Democratization of Knowledge and Epistemological Insecurities within the American and Dutch Climate Skeptic Milieu

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A Thesis Submitted To:

Erasmus University Rotterdam

Master of Sociology: Politics and Society

ABSTRACT

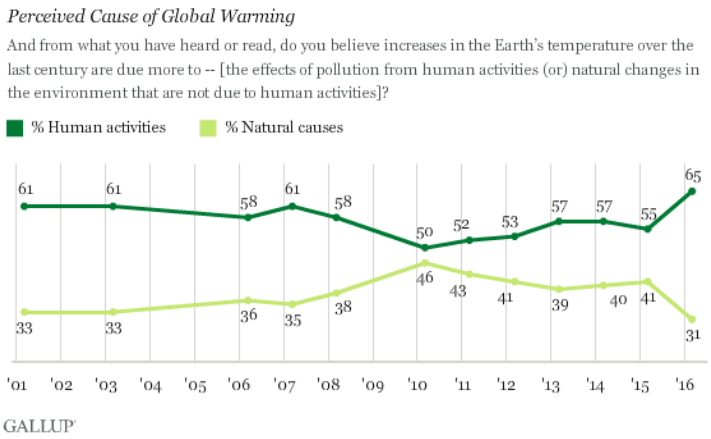
There is an excess of literature on climate skepticism, yet all of which fail to address the individual views of climate skeptics and how they utilize information to establish their own climate change narratives. By taking a qualitative approach which examines these narratives, support was found for the notion that climate skeptics are facing their own epistemological insecurities and growing distrust in the Information Age. Participant's statements supported the notion the internet acts as a tool to the democratization of knowledge and truth in uncovering inconsistencies in the great climate debate.

Keywords: climate skepticism, distrust, epistemological beliefs, information age

1. Introduction

Following the most recent Intergovernmental Panel on Climate Change report (IPCC, 2018), the debate surrounding climate change remains fervently contested in the media and public sphere. In one interview the co-chair of the IPCC *Working Group II* for climate change impacts, Debra Roberts, stressed the latest findings of the panel by stating, "This is the largest clarion bell from the scientific community. I hope it mobilizes people and dents the mood of complacency" (Watts, 2018). Yet the ongoing discussion about climate change continues to range from acceptance of the scientific consensus on anthropogenic effects on the climate, or impacts on climate change from human activities, to complete renunciation of this account. From the scientific perspective, it is shown that circa 97% of climate scientists agree that current climate change trends are "extremely likely due to human activities" (Anderegg et al., 2010; Cook et al.; 2013; Powell, 2015). However, across the globe both politicians and policymakers question such findings in arguing the uncertainty around the anthropogenic component.

In the United States, the President has taken a step back from directly labelling climate change a "hoax", yet continuously tweets ideas supporting the notion that "climate science is fake science".[i]



And from the public sphere, a 2016 Gallup Poll (2016) showed 31% of respondents blamed natural causes as a source for global warming, leaving one-third of the U.S. population still skeptical of this aspect of climate science.[ii] In the Netherlands, a recent poll indicated one-third of the Dutch population similarly remains unconvinced that humans are likely responsible for the current climate change trends. This view was mostly predominant among men, in particular, elderly men. [iii] To exemplify this case, a well-known Dutch politician named Thierry Baudet

recently called into question the scientific consensus on climate change trends and referred to the "familiar lies of the climate mafia".[iv]

Though the total number of skeptics has decreased, these reports show there is still a large margin of the U.S. and Dutch population which are skeptical about the subject of climate change. And albeit the level of scientific skepticism for climate change is nothing new, it remains a highly consequential area of study to establish a higher consensus amongst the public. In this regard, various authors have begun to discuss the mounting epistemological insecurities and the underlying skeptical attitudes which places public distrust in the media, scientific institutions, and politics at the center of this debate in our modernized world (Harambam & Aupers, 2014; Van Zoonen, 2012). Considering public distrust, some citizens seem to have become more critical of scientific institutions and thus form their own positions while rejecting the scientific consensus on climate change. In such a manner, the skeptics appear to create their own discourses on these complex issues by following the wealth of information provided through individual experiences and personal research (Van Zoonen, 2012).

Effectively, the evolution of globalization and modernization has led to the Information Age – a period of rapid digital and technological communications developments (Castells, 1996; Aupers, 2010). Now the overabundance of sources of information, such as on social media platforms, Facebook, Twitter, and YouTube, podcasts and numerous documentaries are coupled with the individual way citizens experience a feeling of sensory overload. In other words, these developments have led to the democratization of knowledge in which information is widely available from a profuse number of platforms and sources.

In light of these developments, it is then reasonable to question the surmounting epistemological insecurities made apparent through the democratization of knowledge, specifically regarding the climate skeptic milieu, as the climate debate continues to impact the public. From this perspective, the study begins by examining the types and sources of

information climate skeptics use and to which degree they explore and question information they deem valid and relevant to formulate their own narratives. It asks the relevant questions of how climate skeptics prioritize certain information and judge that information as being a reliable source in a period of institutionalized distrust (Aupers, 2012). Thus, the study seeks to understand climate skepticism by asking the following research questions regarding epistemological beliefs and mounting epistemological insecurities: how do climate skeptics come to knowledge about climate change and how do climate skeptics give validity to a certain source of information and not to other sources of information?

2. Theoretical Framework

As conventional wisdom might suggest, providing more information on issue-specific topics such as climate change should inevitably increase awareness or knowledge of the specific topic (Eckler, 2017). Additionally, the idea of providing information to fill knowledge gaps has been discussed frequently in the literature, typically presented in reference to the "information deficit model" (Nisbet & Goidel, 2007, Suldovsky, 2017). In essence, the model presents and describes the idea that providing more issue-specific knowledge would lead to a well-informed and educated population. However, as several studies have consistently shown, this is not necessarily accurate as the assimilation of knowledge may decidedly depend on cultural predispositions and values (Allum et al., 2005; Achterberg et al. 2010; de Koster et al. 2016). For instance, in the study by Achterberg et al. (2010), the authors found that cultural predispositions, such as environmental concerns and technological trust mediated acceptance or rejection of newly emerging hydrogen technology. From studies such as these, we understand that there is some interplay between the information and the way in which we experience the information on an individual level.

On the other hand, today we live in an era where knowledge is widely and immediately accessible vis-à-vis the internet, leading to the democratization of knowledge. Though to elaborate, through the evolution of globalization and modernization, democratizing knowledge has meant that sources and types of information have become almost limitless. Moreover, the democratization of knowledge may be more broadly defined as the widespread acquisition of knowledge and direct access to information for the general public, as opposed to a limited group in society (Sanger, 2007). To this extent, globalization has inevitably paved a path for large-scale modernization which in turn allows for greater and more expedient connectivity. However, when it comes to attaining new types of information it may become unclear how to distinguish factual reports from false narratives. Hence, as opposed to the "information deficit model", it appears the overabundance of information has led to a period of heightened epistemological insecurities. In this period, the knowledge to fill gaps is widely available, but the path to doing so is undoubtedly more complex due to the interplay of personality traits and predispositions.

Some authors have deemed the current period in the Information Age as the "post-truth era", highlighted by increased polarization, a declining trust in politics and institutions, and a fractioned media landscape (Aupers, 2010; Lewandowsky, Ecker & Cook, 2017). Now people have the possibility to read or hear a false claim and witness it virally circulated on the internet for days or weeks before being removed, if at all. By that time, the rapid spread of any such claim, or misinformation, could have negative societal consequences and pose problems for democracies whereby institutions lose credibility, and expertise is no longer trusted (Bennett & Livingston, 2018). Simultaneously, deliberate or misinformed falsehoods circulated as news stories or alternative narratives are an outcome of the democratization of knowledge in the Information Age. Following these trends, the impression that heightened insecurities, public distrust, and skeptical attitudes are widespread is not surprising. Hence as of 2013, the World

Economic Forum ranked the spread of online misinformation as one of the ten most significant global issues (WEF, 2013; Bennett and Livingston, 2018).

There are numerous studies focusing on the effects of globalization and modernization, the scope of which includes political and institutional distrust. When separated into additional sub-categories, there are further articles on institutional distrust and scientific skepticism, especially from a quantitative perspective (Allum et al., 2008; Hahn, Harris & Corner, 2015; Lewandowsky, Ecker & Cook, 2017). However, there is a general lack of literature on the climate skeptic's individual perspectives due to their views being widely stigmatized by the larger public. And though the problems with misinformation are indeed becoming rampant, the discussions on climate change must be openly addressed within democratic societies. Effectively, the stigmatization of skeptics merely closes the door to future opportunities and discussions for abridging the divide and finding solutions to this debate (Harambam & Aupers, 2015; Van der Linden et.al, 2017). From this perspective, it is important to supplement the existing literature by giving voice to the people stigmatized as climate change skeptics. This study aims to close that gap by addressing this niche area of research. Moreover, the qualitative approach applied here aims to complement and contextualize the quantitative findings in the literature on climate skepticism (Hahn et al., 2014; van der Linden, Leiserowitz, & Maibach, 2017; Sunstein et al, 2016). In this study, I argue the importance of addressing this niche claim based on the relevance and salience of the climate change debate.

2.1. Epistemological Beliefs and Insecurities

Epistemological beliefs are typically defined as the beliefs regarding knowledge, particularly the acquisition of knowledge and knowing, and may be categorized within four subsequent "dimensions of knowledge" (Bromme et al., 2010; Hofer & Pintrich, 1997). Though several alternative frameworks attempt to redefine the scope of epistemological beliefs, the aim of this

study is not centered on those semantic discussions, but rather the underlying scientific relevance these belief structures hold in society (Hofer & Pintrich, 1997). The initial two dimensions epitomize the "nature of knowledge", being the certainty of knowledge based on evidence and the structure of knowledge surrounding the evidence. For example, the manner in which scientists accept scientific theory is predicated upon the scientific method, including empirical observations and experimentations. As such, scientific theories arise to help make sense of the natural world around us. The last two dimensions are slightly more nuanced, but typify the "nature of knowing", for example, the justification of knowledge to warrant claims as valid, and the source of knowledge from which the justification is derived (Bromme et al., 2010). For the objective of this study, I find the latter two dimensions fundamentally capture the focal point of the research questions. In other words, reviewing the way in which skeptics come to knowledge about climate change and determine which sources of information they deem valid and reliable acts as a justification for knowing.

Taken in this context, the nature of knowing has led epistemologists and other academics to study the field and ask a practical question pertaining to society and our belief structures: what do we believe *now*? In his work, Coady (2012) follows this question by pointing out practical dilemmas about belief formation and knowledge acquisition. To illustrate, the author addresses the fact that citizens are facing growing challenges with the emergence of innovative technologies which seem to intensify existing epistemological insecurities. To contextualize this statement, we must bear in mind the emergence and exponential growth of vast technologies is relatively early in our recent history. These developments include everything from the development of the television half a century ago to cloning, 3D printing technology, and autonomous test vehicles. As new technological advancements are achieved and announced to the public, questions of application and ethical questions may arise. In particular, the

development and mass usage of the internet over the past few decades have helped to rapidly underscore this point.

Though people continue to utilize or rely on information received from others whom they expect have expertise in certain fields, the technological developments, particularly with the internet, have paved the way for the epistemological insecurities to arise (Schmid-Petri, 2017). As Lewandowsky et al. stated, "Imagine a world that considers knowledge to be "elitist" (Lewandowski, Ecker, & Cook, 2017: 1). The train of thought promoted in this worldview is that people should become critical thinkers who "question everything" and to a certain extent, disregard expertise. Accordingly, in the era of globalization, there are many experts worldwide and many sources to find information, but to this degree, self-proclaimed critical thinkers may become experts themselves by researching specified topics. The question of "what to believe now?" also becomes "*who* do we believe now? And can we *trust* them?" (Coady, 2012: 5).

These questions coupled with the widespread availability of information has immense potential leading to validity and reliability concerns as the information has nearly limitless bounds and lacks filters. Furthermore, the information in online articles, blogs, and other opinion pieces are not subjected to the same rigorous vetting process of examination or peer-review as scientific and social scientific articles are in order to be published. In turn, this has led to an amplified effect whereby articles are spread rapidly before any form of validity and reliability has been has assessed (Bennett & Livingston, 2018). Applying this logic to Facebook or other online platforms and forums, it becomes apparent how false narratives on climate change could inevitably be understood as the "true" counter narrative to the climate debate. This issue has become so widespread that social platforms such as Facebook have begun taking active measures to stop misinformation and false news. However, this has raised additional concerns on the restrictions of freedom of speech.[v]

The overall impact of these developments makes up a growing portion of the literature on epistemological beliefs and skepticism. The resurging skepticism of institutional science, which was historically a theme in critical and post-modern theory, has become a pervasive norm in Western cultures, continuously emphasized through the aforementioned declaration of "questioning everything" (Van Zoonen, 2012). However, over the course of this period, one predominant factor which is recurrent in the literature is the process of individualization. While the degree of *distinct* individualization in sociology may be disputed in comparison to historical and societal changes, the emergence of the belief in the "self as the source" has become well established in recent times (De Beer, 2007; Van Zoonen, 2012). From the self-source perspective, Van Zoonen argues that epistemological insecurities have led to skepticism and issue-specific distrust, such as within the anti-vaccination and climate change movements. Moreover, the insecurities and resurging skepticism appear to have developed parallel to the shift towards individualization as citizens increasingly derive truths from their own individual experiences, as they feel this is all they may trust (Van Zoonen, 2012). Though Van Zoonen made it clear that the self as the source, the "I-Pistemology", is not necessarily a novel concept, she established a sound argument regarding claims to truth through personal experience and knowledge. Additionally, her work reaffirms how the internet inherently allows this effect to be amplified across borders.

Following the concept of the self-source, there is more depth to the epistemological insecurities to be uncovered. Whereas the "I-Pistemology" addresses the sources of knowledge, other academics have studied the second dimension of epistemological beliefs: the *justification of knowing* to warrant claims as valid. The concepts of the source and justification of knowing are the underlying gateway which has inevitably fueled competition for challenging knowledge between the scientific community and those "anti-elitists" doubting scientific claims (Harambam & Aupers, 2015). In other words, the individual pursuit of truth and knowledge has

led to various challenges to experts. To elaborate, in the study by Harambam and Aupers (2015), the authors present a comprehensive narrative showing official and expert explanations are increasingly being challenged by skeptics in the public, which has inevitably led to alternative explanations seeking the "real truth". Fundamentally, the authors focus on the question of how conspiracy theorists reject scientific authority and official scientific knowledge to varying degrees. Moreover, the authors distinguish three underlying critiques presented from their participants: the dogmatic or religious approach to science, the current relationship between the science community and vested political or monetary interests, and the exclusion of "lay knowledge" by the expert scientific power elites (Harambam & Aupers, 2015). This helps emphasize the notion that different facets of knowledge are considered by some as "elitist" (Lewandowsky, Ecker, & Cook, 2017). Likewise, Van Zoonen (2012) has observed claims that the "real truth" and knowledge are tied to social, political, or material and monetary interests. The same critiques resonate in climate skeptic milieus and ultimately highlight the resurgence of political and institutional distrust.

When it comes to the climate change debate, there is on one side the overwhelming consensus from the scientific community that climate change is undeniably impacted by human activity (Anderegg et al., 2010; Cook et al., 2013, Powell, 2015). Yet, the other perspective consists of a broad range of skeptics who disagree and believes human activity only has a miniscule impact on the climate, if at all. From this perspective, how is it that climate skeptics take alternative explanations and information and create their own narrative? Furthermore, what are their individual responses to the mainstream consensus on climate change and how does this overwhelming span of information affect their own belief structures?

3. Data and Methods

The research questions are founded on the concept of epistemological beliefs, but more specifically aim to address how climate skeptics come to knowledge about climate change and determine what a valid and justified source of information is. In other words, when do they accept one source as reliable and valid, but question other sources? Answering questions of this nature is not directly reasonable through quantitative analysis, which is why I selected in-depth interviews. To answer the research questions on the individual level, I therefore utilized semi-structured online interviews of climate skeptics.

The motive for selecting climate skeptics was based on the idea that they are the stigmatized group which rejects or denounces the "mainstream" climate narrative and therefore form a group to be addressed in the climate discussion. Though Aklin and Urpelainen (2014) have shown that modest amounts of scientific dissent results in the reduction of general public support, I maintain it is critical to create a dialog for citizens with alternative views. The notion that alternative views should be completely rejected may inevitably lead to resentment, rather than abridging gaps. For these reasons, I decided to conduct the semi-structured interviews with ten climate skeptics in an informal and conversational-styled approach (Holstein & Gubrium, 2004). Following the research questions, interviews with climate skeptics appears to be the most fitting manner to extrapolate data on the individual views they hold regarding their perceptions of climate change information, and scientific and institutional trust.

Individuals who agreed to be interviewed were informed beforehand about ethical issues within the research and have their anonymity protected through the selection of pseudonyms (Williamson & DeSouza, 2007). The interviews were conducted vis-à-vis online video calls due to personal and geographical constraints. Furthermore, it seemed appropriate that selecting video calls over standard phone calls would be more practical to provide a personal experience in conversation. Given the informal and conversational approach of semi-structured interviews,

it was essential to draft a shortly itemized interview guide that best reflected the core of the research questions. The interview guide was concise and based on a vast array of literature on perceptions of information, political and scientific institutional trust, and skepticism (Achterberg et al., 2010; Aklin & Urpelainen, 2013; Bromme et al., 2010; Coady, 2012; de Koster & Achterberg, 2015; Harambam & Aupers, 2015; Lewandowsky, Ecker, & Cook, 2017; Schmidt-Petri, 2017; and Torcello, 2016). Having stated this, it was important to pay adequate attention to the distinct types of information the interviewees received or consumed, next to their overall state of trust. To briefly explain, I anticipated their media consumption plays a significant role in their information seeking behavior, but also the discussions with their peer groups, relatives and specifically online through social media exposure, including podcasts and documentaries.

Over the course of each interview notes were taken in brief which provided context to the discussions, as well as later allowing for thick descriptions (Bryman, 2016). The nature of the conversations led to discussions with a maximum of 45 minutes. The shortest discussion lasted shortly under 20 minutes, as the participant was mostly uninterested in climate change and decided to avoid answering probing questions in depth. Following transcription, I reviewed the interviews several times to contextualize and categorize emerging and recurring concepts to code in the data analysis process (Bryman, 2016). The interview guide already provided a general framework to operate from and included broad topics, such as general thoughts on climate change, cultural predispositions for the environment, types of information, and trust.

3.1 Participants

The group of participants was found through convenience and snowball sampling approaches applied in the southern region of the United States and South Holland in The Netherlands. The selection of the participants began based on my familiarity and awareness of climate skepticism

from conservatives in the United States and from acquaintances here in the Netherlands. In the United States it is commonplace for conservatives, particularly in the South, to have skeptical views on climate change. For example, almost fifteen years ago Republicans appeared to accept the scientific consensus on the human impacts of climate change but altered course ten years ago around the beginning of Obama's presidency. At that time it became questionable again whether humans had any impact on climate change, which is now the predominantly held position amongst conservatives.[vi] Moreover, based on the literature and political polling, it seemed most likely to find a climate skeptic milieu within conservative communities (Zhang et al., 2018). In comparison, the Netherlands is mostly well-known for being progressive and individualized, albeit there is only weak empirical evidence specifically on the latter and based on parameters of individualization (i.e. detraditionalization, emancipation, and heterogenization) (De Beer, 2007). However, even as a widely progressive society, there is a large conservative population to discuss the topic with. Though the cross-cultural comparison might be more pronounced in quantitative studies, I anticipated some degrees of difference between the two cultures.

The decision to continue with snowball sampling friends and relatives elicited the highest participants and helped to ensure the likelihood of finding further participants. In total, there are ten participants with an age range from 20 to 65. Seven participants are under the age of 30 and the other three participants were between 55 and 65. They are an evenly split group, so that five are American and the other five, Dutch. One of the young American respondents is a veteran, now currently residing in Germany, where some veterans stay after their military service. Of the participants, only two females partook in the interviews, which was not specifically determined in design, however, eliciting responses from females additionally proved challenging throughout the process. Nonetheless, this was less disconcerting as even the Dutch study emphasized most climate skeptics were males.

4. Results

Over the course of the interviews, the discussions normally began with questions concerning the participant's general knowledge of climate change and the impact of human activity. From there we would discuss alternative reasons the climate is changing. As we moved on in the discussion, I inquired if the participants had any concerns for the environment, as well as the potential impacts on humanity, citing these views as cultural predispositions towards nature and the environment (Achterberg et al, 2010). Once I had established their opinions and had a working understanding of their positions, we would discuss the types of information they use and rely on. These questions typically led towards trust concerns. As such, distrust in politics, institutions, and the media would become directly entangled with sources of information, which already emphasized the concept of epistemological insecurities arising in part from the democratization of knowledge. In other words, the participants would begin to accept a dissenting narrative based on their own research of the topic.

Next to this, they had often heard about the potential impacts of global warming or climate change in the past but failing to "experience" the consequences of climate change, they were able to reinforce their own positions. For example, most participants referenced past media and political statements on climate change regarding weather patterns or global temperatures to indicate why they are now climate skeptics, although they still questioned the information and data. This led to insightful conversations about the idea of reliable and valid types of information, as well as providing a firsthand account of the rising epistemological insecurities facing climate skeptics.

4.1. Climate Change Skepticism

There are various views held throughout the climate skeptic milieu, including complete denial that humans have any impact since the climate is always changing, to the ideas that volcanic eruptions or solar cycles have a more significant impact than humans ever could. These were

the standard points of explanation when discussing climate change with skeptics. At least seven of the ten respondents attributed climate change to natural causes, or "Mother Nature". In particular, the Dutch participants offered explanations that aimed at avoiding the discussion on the anthropogenic impact. Paul, a Dutch 29-year-old participant stated this point the strongest in our discussion:

> Paul: How is it our fault if the climate is changing exactly? There are other reasons the climate changes, the climate changes naturally, so why blame humans, you know? It's hard to say we did this or that. Of course, I think we put things into the atmosphere, greenhouse gases that don't belong there, but the climate is changing naturally. Then hey, think of other things, the impact of other things like natural temperatures and so. There are other explanations, we just don't see the whole picture.

However, concrete alternative narratives were typically more pronounced. Some participants spoke of confounding variables which remained unaccounted for the scientific experts. For example, John, the 27-year-old American veteran, spoke of how rising sea levels may actually be accounted for by increased modes of sea transportation. Moreover, he accepts the natural changes after coming out of the last big ice age, but describes the impact of volcanic eruptions as extremely impactful:

> John: Well, I read a news article that stated there was a volcanic eruption in South America that produced more CO2 and harmful gases into the environment than humankind ever has done. And at the …well, how humans are producing or using up natural resources, it would have taken us 10,000 years to put this much pollution into our atmosphere.

Another alternative presented in the discussion was the impact of solar cycles, of which only two participants argued might have an impact that scientists have not considered thus far. David,

a Dutch 23-year-old, attempted to provide me with some information on solar cycles impacts on the climate, but stopped shortly because that is not enough data to rely on at the moment as he describes here:

> David: Estimates may be done so far, but the idea is there will be solar phenomena that will continue for years and yes, that is interesting. It will be interesting to see what we can measure.

After cataloging respondent's replies about the most impactful influencer of climate change, we would shortly discuss their concerns with the environment and the impacts on humanity. During the interviews there was one participant, Henry, a 65-year-old American, who expressed zero interest in the outcome because he didn't believe in climate change at all. For the rest, the participants had some degree of interest, but they were not concerned with climate change issues *per se,* as it occurs naturally over time. This led some participants to discuss how we need to do something for the planet, but this was unrelated to their views on climate change. For example, David explained the following in our conversation, while beginning to shift to the political discussion of the subject:

> David: I don't use a car. That's my way. So how we listen to nature… yeah… well, I think people lost their touch with nature. You can only change yourself and be honest about these things that are and be aware of political tools that are used to steer this topic.

In a comparable way, George, a 60-year-old American, was someone who specifically mentioned "mother nature that's doing it", while declaring the miniscule impact humans may have. For him we still need to do something about the environment, regardless if climate change is impacted by humans or not. This viewpoint was echoed by many other participants, with the exception of Henry.

> George: I mean, I recycle and stuff. And I think there is too much waste in the world.

4.2. Types of Information

Following the opening questions, I began to ask for more specifics, mainly in reference to answering the research questions. Therefore, the questions that followed were based on the types of information the participants consumed for climate change, ranging from standard newspapers, television news, radio, and then expanded to various online platforms and sites, including social media, blogs, podcasts and documentaries. Moreover, it was possible that the participants would reference their friends and family as other sources of information. However, as the data analysis revealed, participants would mostly avoid conversations specifically on the nature of climate change outside of familial relationships due to stigmatization – an important aspect of these results.

Consequentially, in light of the Information Age the younger respondents preferred online sources of information. Yet most surprisingly, the results showed that even the older American participants began seeking information online more frequently than in newspapers, the radio or on TV. As most participants suggested, it was easier to access the information on specific topics directly, rather than waiting to read them in the newspaper or hear it on TV. For the participants that continued to utilize the news on TV on occasion, only one respondent, an American 55-year-old named Kayla, received information on climate change from an unanticipated American source, “The Weather Channel”. When asked how she felt about information from the internet, she questioned whether the sources could be trusted by asking where the people received their information. Another respondent, Daan, a Dutch 25-year-old used to read newspapers more frequently, but now seeks information online from podcasts and other diverse sources.

Indeed, the idea of taking from diverse sources played a significant role throughout most of the discussions. Albeit most of the older participants stated nothing similar to this extent

even after switching to predominantly online sources, the American and Dutch participants under 30 preferred to stay open-minded and review diverse sources of information online. As part and parcel of the democratization of knowledge, this claim is almost self-evident as individuals with inquisitive views will actively continue seeking multiple perspectives. Paul was one of my first Dutch participants to point this out, stating how "obvious" it is to figure these things out:

> Paul: I read these things. There is a chance reading the news will not show you the whole picture, just a piece of the picture. I want the whole picture, so I read about the climate. So, yeah, where do I get it? I read it. It's online, you can find these things if you look everywhere and keep an open mind. I have seen plenty of sources in documentaries and research.

Furthermore, the participants often included statements similar to these where the quest for the elusive "real truth" was to be unveiled. This underpinned the idea that for them, the internet was irrefutably the portal to the perceived democracy of truth (Aupers, 2012). By taking this approach and reviewing several perspectives online, the participants felt they would be able to uncover the truth behind climate change. And although the skeptics are subjected to an information overload vis-à-vis countless alternative internet sources, through this experience, they felt they could expose inconsistencies from scientific experts. This was naturally the point where the types of information became entangled with distrust in scientific and expert knowledge, which I had not anticipated so early in the discussions. Having started from questions that asked how often the participants read or watched something about the subject and where they find their information, we quickly became involved in conversations of political distrust or scientific institutionalism. As Adam, a Dutch 20-year-old pointed out:

> Adam: A funny thing to see for me is that researchers who are getting paid by the government, I will say 95% of them, say it has something to do with the human intervention, like humans are changing the environment, but researchers who are retired and not getting paid by the government. Most of them do say that humans aren't responsible for climate change.

Additionally, another young Dutch man, Peter (21-years-old), made a statement on his feelings about the impact of human activity while questioning the truth:

> Peter: […] a lot of science research is paid by other people and I think those people have some say in it… and still with all those things I said, of course a lot of research is being done. Of course, I sound strange if I were to say that I disagree with that because they're way smarter than I am. But I also don't think we should accept it as the truth, the way we are told.

Paradoxically, these same participants often spoke of staying open-minded, retrieving the results, and being familiar with the empirical evidence, yet most of them cited research they have done without explicitly researching the subject. For instance, Adam stated a few times that he would "follow the research" himself, but the probing questions revealed that he meant the type of research backed by Dutch politicians he supports, citing Thierry Baudet and Geert Wilders. He explained that he could not reference any scientific sources or articles himself but was interested in the research coming from his party, the Forum for Democracy. Peter also expressed enthusiasm at the research institute of the Forum for Democracy, although admittedly explained the institute doesn't publish as much on climate change. Most importantly, Peter emphasized he doesn't immediately believe their research, but reads it and considers which points may be truthful. The same judgement was applied to the universities, research centers,

and think tanks, which involved some form of funding or political agenda behind the climate change narrative.

When it came to online news sources, an overwhelming majority questioned the political position of the news and repeatedly addressed the conflicting views of "leftist media". In fact, political leanings in the media was a key driver in resorting to online articles and sources with diverging perspectives. According to the participants, the leftist media is a major source for pushing the narrative or agenda of human impacts on climate change.

In comparison, the conservatives on the right were less likely to embrace a climate change perspective which accepts the anthropogenic effects, but most participants even found no particular reason to have more trust in the right-wing media. This was particularly surprising due to the frequency of "leftist" remarks. Another surprising example came from Peter who argued that no news platform could be trusted any more with perhaps an exception for the BBC. Here he argued the expertise was different in comparison to the Netherlands, since BBC presents more facts and the Dutch media leaves out information. When pressed on this stance, he was personally unable to explain why he felt this way aside from stating the BBC is "quite professional". Another participant, a Dutch 23-year old named Natalie explained the growing challenge of reliability from online sources that are just trying to tell stories:

> Natalie: I have no idea which I could rely on the most. […] There was this news show, well, not show, but something and I thought it was reliable, but they started to rely on material to make the news more interesting, but I don't know what is reliable anymore. I also noticed while comparing news sources, sometimes they just copy each other for a story.

Consequentially, this statement helps epitomize the idea of what the participants deemed reliable or valid. As the analysis showed, none of the participants appeared to truly accept any

source as being trustworthy nowadays. Thus, to answer the question how climate skeptics give validity to one certain source as opposed to another is not such a straightforward matter. To briefly explain, the participants mostly claimed to keep an open mind by taking information from various sources, questioning the expertise, and only relying on themselves as filters for the information, since other sources may not be trusted. Moreover, it was clear the participants had their doubts with researchers in general. Though science was not the contentious point, scientific institutionalism, including possible biases of the researchers, played a key role in questioning the validity of information. Natalie made this point clear with the following statement:

> Natalie: Well, who presents the results of these things? I don't believe the consensus is correct or maybe they change their words to make it sound confusing. I would trust the science, but it's hard to know about the scientists, the ones presenting different information.

As most of the participants raised interjections about power and financial gains, and slowly shifted from the types of information they use towards the subject of trust, I began to ask one last question in regard to the types of information: *what kind of information would change your mind*? This is a particularly tricky question as it entails facing some form of cognitive dissonance, whereby a person directly confronts an idea colliding with their worldviews. However, even as a hypothetical point, the answers were quite revealing. Most participants responding to this question talked about seeing real, empirical evidence, which they don't believe exists for climate change:

> David: Yeah, when it's measurable and you can reproduce the statement and when you can check the statement. When something is a fact, when you can take it to be true. Of course it's very difficult. And I think it is healthy to stay very skeptical from whatever

> source, so I really view everything with a skeptical view, trying to view these things from different perspectives. You can look it as a detective.

From John's perspective, there is probably nothing that would change his mind because there are too many vested interests, even though he admittedly remains open-minded about being wrong:

> John: I still would not think so. I think there is too much lobbying happening in the background that unfortunately, I will never be able to prove, but it seems like it is a little too trendy or popular… that is grew so fast, that it has turned into a multitrillion dollar industry. I think it just happened a little too fast. So even, let's say I read analyses from well-educated, well-known scientists or people in this field, I would say there has to be a reason why it is not a 50-50 thing. The reason could be that it might be true… and I could be wrong, but just from my knowledge and collection of information, I don't think so.

The purpose of this interview section was only to discuss types of information and sources and to pursue the idea of how participants considered one source more reliable than another. However, as I have already stated, the discussions were intrinsically tied to concepts of distrust, rendering them often times difficult to disentangle. Therefore, the following section subsequently aims to specifically address this issue and focuses predominantly on the epistemological insecurities.

4.3. Epistemological Insecurities and Mounting Distrust

There appears to be some correlation between questioning the reliability of sources and levels of distrust. In the interviews, the participants argued their acceptance of science and cited empirical observations and scientific facts as items they believe in, while questioning the

legitimacy of the researchers and experts. To provide an example, Paul drew a comparison between the shifting debates in nutritional science to the climate change debate:

> Paul: It's very complex and here we have, you know, people saying the science is very unclear. It's like food… the nutrition, one day this thing which they say is healthy turns into another. Then they say, "oh yeah, that causes cancer".

And to this extent, Paul makes a good point by focusing on the overwhelming amount of information between numerous studies, many of which suggest different results. For the general public lacking the expertise, it makes sense that these issues become too complex to follow. By trying to understand the world, the constant pursuit for knowledge is at the heart of their epistemological insecurities. This included instances where the lack of transparency for studies fueled their own doubts, as Paul stated:

> Paul: I think there is more, so much more. I read once that corporations would pay for a study, but if the study wasn't "correct", then the study never made it. But this, this is interesting, you always read this, you always hear about how studies disappear. […] It depends who is making the payments. There are lots of interests, multinationals, lobbyists, there is lots of money to be made.

Similarly, George supported this same notion, but took a broader approach to scientific skepticism by focusing on scientists debating theoretical claims:

> George: A lot of scientific stuff is theory. I mean, some of it has a basis, but some is just theory or … I don't know if I want to call it a "conspiracy". It's just this one scientist says this and that one says that and they can't agree with each other.

Following the discussion on the general trust of scientific institutions, the fault for misinformation or disinformation was frequently placed at the feet of the media, as previously indicated in 4.2. Although some participants would explain the problems with the leftist media,

they would often state the right is ultimately not trustworthy either. This point was rather hard to understand because the probing answers introduced some inconsistent statements referencing right-wing sources of information the participants would cite. However, the answer to this paradoxical view is that information isn't immediately assumed to be reliable: "question everything". To highlight this point, Daan stated the following during our conversation:

> Daan: Well, it seems that the left is trying to make you think it's bad and we should do something about the climate. So, if they want to think that and say it, then most of what they tell cannot be true. They must be adding false things to what they say. I don't know if I would trust the leftist media to be honest.

As I prompted him for a response whether this means he could trust the right or center news, his immediate reaction was to back pedal and state that it's mostly the media and so he keeps an open mind. The interesting point of this result is that between American and Dutch respondents, mostly the Dutch cited the political leanings of the media organizations whereas the Americans did not mention these specifically. This is quite surprising as the political divide represented throughout the media portrays a distinct line between Democrats and Republicans. However, this result could be related to a conservative filter bubble existing in the southern United States. At least there were no explicit statements referencing the difference in climate change views between Republicans and Democrats or conservatives and the left in their online readings and viewings. Alternatively, this could be explained with the age difference insofar as the older American participants were uninterested in any leftist media approach to climate change and failed to subscribe to these channels. The only exception occurred when the Americans mentioned the American politician and climate activist, Al Gore, and his 2007 documentary, "An Inconvenient Truth". Additionally, John discussed how he was inclined to staying more open minded after living abroad and by viewing sources from the far-left and far-right:

> John: If any data is biased from whoever is presenting it… well, I try to use different sources. So, as an American I use different resources like the New York Times, or the Time Magazine, National Geographic. Stuff like that. I also use other sources, such as FOX news… even to say... hahahaha, INFO WARS, just to see what the extreme spectrum says.

Moreover, the discussion on trust was emphasized in reference to specific political statements on climate change from both American and Dutch participants. This includes the aforementioned research center of the Dutch Forum for Democracy, as well as Al Gore. For instance, the moment I asked if politicians have a reason to lie or set an agenda about climate change, George immediately laughed and referenced Mr. Gore. For some participants, it was Mr. Gore's documentary that highlighted a turning point in the climate change debate, as David explained:

> David: It started with Al Gore who promised me there would be no snow after 2007 and he called this topic "global warming" and I think about ten years ago it changed to "climate change", so that's a fact alone which says something.

Additionally, a few others referenced Al Gore's film and talked about some of the predictions he presented in the film and how they have not occurred or the double standards from politicians such as himself, as Natalie suggested:

> Natalie: I'm not sure what to think about where he gets this data. He gets to fly around the world and then tell us how to live and says, "This is climate change, this is bad, and we have to fight for it." But then I wonder, what is he doing?

Next to this, the recurring idea that further financial gains or power played a significant role in how politics operated helped to undermine the scientific debate of climate change. In fact, in most cases of distrust between the media, politicians, and scientific institutions, financial gains

were the most commonly cited reason for not being able to accept the information, even when it is a widely accepted scientific consensus. For the participants, if research is being funded and it isn't clear who funds it, then there is intrinsically a problem within the system.

From the literature review, I gathered there would be some underlying distrust present, but this level of distrust was not anticipated. Candidly, it should be expected that individuals question the nature of things and knowledge to a certain degree, however, the point to distinguish here is that the participants are particularly questioning what we deem as expert knowledge. They have taken the alternative narratives or explanations to create their own sense of understanding on climate change because there are no truly reliable sources beyond the self. This further supports the I-Pistemology notion provided by Van Zoonen that individuals must carry out their own research and continue to rely on themselves (Van Zoonen, 2012).

4.4 Stigmatization of Climate Skeptics

Throughout the data analysis, an additional result was the diverging levels of stigmatism between the Netherlands and the U.S. In the Netherlands there is a stronger stigma attached to climate skepticism. As previously discussed, a conservative worldview in the southern region of the U.S. is generally implicative of dissenting views on climate change, so that Americans appear generally more apathetic towards climate change, and stigmatization is therefore less common. The only exception to this was John, since he had been living in Germany:

> John: […] this has happened to me several times before when I've stated climate change is not real or from humans, I'm immediately ostracized.

In the Netherlands, I anticipated less stigma for conservatives and right-wing voters on the subject due to the overall progressive nature of the society. Effectively, I imagined the Dutch would approach such dialogs more openly. However, the Dutch participants stated their

unwillingness to discuss the topic more frequently due to stigmatization by peers, as provided in one example by Daan:

> Daan: They tell me that I am a weird person, that I don't believe in science. I do believe in science, but there are some things which are not so accurate.

Next to Daan's experiences with stigmatization, this was an intriguing statement because of the emphasis on the belief in science, as it once again underscored the predominant view that they support science but questioned scientific institutionalism. In another case, David was much clearer as to why he decided to stop having these conversations. For the most part, he described them as superficial discussions whereby people are unaware of the language they are using to discuss climate change and how this causes further polarization:

> David: If you ask different people, they have different meanings… and so you can find this a difficult subject with a political target and this statement is from an elitist position to make the political things happen. So, it's not worth to discuss these things on a superficial level. It's worth it to do the scientific research, to do scientific experiments and look at facts.

The only Dutch participants partaking in these discussions with friends or family appeared to be those sharing similar views, otherwise climate change was practically a taboo topic. This was emphasized with precautionary statements, so that the participants were careful not to give the impression they are conspiracy theorists, as noted here by Peter:

> Peter: I think everyone should think about the research they read online as well. That doesn't… well, like I'm not saying everything is wrong and you shouldn't trust anyone because that would sound like some conspiracy again. That is not what I mean by it, but I also don't mean we should follow everything we hear.

Indeed, the concerns of being deemed a conspiracy theorist were reason enough to avoid a possibly polarizing conversation regarding climate change. However, the stigmatization also appeared to support the necessity of awareness in the climate change debate and therefore acted as a catalyst to seek information on the topic. In the event these participants would enter into such discussions, they would be armed with the information and narratives they have figured out themselves.

5. Conclusion and Discussion

Though the scientific consensus regarding the human impact on climate change has been widely accepted, climate skepticism which either rejects this notion or questions the expertise behind the consensus, is still relatively high with skeptics in one-third of the U.S. and Dutch populations (Gallup, 2016; Pieters, 2019). It was previously supposed that providing more information would overcome this dilemma and create issue-specific awareness, thereby narrowing the information deficit model's gap. However, studies have consistently questioned this notion and alternatively shown that cultural predispositions play a fundamental role in how we update our beliefs (Allum et al., 2005, Achterberg et al., 2010; de Koster et al., 2016).

Today, the rapid pace of globalization, modernization, and technological advancements have played a major role in facilitating the development of *personalized* knowledge. In this regard, official knowledge and expertise in various fields has become questionable to individuals, which has further spurred epistemological insecurities. To use an example from the recent documentary, "Behind the Curve" (2018), the concept of epistemological insecurities is implicitly represented through conversations with people who believe the Earth is flat. During the course of the documentary the so-called "flat-Earthers" began conducting experiments themselves only to validate scientific claims about the Earth's curve. Interestingly, the results of their experiments were still viewed with skepticism and therefore led them to continue to

pursue alternative explanations for their outcomes. This reasoning provides some insight into the mechanisms of how we come to knowledge in certain areas and how we use that information next to individual worldviews to create a narrative.

The findings of this study support this point by considering the individual views of climate skeptics. As the participants indicated, there are principally no reliable sources of information. More importantly, widespread distrust in the media, politics, and scientific institutions were frequently entangled specifically with making sense of the overabundance of information. This led the participants to further rely on themselves as filters of knowledge, confirming the self-source as discussed by Van Zoonen (2012).

These findings pose a number of challenges for researchers and the scientific community. To explain, as confidence in institutions declines, the credibility of official information becomes increasingly overshadowed by alternative and potentially unreliable sources of information (Bennett & Livingston, 2018). The negative consequences of which could be highly significant. In the specific case of climate change, the inability to enact timely and concrete measures due to a divided public opinion could have severe impacts on human lives and national economies. Moreover, these qualitative findings not only have implications for understanding how climate skeptics predominantly use online sources for information, while questioning expertise knowledge, but applies to other fields of study as well. In particular, it is insightful as it calls for more research into innovative approaches that act to inoculate the public against misinformation. Though we now better grasp selective cognitive mechanisms and their insights into behavioral trends, much like the confirmation bias, there is a limited body of research into the psychological mechanisms that would shield the public from the negative impacts of misinformation (Van der Linden et al., 2014).

Additionally, the study suggested varying degrees of stigmatization in the Netherlands, compared to the southern region of the U.S. Although more elaborate quantitative analyses could confirm variations in stigmatization over geographical spaces, the results here seem to indicate the Dutch skeptics experience more stigma due to their views. One shortcoming of this finding is that the study only incorporated Americans in the south. Overall, Americans living outside the aforementioned conservative bubble may be subjected to the same types of stigmatization as the Dutch. Nonetheless, a secondary aim of the study was to provide a voice to the climate skeptics in order to better understand the individual perspectives of climate skeptics. To this extent, the results help illustrate the thought processes behind climate skeptics from their own unique perspectives.

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