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Pre Questions

- Do you watch the news on television?
- Do you heard/believe in Climate Change?
- Do you believe Climate Change is a political issue?
- Do you affiliate with a political party?
- Do you think twice about stories you see on facebook or Twitter?
- Do you believe the stories you see on snapchat?

Abstract

In this study we sought out to gather information on what the public believes about climate change, and why they believe those things based on their media, political influences, and education on the subject. We also wanted to educate the public on confirmation bias, and how to identify when something has been incorrectly skewed by the bias of the media ultimately teaching and encouraging media literacy on the subject of climate change. We did this study by spending 30-40 minutes in a classroom of 20 students from Heritage High School, and all of the students were 15-18 years of age. We conducted a preliminary survey followed by some education on climate change and media literacy, as well as, how to identify either biased news or your own confirmation bias, and then concluded with a post survey. Our results were that very few students had knowledge on politics and did not consume a lot of forms of mass media such as television and news articles which was a limitation to the study because we were unable to observe the correlation between media with a political agenda and the publics opinions. However, we did find that many students listed their source of news as twitter, snapchat or Instagram. In the pre survey many students did not know what media literacy was by definition, but throughout the discussion the students exhibited that they were practicing media literacy at an average level without knowing it. Also, by the end the students all understood and felt confident in identifying a bias in media. The students also were able to recognize climate change as an ethical issue which is key because understanding it as an ethical issue will help to ensure that when climate change is being politicalized in media the students can use their media literacy and knowledge to combat the media's efforts to push an agenda and form their own opinions.

Chapter One: Introduction

We've all been asked the questions, "where do you see yourself in 5 years? 10 years? 20 years?" After a moment of thought most of us answer the question with what our dream job is, what kind of family we'd like to have, perhaps the city we would like to live in, and what breed of dog will greet us as we step back into our home at the end of every day. What if the question was posed as, "where do you see the earth in 10 years? 20 years?" No, I do not mean what developments your hometown will have made, or if we will have hover crafts roaming around through our skies. I mean, will our coastal cities have survived the rapidly rising sea levels? Will our air quality survive the black carbon becoming ever more prevalent and detrimental to our air quality and ozone layer? How much will climate change have developed, and what will be its conquests? These are the question that I pose. I am seeking to get down to the bottom of what people believe about climate change, and why they believe those things based on their media, political influences, and education on the subject. I am also seeking to educate the public on why climate change is an ever pressing and important issue that has had its representation shifted by the media and this shifted image of it has been accepted due to media illiteracy.

According to NASA's facts page regarding evidence of climate change in the world scientists have been able to identify through the use of tree rings, ice cores, rocks, etc. That the earth is warming ten times faster than the "average rate of ice-age-recovery warming" (climate.nasa.gov). Climate change is also known to be at fault for the shrinking of ice sheets, glacial retreat, decreased snow cover, sea level rise, declining arctic sea ice, extreme weather events, and ocean acidification (climate.nasa.gov). In short climate change is being caused by the heat absorbing gasses that are emitted out into the atmosphere which prevent the heat from the sun to be released back into space, and instead locks the heat inside our atmosphere which creates the greenhouse effect(climate.nasa.gov). Over the last century human activity has resulted in a change in the greenhouse process, and a couple of big-name human activities at fault would be burning fossil fuels at extraneous rates and causing deforestation in the name of agriculture. Human activity has released an excess concentration of atmospheric carbon dioxide which is part of why the earth has begun heating at much faster rates than in previous years (climate.nasa.gov).

Climate change is an important issue that I have chosen to discuss not only because I hold respect for our earth, but that because there is a large population of people who do not see climate change as an urgent issue or frankly choose to ignore its existence at all. According to an article by Debika Shome and Sabine Marx entitled, "The Psychology of Climate Change Communication" while most Americans have an awareness of the issue and can probably recite something about how we should "reuse, reduce, and recycle!" most Americans do not see it as an urgent issue with any proximity to impacting their own lives, but rather the lives of plants, animals, or third world countries(Shome and Marx). This is a topic that truly matters because its audience is anyone and everyone. It will not matter about your race, ethnicity, nationality, gender, or sexual orientation when sea levels rise to a point that drowns out infrastructure and civilizations, or when natural disasters become even more prevalent. I am choosing this topic to use this as an opportunity to educate the public and attempt to overcome confirmation bias that is so prevalent in the minds of those who choose not to believe in this very real issue of climate change.

I will be conducting my research of the literacy of the people on this topic by asking the public what they know about the topic and then delving into how they know what they know, and why it's important where they got their information from. I would like to put some focus on where people are getting their information from on this issue, and why it matters who said it. I would like to analyze the importance of unbiased media in a controversial scientific issue such as this one. I hope to then educate people with unbiased sources of information and real numbers and statistics. I also would like to analyze the role politics can play in an issue such as this one along with the concept of confirmation bias is receptors of information.

Chapter Two: Literature Review

In today's society much of what forms our biases, ideals, and even some aspects of personality can be derived from what we see in the media. From very young ages we begin to be media consumers ranging from educational children's television that teaches us how to count, to eventually shows about what's going on in the world or as we like to call it "the news media". Something very important to keep in mind as we grow as consumers from "Sesame Street" to "Wall Street" is that there is always someone behind the camera framing the matter to their precise angle before it is delivered to the public. Often times when it comes to the news media there are political agendas to be benefited, and our news can be shifted. Unfortunately, important issues such as climate change often can be mistaken as political issues up for debate, and become under represented by a side, that now does not agree with the issue, because its opposing political party does. As my father once said, "People who support abortion also support climate change, and people who don't support abortion won't support climate change". There has been a divide between the public and a general important issue concerning the world as a whole, and that divides name is psychological political associations, media framing, and confirmation bias and in this literature review we will take a look at the existing information on how these things impact the way our society views climate change, and what the issue is.

The first topic of research in regard to my own will be the topic in media of climate change and its relationship with media literacy. The article, "Public Distrusts Climate Science Partly Due to Lack of Media Literacy, Says Researcher" from the Cornell Chronicle by Krishna Ramanujan discusses how for the public to really understand the issue of climate change we must educate them first on media literacy. The article alludes to the idea that climate change deniers are often connected to the fuel industry and choose to frame the issue in a way that demonstrates a lack of importance. Ramanujan describes how media view all scientific points on the same level and give a bit too much credit to the skeptics which ends in the result of climate change being seen as "scientifically controversial, when it is only politically controversial" (Ramanujan). The article gives a good framework of ideas, but its research lacks evidence of climate change deniers being linked to fossil fuel industries, and also neglects an explanation on why the media chooses to give skeptics credit. In my study I seek to understand the confirmation bias of the media, and its viewers and why the skeptics are reaching these people.

An article that does go deeper into why skeptics are better at reaching the public than scientist titled, "Media Literacy as a Key Strategy Toward Improving Public Acceptance of Climate Change Science" by Caren Cooper, argues the point that, "Research by ISE professionals shows that public acceptance of scientific knowledge requires a level of trust that can be garnered only through certain types of engagement with science (Lewenstein 2002, COPUS 2006). Therefore, education must be viewed more comprehensively instead of as the delivery of information to "fill people with knowledge" (Cooper). Cooper argues that climate change deniers are taking advantage of the publics lack of critical thinking skills and, "climate change deniers are succeeding by promoting the public's application of critical thinking to the topic. When critical thinking skills are not taught honestly and comprehensively, teachers can fail to create healthy skeptics and can instead produce cynical and pessimistic thinking" (Cooper). Cooper also includes how climate change deniers have turned climate change into a political issue in the media and those that are either for or against actions against climate change have turned its media presence into a framing competition (Cooper). This article goes deeper than the last on why climate change deniers have been successful in framing this issue in a deniable way, and Cooper focuses a lot on the solutions of a different education model to raise our society in a way that critically thinks; however, while Cooper touches on the notion of climate change denier's in my study I would like to delve much deeper into how the public themselves gather this information mentally, and why a member of the public will be more likely to believe one way or another based on their confirmation bias and political views. I also do want to focus on the educational aspect in my

study, and because we are doing the study on 15-18-year-old students we will be able to see first-hand how receptive the students are to a bit of education on the study.

Continuing on in my research of what sources are currently at hand about media literacy regarding climate change I will be reviewing the article, "Scientists and the Media: The Struggle for Legitimacy in Climate Change and Conservation Science" by Richard. J. Ladle, Paul Jepson and Robert J. Whittaker from The University of Oxford. This study takes a different route than its predecessors in being that it analyzes the way climate and conservation scientists must adapt to communicating their topics educationally to raise awareness of the issues through the use of new media, and how the language of science becomes wrongly translated through the media in different ways depending on the medium. This is a fascinating topic; however, this article still does not connect the dots between the public's psychological reception of information and remains to focus on the connection between scientists and their communication with the media.

Along with the importance of media literacy, comes the importance of what goes on in the brain to promote an understanding of why people perceive information the way they do, and then develop their ideals is the psychology of climate change and the article, "The Psychology of Climate Change Communication" from Columbia University does just that. This source acts like a user guide giving the user chapters on how to understand your audience, and what their confirmation bias is, how to get their attention, what kinds of appeals may work for different audiences, and then ultimately how to implement behavior change. This source really gives the ins and outs for a solution when interacting with and educating people on climate change. The way my study will differ from this one is that it will focus more on the analysis of the persons background, what media they consume, and try to draw a conclusion perhaps on why they perceive things in the way they do based on how the media they view is framed.

The last category of research that I will be reviewing is politics. The first study I took a look at is one called, "Online Communication on Climate Change and Climate Politics" by Mike Schafer. This study looks at the way users communicate online about climate change, and how it has become a relevant topic on social media, mostly with the younger generations in support of it, but climate scientists themselves seem to have a lack in presence. This can create a lack of robust scientific evidence being circulated on social platforms, and at the fingertips of frame hungry politicians. This source helps to dive a bit deeper into what I'm looking at myself in the way that it involves both the use of media, and its connection with politicians. I am expanding on this study by covering multiple kinds of media, and not just social platforms.

In beginning this study, I still continue to be fascinated by the idea that an issue that really should hold no political agenda at all has been made into one so largely polarized by the media. "Climate Change Politics" from the Annual Review of Political Science by Thomas Bernauer takes a look at this as well. Similarly, to the last study, this study takes a look at the political agenda's climate science is now being used in. However, this study steers away from media and focuses more solely on politics. This study reviews the following areas of climate science, and it's connection to politics,"(a) institutional design features that may help in mitigating or overcoming fundamental problems in the global cooperative effort; (b) factors that are driving variation in climate policies at national and subnational levels; (c) driving forces of climate policy beyond the state, in particular civil society, the science-policy interface, and public opinion; and (d) sociopolitical consequences of failing to avoid major climatic changes" (Bernauer). This study definitely answers my question of how politics come into play on an issue that really should not be political, but my study will differ from this in the way that it will combine this study with the last, and analyze both the political and media presence, and their impact on the public. My study will also differ from this one in the way that it will focus on the younger generation whose thoughts and conceptions about politics are still developing.

Overall there is substantial information that I have been able to find on the relationship between climate science and the importance of media literacy. There is information in regard to how to better teach climate science to the public, how climate scientists can better articulate their findings through the media, how climate science is shared and framed online, and how politics interact with climate science and our society outside of a media presence. My study will seek to string all of these concepts together. I seek to combine climate science's media presence with its political presence and better understand why the public has a specific view on climate change in relation to the type of media and news they consume. My study will be unique from other studies because it will focus on all of these aspects, but unlike other studies it will focus on the younger generation of high school students ages 15-18 who are still developing their conceptions about politics and issues like climate change and may be more receptive to education.

Chapter Three: Method

In preparation for conducting our research on the public's media literacy of the issue of climate change and studying their preconceived confirmation biases in relation to the media that they consume we found that choosing the right method would be key for concluding with optimal results. My partner and I found that the best method for doing so would be one that stimulates discussion and allows the candidates of the focus group to comfortably and openly share how they feel about the issue. After much thought and preliminary research, we landed on the qualitative method of conducting a brief survey and leading a discussion with our focus group.

In conducting our research by the means of a qualitative survey we needed people to conduct that survey on. We decided to conduct our study on a single demographic group being a class of high school students ages of 15-18 with 20 people in the class. We chose this group because while 15-18-year-old students already have some sort of opinion on a lot of issues, they are more likely to get their news from social media or adopt their parents' views. We think it's important to reach the future generations on the issue of media literacy because it's at this stage in their lives that learning to look deeper into the political, social, or ethical issues that they're seeing on the internet before reposting or believing in them is very important. We also think it's very important to teach this generation how to identify a very biased article, or an ethical issue that is being politicized and framed by certain media outlets before they reach the stage in their life where they start to be more consistently consumers of these kind of media outlets. However, we will still be researching how their views have already been impacted by the media they have consumed thus far.

After forming our group, we put together a survey. We formed a survey that consists of 4-6 preliminary questions, some educational content in the middle, and then the survey concludes with 4-6 post questions. In the preliminary questions we will gather information on the profile of the students. We will ask questions such as "Have you heard of climate change?", "what do you know about media literacy?", "where do you get your news?", and "do you associate with a political party?". We chose these questions because we feel like they're pretty diverse to get a good understanding of what kind of knowledge the students have on the subject before we get the discussion going. The middle section of our survey will show the user some statistics, and evidence of climate change straight from scientific journals. This will introduce that the issue is a problem. We then will show our group some article headlines, or brief phrases from articles that exemplify how media frames the issue as one that effects things like economics or is using clearly biased word choice to serve a political agenda. We will point out the word choice that clearly exhibits the articles or titles as biased, and we will give them an explanation of media literacy and explain how being able to identify word language and bias to form your own opinion is being media literate. After some of the educational content we will bring things back and ask them some post questions like "do you feel as though you can identify a bias on an issue?" and "are you more likely to give things a double check before reposting or sharing information on an issue?".

Once we have gathered our data, we will be observing the correlations between the answers, and recording how many people felt they had been educated after the survey and why or why not. We will be focusing on observations of the student's opinions, and how they felt after they were given more knowledge to work with.

Chapter Four: Results

Our primary issue was researching the publics media literacy of climate change, and we were seeking to see how politicization and framing by the media impacts a viewer's opinion, as well as, to educate our demographic on how to be aware of being media literate in the future. Our demographic for this research study was a class of 20 high school students ages 15-18.

Preliminary Questions:

In beginning the preliminary questions of our study all of the students reported to have heard of climate change previously; however, it took a second for the students to think about it before raising their hands. The number was much fewer however when asking the students if they had heard of media literacy. There was a long pause before we started to get any feedback on what media literacy was, but after a few peers started to raise their hands and say yes that they knew what it was the gears in others students heads began turning and more started to think they knew what it was. One student called out, "educated guess!" as an answer to what media literacy was. So, one quarter of the class was confident that they knew what media literacy was, and the majority of the class had to take a long moment before starting to guess that they knew what it was. Only two people in the class said that they got their news from television, and one student called out that they, "watch the news on my phone". After this student called this out the class chimed in to say that they get a lot of their news from social media. Upon asking the students if they believe in climate change the majority of the class said yes, and that it is a problem to be concerned about. We then moved on to ask the students if this issue was a political one or an ethical one, and one person called out it was definitely political, but then asked, "do you mean the problem or solution?" After clarifying the question by saying, "when looking directly at scientific data and research on what is happening is that political or ethical?" The majority of the class chimed after this to say that it was an issue for everyone to be concerned about and that it was indeed ethical, but a couple people did stay strong that it was definitely a political issue. The next preliminary question was, "do you affiliate with a political party?" 5/20 students said they could strongly say they're a part of a political party, but many of the other students made comments about how they did not feel educated enough to claim a party. We asked next if the students generally accept the informational news they see on Facebook or twitter, or if they take a second look at what they've read. A student instantly called out, "NO!" that they do not think twice about what they have just read, and that they generally accept it. Another student called out, "I accept it most of the time". However, 15 students were noted that they did generally take a second thought about what they had seen before spreading or believing the information. One student even raised her hand to basically give us the definition of media literacy as to why she chooses to take a second thought on what she's seen. We then asked if the students believe the Snapchat story news they see, and instantly we got answers such as, "THAT'S A HARD NO!"

Educational Content:

During our time of providing some educational content to the students we also received some comments. We showed the students the hockey stick graph which is a graph showing the global or hemispherical mean temperature record of the last 500-2000 years, and the majority of the class reportedly had never heard or seen the hockey stick graph before. We also gave the students some knowledge of how fast the water levels are increasing and the ice sheets are melting, and the measurement used to describe the ice sheets was "gigatons". We received one a question about this asking, "What are gigatons?". We also had a question about the water level increase, and they said, "this is over the course of how long? Because like 3.3 millimeters does not seem like a lot".

Post Questions:

Our first post question was, "do you feel as though you now can identify word choice that may exemplify a bias in articles?". The reaction to this question was a strong yes from the majority of the class. Our next question was, "are you more likely to double check and research news before just reposting it or believing it?". In response to this question one student commented," I probably won't research it, but I can read it and identify that's not true", another student commented, "It's steaming tea" meaning that he likes seeing the drama and controversy in his news feed because it's entertainment for him, and lastly another student comment, "I'll repost it and my family will comment on it" once again drawing from the entertainment aspect . Overall in response to our second question the majority of the class said they would have the skills to acknowledge the bias, but they probably would not care enough to dive deeper into it or find out from other sources what the truth is. Our next question was, "do you feel it's important for people to unite on ethical issues, like climate change, and does the media have a large impact on how its viewed?" We received a lot of yes' from the majority of the class. One student commented, "It's important, but like I wouldn't want to take time out of my day to do it, but people with strong opinions should" basically saying it's important to create discussion about the issue, if it's something you feel is important enough. We then asked, "do you feel more media literate when it comes to major issues?". In response to this 20/20 students said yes.

Concluding Comments:

In concluding our presentation one student raised the question, "if this is an ethical issue why is it being dealt with politically?". Another person added in to this, "As a culture a lot of things in our country are run by the market, and by the politics whether they're political, ethical or not. Our leaders are going to be the ones to choose if thousands of dollars of research will go towards something or not."

Key findings

Our key findings were that many students had heard of climate change, but not many understood climate change. Also, a number of students did not understand media literacy, or they had previously heard of media literacy and were open to understanding media literacy towards the end of the study. Many students were educated on media literacy during this, but also exhibited a majority attitude of not caring enough about the information or saw it as entertainment to want to do something about it. Lastly, a lot of confusion was evoked during us laying out the statistics which shed light on the importance of scientists learning how to communicate numbers to an audience who may not understand them.

Chapter Five: Discussion

Our results were that all of the students had heard of climate change but did not have a good understanding of what exactly climate change was, and the students were very easily lost when the statistics and numbers revolving around climate change evidence were brought up. Also, only a few students confidently knew what media literacy was, and some thought they knew but did not know the correct definition; however, the students gained an understanding of media literacy very fast after education. While students were easily educated on media literacy it was found that students either did not care enough to fact check sources, or they found the obviously biased articles to be a source of entertainment. ³/₄ of students also failed to have much knowledge or opinion on politics.

My expectations for this study were that students of this demographic would have at least heard of climate change, and perhaps would have a bit more knowledge on media literacy than our results showed. I also was not surprised by how many students felt very passively about the issue of climate change, and how many students would agree that they would not fact check sources. I was surprised however at the number of students who said they just accept the information they see on Twitter and Facebook. I was also surprised at how little the class had to say about political party affiliation because usually by 16, 17, or 18 you've heard quite a lot about politics either from family members or school history classes. So, I was surprised that the class seemed to not know anything about the parties, and that only ¹/₄ of the class would say they knew enough about parties to have an opinion on them.

My initial intent for this study was to observe a correlation or lack thereof between a viewer of the media, political agendas based in the media, and the viewers opinion on what the media was projecting; however, I did not feel like we were able to accomplish this due to a little understanding of political frameworks in our demographic. I think this observation of how little of an understanding this demographic has on politics and media literacy is important because the lack of education these students are receiving is a part of the problem with our society being media illiterate, and when we did introduce media literacy education the students were very receptive making this an easy problem to solve that could result in great changes in ethical issues such as climate change.

I was intrigued by how passive students felt about the issue of climate change even after showing them evidence such as how in places like Florida wells are being contaminated with salt water because of the sea level rise. I would like to do further research on why this was such a majority feeling towards the issue whether it's due to age, or media activity. I also found it interesting how the students reacted with a disconnect to hard facts like numbers and found them to seem rather insignificant because they do not have the whole story. I thought this was interesting because this may affect the greater populations understanding of climate change because if a scientist tries to educate through the media with a fact like that the "water level has risen 3.3 millimeters" the general public, like the girl in the class who questioned why that small amount was significant, will generally see that as a very small number. So, I found from this study that scientist finding a digestible way to explain how detrimental something small seeming like 3.3 millimeters of water increase can be would help to wake the public up from this passive mindset.

In the future I think this study for the topic we were trying to research would have been better done on an older demographic of people who are active receptors of news media. However, I did feel as though the study was successful in educating the focus group and creating conversation among students. One detail that was noted was how students reacted to our questions based on their peers' reactions, and the majority would follow in their answers agreeing with the few who answered first. This may speak to the problem as well because it exemplifies how the majority of this demographic were naturally followers of the few who spoke most confidently, and in the real world the media will play this lead role. This once again supports the notion that education of media literacy is important at a young age to teach individuals to think freely and independently.

In conclusion we set out to analyze the publics media literacy in correlation with how politicization and framing by media networks influences the publics views on ethical issues such as climate change, as well as, to educate our focus group on the topics of climate change and media literacy. We successfully educated our focus group on media literacy and left with the students confident in education and best practice of media literacy. We came to a conclusion that students follow their peers which ultimately means that the students will follow the media they consume, and as of now the media they're consuming without question is coming from social media source. The powerful voices on social media are often politically loaded ones, and without an understanding of politics these students will not be able to differentiate between facts and a politicalized ethical issue in the media. The students also lacked an understanding of climate change which is dangerous because without media literacy, education on politics, and an understanding of the issue one's opinion can be easily skewed. The study also raised concerns about the demographic's knowledge of politics, knowledge of media literacy before we educated the students, and the passiveness of students on issues like climate change. I think all of these would benefit from further research.

Appendix

Pre Questions

- Do you watch the news on television?
- □ Do you heard/believe in Climate Change?
- Do you believe Climate Change is a political issue?
- Do you affiliate with a political party?
- Do you think twice about stories you see on facebook or Twitter?
- Do you believe the stories you see on snapchat?

What is Climate?

- Climate is fundamentally the journey of the sun's energy received by earth as it is deflected, stored, transformed, and emitted back into space.
- Climate Change is a change in the state of the climate systems average conditions over an extended periods of time.
- U Weather is day to day and short term.



Evidence of Climate Change

- Carbon Dioxide in the atmosphere is at a record breaking high of 411 parts per million.
- Global Temperature has increased 1.9 degrees Fahrenheit since 1880.
- □ Ice sheets has decreased 413 gigatonnes per year.
- Sea level has risen 3.3 millimeters per year.

https://climate.nasa.gov/

Impacts in Progress

Q: Are rising seas already having negative impacts in Florida?

A:

- Yes. In the lower east coast metropolitan areas of Florida, flood control structures no longer can operate.
- Inland properties housing millions of people are at higher risk of flooding.
- Some areas of downtown Miami, Hollywood and other coastal cities routinely are under water at lunar high tide.
- Rising sea levels have resulted in salt water getting into wells that provide drinking water to cities.

From https://www.flseagrant.org/climate-change/sea-level-rise/ University of Florida Climate Research

Media Literacy & Confirmation Bias

- Media Literacy: The goal of media literacy is to educate people to think critically about the way media texts are produced, constructed and consumed, and to provide skills that help deconstruct the ideological messages encoded in texts.
- Confirmation Bias: The tendency to interpret new evidence as confirmation of one's existing beliefs or theories.



Post questions

- Do you feel as though you could now identify a bias on a climate change?
- Are you more likely to double check before re-posting or sharing a breaking story on climate change?
- Do you believe it's important for people to unite on ethical issues like this one, and the way media presents them has a large impact?
- Do you feel more media literate when it comes to major issues?

Resources

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