items vs the original difference score between knowledge and need for

knowledge used in previous studies (Griffin et al., 1999; L. Kahlor et al., 2006; L. Kahlor &

Rosenthal, 2009). Also, it is possible that the question primed participants to believe that they

have enough knowledge about climate change. Several previous studies, however, have also

utilised a one-item measurement independently instead of the difference score measurement

(Clarke & McComas, 2012; Huurne & Gutteling, 2008; L. Kahlor et al., 2006). Researchers are

adopting single-item measures because of they believe that a difference score measurement is an approach that can compound measurement error and ceiling effects (L. Kahlor et al., 2006). It's possible that individuals are fearful of getting additional information about climate change, which is hindering their information seeking. Emotions (guilt, anxiety, hopelessness, and anger) are the biggest reasons why people tend to avoid seeking information. In order not to trigger these feelings, they chose to remain in the dark. Some studies have analyzed this aspect of information avoidance in people (Case et al., 2005; Narayan, Case, & Edwards, 2011; Norgaard & College, 2006; Ojala, 2012; Sweeny, Melnyk, Miller, & Shepperd, 2010). It's also likely that the way need for information was measured as a measure of need for knowledge of extreme weather does not map onto information seeking about climate change. It may be that need for knowledge about extreme weather is related to information seeking about climate change for those who are already highly concerned or involved with the issue of climate change. Future research should examine such an interactive effect.

A strong, positive relationship was found between social pressure to be informed about climate change and information seeking on the topic. This direct relationship was consistent with other studies utilizing the RISP model (Griffin et al., 1999; L. Kahlor et al., 2006; L. Kahlor & Rosenthal, 2009). Results of the current research suggest that informational subjective norms play a role in motivating members of Gen Z to seek climate change information. People in this generational cohort care about what others around them think regarding their knowledge level on climate change. Also, it is likely they model some climate change behaviours—information seeking—exhibited by their friends, parents or spouse.

The current research examines an important extension of research related to the RISP model: what are people's intentions following information seeking and processing? This generation will be in policymaking positions in the future; their engagement with discussing this topic is essential. As such, this study examined how processing and seeking information is related to digital interactivity. Results of this study show that systematic processing of risk information leads people to engage in interaction about the issue on digital media. This result is consistent with previous research that suggests that people process information carefully if they anticipate a discussion with others about that topic (Xenos et al., 2011). Thinking about the issue carefully spurs one to other actions like talking with others on digital media about the topic. However, the results of this current study suggest that a heuristic approach to information processing doesn't lead to interaction. This implies that people who look out for cues to help them in sense-making and interpretation of climate change information are not interested and engaged in the issue of the topic. Also, research suggests that more reliable heuristic measurement items should be developed (Trumbo, 2002). Also, people are less willing to admit that they make judgments on climate change issue based on public opinions—social desirability—and in a heuristic manner (Trumbo, 2002).

In addition, results revealed that there is a relationship between information seeking and interactivity. It's likely that people who are actively seeking out information are motivated to talk with others about what they find. They are interacting with others after they sought climate change information; this exchange of information could lead to more knowledge and issue awareness.

In summary, the contribution made by the research is plausible. Knowing what people do with the risk information they actively seek is an excellent contribution to the foot-hold of research in this field.

Practical implication

The research on climate change communication has become an essential field of study. Unlike health-based communication that people can relate to on a personal and substantial level, climate change communication pose a greater communication challenge because of its impersonal and distant attribute (O'Neill & Nicholson-Cole, 2009). As an audience, Gen Z members can help mitigate the issue of climate change through the level of engagement they exhibit. When communicating the issue of climate change stakeholders such as scientists, politicians, corporations, or NGOs should be savvy about the best way to reach this audience. Based on the findings of this study, the researcher proposes three recommendations;

The role of an interactive feature on digital media. The younger generation is turning to digital media to get information, without the exception of climate change information. Communication scholars and stakeholders should turn to the internet and social media to provide information and support on how to mitigate and adapt to climate change risks. They should ensure that any digital media used to disseminate climate change information have interactive features that will enable people further the discussion. It is possible that without these features, science communicators will fail to reach wider audiences on important issues such as climate change.

Utilize young adults' social networks to encourage more engagement on the topic. Dissemination of climate change information should be done through programs that reach and

bring the like-minded audience together. Results from this study showed a strong relationship between social pressure to be informed and seeking information about climate change. Policymakers should endeavour to tap into existing social networks while setting rules on how people can get involved with the issue of climate change than creating a regulation that will benefit an individual alone. When such social network rules are set, people will be excited about participating in them in their groups than individually. The reason for this is that when a law affects an organization (e.g., environmental group) positively, the likelihood of it changing many people who identify with them is enormous. The change will also trickle down to their social networks.

People Seek not Avoid. People seek information to help them deal with everyday life situations; in the same vein, they also avoid it to assist them in coping with life situations. Some climate change literature based their investigation on the fact that climate change is a controversial topic with impacts that will be visible both at the societal and personal level. They emphasized the advantages of encouraging young people to learn how to cope with the negative feelings of climate change because young people are the ones that will be in decision-making roles in the future. Ojala (2012) suggests that young people identified different coping strategies like trust in different societal actors, de-emphasizing the seriousness of climate change, existential hope, and problem-focused coping. One coping strategy is the adoption of hope which will help ameliorate the feelings of hopelessness and helplessness. People believe that to achieve a hopeful state, they needed to learn how to cope with the problem – problem-focused coping. This can be accomplished by thinking about the issue, searching for information on what to do and making plans to achieve a hopeful state of mind. Results from

this study showed that people seek climate change information despite the fear that comes with it. Communication scholars should make an effort in writing about things that can alleviate people's hope not bash it.

Encouragement of deeper engagement with the issue through alternative modes of communication. Systematic processing encourages public involvement of climate change—interaction. Some way to promote more profound thought about the issue of climate change is through a communicative mechanism like comedy and deliberations, which makes people think more deeply about the issue to spur more action on the subject. Satirical messages shape climate change perceptions, and its textual ambiguity encourages active engagement and interpretation (Brewer & McKnight, 2015; Kalviknes Bore & Reid, 2014).

Limitation and Direction for future research

This study found robust support for most of its hypotheses and research questions. Its findings are limited for several reasons. Given the survey methodology, the results cannot be generalized beyond the population sampled for this study: Gen Z members in CSU residence halls (Edwards and Parmelee) and thus do not represent the United States or other diverse population. Another limitation of this study is that it didn't consider all the factors that were used by the original RISP model. Affective response (emotions and anger) as predicted by previous research leads to information seeking. It is likely that adding all the factors used in the original RISP model, there will be a noticeable different in the variance of the current study. All the missing factors could have significant results when used for this audience. Also, there were some differences in measurement strategies compared to past studies on the RISP model. Current knowledge and sufficiency threshold weres captured by multiple Likert-type items,

whereas in previous research these variables were typically assessed by self-reported ratings of current knowledge and amount of knowledge needed on scales from zero to hundred. These measurement differences could affect responses and in turn, lead to an overall biased conclusion. Conducting this research in a location that is aware of the environmental risks that faces the earth might have affected the result. Future research should conduct this study in other parts of the country with a larger audience and in a location that is not environmentally-conscious. It is possible that there will be evidence of lesser variance (Total R^2) in the models. It is likely that audience that are less environmentally-conscious do not know that they have a gap in knowledge concerning climate change issues, no social pressure to be informed and have limited perceptions about the risks of climate change.

Although the quantitative method is the typical approach taken by previous researchers who have used the RISP model to draw some insights on this topic, future research should consider using focus group, in-depth interviews or other qualitative methods while studying risk information seeking and processing and interactivity. This could help scholars to find out some insights on what follows interaction on digital media. Do people continue these discussions offline and advocate for the cause of the issue from what they have learnt by seeking information? In-depth interviews and focus groups could be suitable for this study because the researcher will be able to see the demeanor of their participant, and as such follow-up questions can emanate to ascertain whether the discussions raised on climate change topics are geared towards the positive or negative direction. Regarding measurement about the need for information, future research can modify the questions explored. Researchers can explore questions about people's need for information about extreme weather and its connection to

climate change. Results from such studies could help make more informed recommendations in

the field of climate change communication.

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APPENDIX 1

Concepts	Measure
Personal experience	
Pe1	Identify the extreme weather events you, your family or friends have experienced in the past year: drought, flooding, hurricane, wildfires.
	How much do you agree with the following statements using a 5-point Likert scale? (0) "don't know", (1) "not at all", (2) "only a little", (3) "a moderate amount", (4) "a great deal".
Pe2	Has weather in the USA been worse in the past two years?
Pe3	*How much do you think climate change is affecting weather in the USA?*
Pe4	*Do you think that climate change made Extreme weather events worse in the past year?*
Informational subjective norms	*Using a 5 point- Likert scale, 1(strongly disagree) to 5 (strongly agree), answer these questions*
Isn1	People whose opinion I value would prefer me to stay on top of the information about climate change.
Isn2	It is expected of me I seek information about climate change.
Isn3	Seeking information about climate change is likely to give me something to talk about with friends.
Isn4	The people I spend most of my time with are likely to seek information relating to climate change.
Information insufficiency	*Current knowledge: Using a 5 point- Likert scale, 1(strongly disagree) to 5 (strongly agree), answer these questions*
Iis1	I know a lot about the risks of extreme weather events.

Iis2	I know the extent I am exposed to extreme weather events.
Iis3	When it comes to judging the risks associated with extreme weather events my knowledge fails.
	Sufficiency threshold: Using a 5 point- Likert scale, 1(strongly disagree) to 5 (strongly agree), answer these questions
St1	*I require a lot information to judge the risks of extreme weather events I am exposed to.*
St2	*I should know everything about the risks of extreme weather events in my surrounding.*
Information seeking	*Using a 5 point-Likert scale,1(strongly disagree) to 5(strongly agree)*
Is1	When climate change topic comes up, I am likely to search for more information on it.
Is2	Whenever climate change topic comes up, I go out of my way to avoid seeking information on it.
Is3	Gathering a lot of information on the impacts of climate change is a waste of my time.
Is4	When information on climate change comes up, I try to learn about it.
Is5	When it comes to the impacts of climate change, I am likely to get of my way to get more information.
Is6	*How much you agree with the following statements.* I pay a lot of attention to information about climate change.

Is7	In the past 30 days, I have actively looked for information about climate change.
Information processing	*Using a 5 point-Likert scale,1(strongly disagree) to 5(strongly agree)*
Ip1	When I encounter information about this topic, I read or listen to most of it, even though I may not agree with its perspective(s).
Ip2	After thinking about this topic, I have a broader understanding of climate change.
Ip3	When I encounter information about this topic, I am likely to stop and think about it
Ip4	When I see or hear information about this topic, I rarely spend much time thinking about it.
Ip5	There is far more information on this topic than I personally need.
IP6	When I encounter information about this topic, I focus on only a few key points.
Interactivity	*Using a 5 point-Likert scale, where 1 means very likely to 5 means not likely at all,* how likely are you to interact with another user about a climate change related article you read on a digital media platform?

	Using a 5 point-Likert scale, where 1 means very likely to 5 means not likely at all, how likely are you to do one of the following after reading a climate change article online?
	- Like it,
	- Share it,
	- Comment on it,
	- Reply to another reader's comments,
	- Ignore it.
Knowledge	*Using a 5 point- Likert scale, 0 (Not knowledgeable) to 5 (very knowledgeable),* how knowledgeable are you about the following sustainable practices currently in practice in the residence halls by the CSU Housing and Dining Services
	- Composting bins in the dining centres
	- RecycleMania
	- Green Warrior
	- Environmental Eats
Demographics Age	What is your age? 18, 19, 20, 21 (years)
Gender	- Male - Female - Other
Race/ethnicity	- White - Hispanic or Latino - Black or African American - Native American or American Indian Asian/Pacific Islander - Other (please specify)
Political philosophy	- Very liberal - Somewhat liberal - Moderate, middle of the road - Somewhat conservative - Very conservative