Part 1 - Wildfire Lies: A Crash Course in Climate Misinformation recorded on 5/30/2023

Question Follow-up by Ms. Margaret Orr, Doctoral Student at the George Mason University Center for Climate Change Communication

What's the best way to up my game with being elegant with pointing out misinformation and pointing out all the associated logical fallacies?

I think the best way is to be familiar with some of the most common misinformation claims – which is tough, because there are a lot of them! Playing through the Cranky Uncle game is a good way to get familiar with what a lot of misinformation techniques/logical fallacies look like in a broad sense, which can make them easier to apply to different misinformation claims. However, that also can take some diving in to the misinformation to identify the fallacy, which we don't always have time to do. For climate change, being familiar with the most common misinformation claims and the fallacies behind them (check out the Skeptical Science website) is a good way to go.

Can you explain more about how the "truth bread sandwich" model works without causing one to double down on the falsehood ("meat") they already believe?

This is a great question and one that research has certainly considered! It's called a backfire effect, where repeating the misinformation claim in a debunking reinforces that misinformed belief. Most of the studies that have been done have shown that there isn't a backfire effect when we debunk via a "truth sandwich." I'm not positive of the exact mechanism behind how this works, but anecdotally I believe it has to do with the breaking and fixing of mental models that I touched on in the webinar. The truth sandwich effectively replaces the faulty mental model, which leaves less room for a backfire effect by explaining the fallacious reasoning.

How do you propose that we handle the fact that some of the misinformation is being propagated by acting members of our government?

This is a tricky one! I would suggest debunking misinformation where/when this is needed without calling out acting members of the government – attacking the argument without attacking the person making it. Government Social Media LLC may have some better/more clear information on this issue or similar ones, check out their website!

What do you do about communicating when there is distrust of science or layers of misunderstanding and debunking is met with more misinformation? "Data can be manipulated," "Everyone has bias and an agenda"...#5 in that earlier chart. For example, accepting that species adapt over a long time relies on belief/understanding evolution, which many don't.

When you're debunking misinformation, especially on social media, your core audience isn't necessarily the people spreading the misinformation. You're (probably) never going to change the mind of someone who deeply believes any misinformation, but especially something like the #5 misinformation that you mention. However, there are a lot of people who are unconvinced or unsure and fall in the middle of the spectrum. We tend to hear from the vocal minorities with the most extreme beliefs, but most people don't fall in to these categories. These people are more easily swayed by information from either side. When these middle-ground "lurkers" see an organization responding to and correcting misinformation, it's effective at helping them gravitate towards fact-based beliefs/opinions.

What do you say to people that say claims of certainty along with harsh prescriptions of cure causes a backlash - in the form of sowing doubt, etc?

Claims of certainty can cause a backlash, especially from people who see certainty as the result of groupthink or the climate science community silencing any researcher who contradicts the consensus due to some political or financial motive. There's a great quote from *Merchants of Doubt:* "Nobody can publish an article in a scientific journal claiming the Sun orbits the Earth, and for the same reason, you can't publish an article in a peer-reviewed journal claiming there's no global warming," (because there is no valid, acceptable scientific evidence to support the claim that there's no global warming). I like how this draws a parallel to other science that is considered settled due to overwhelming evidence supporting it.

Moderating seems like an important thing, obviously, but how can this be strengthened, and more prophylactic? What are best practices?

With the speed at which misinformation spreads via the internet, it's very hard to be prophylactic with debunking. Fortunately, research has shown that therapeutic inoculation (debunking after someone has been exposed to the misinformation) is effective! Having a social media debunking team may be helpful at increasing the speed and effectiveness of moderating, but existing social media teams are stretched thin as it is. I would say that some realistic best practices are to make debunking a part of any social media team's job and to make sure that these team members can rotate duties, as debunking can be mentally and emotionally taxing, especially when comment threads get out of hand and/or uncivil. Having quick/easy resources at hand such as the handbooks I mentioned in my presentation and Skeptical Science can be helpful in crafting debunkings efficiently.

How do we know whether a consensus has been reached for a particular issue?

This is a great question. A good place to look is meta-analytic research where a number of studies on a topic/issue are compiled and the authors of the meta-analysis assess whether the studies are reaching the same conclusion.

In a fact-based adverse world, some don't want/care to know the facts. so how do you connect those individuals with facts when they don't want/care to hear it...thinking in terms of social media? Is it just a case of constant drip of correct info and exposure effect?

The goal of debunking isn't necessarily to reach and change the minds of those who don't want or care to hear the facts (or any information that differs from their existing opinion/worldview). The real goal is to reach people who are in the middle, undecided, or unsure. Constant drip of correct info and consistent exposure are important – there are communication theories showing that the more people are exposed to information, the more likely they are to accept it as truth (Illusory Truth Effect). It is rare that you'll change the mind of the individuals who don't want to hear your message, so focus on the "lurkers" who aren't part of the very vocal minorities on either extreme end of an issue.

Has there been any research into the interests that underly people's positions on climate change and their susceptibility to misinformation regarding climate change?

Studies have shown that people who identify as politically conservative are more likely to hold misinformed climate change opinions. Politically conservatives encompasses a number of different interests and values that contribute to this, but a lot of it also has to do with the media sources and political voices that people listen to regarding climate change.

Given the classification and rubrics that have been developed, it seems like maybe AI might be used to "moderate" or fact-check in a more systematic way

Studies have been looking at AI as a way to identify misinformation on social media – AI was a part of the CARDS Taxonomy study that I cited in my presentation. I think I may have brought this up during the webinar, but AI certainly has potential as a tool but I would agree that we need to tread carefully with it. There is also some evidence for the importance of personable interactions with organizations on social media, which AI may not be able to deliver quite as well. Anecdotally, I think AI may be useful for generating debunkings with the oversight of a human to make sure facts are in order and that any response that goes out to the public is personable.

Can you comment briefly on the difficulty on debunking myths already present in a person's belief system?

If a myth is heavily ingrained into a person's belief system, it's unlikely that you will change their mind. When denying the reality of climate change is core to who a person is, they won't be swayed in the opposite direction. Never say never, of course, but this is tough to do. Personal relationships and rapport can go a long way – for example, I was skeptical that climate change was happening/human-caused due to views expressed by my dad at home, but after a semester of 9th grade Environmental Science with a teacher

that I really connected with, my views were changed. There are a lot of personal dynamics in that story and my pre-existing interest in science definitely helped with that change, but it's an example of the power of hearing debunkings or truth from a trusted, caring source like a teacher, friend, or family member. With that also being said, my skepticism also wasn't a core part of my personality, so I was more predisposed to change than if it had been more important to me. It's also important to remember that your target in debunking isn't the "vocal minority" for whom these misinformed beliefs are core to their persona (i.e. part of their political beliefs, religious beliefs, worldview). The target is those who are more "in the middle" and more likely to be swayed by information.

It's surprising to me that you chose the term "vaccination" for the proposed solution to misinformation since so many people now distrust actual vaccination because of misinformation and disinformation campaigns against it.

The vaccination term/analogy is given by Inoculation Theory, which exists in the misinformation/debunking literature. I didn't choose it myself. This is an interesting point, but the audience doesn't really hear this term. We don't tell people that we're going to give them a vaccination against misinformation, we usually say that we're building resistance to misinformation.

Sounds like you are saying the fact checking sites are the authority when it comes to what is truth on climate change. Why are the developers of these fact checking sites to be trusted when the government is funding determination of certain facts?

I can only really speak for Skeptical Science in this case. Skeptical Science is created and contributed to by a large volunteer team of climate scientists led by Dr. John Cook, a preeminent misinformation scholar. Dr. Cook and the team of climate scientists' work together to create the debunkings that you see on the website. I can't speak for any other fact checking sites on other topics, but I know that Skeptical Science is built by credible experts in the field of climate science and science/climate communication.