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Karen Kirk: Analyzing Social Media to Make an Impact on Climate Change

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Kirk is a science educator and freelnace writer from Colorado who has spent her time working studying effective science education and communication. She received an undergraduate degree in Geology from Skidmore College, and has gone on to pursue a masters in Geology from Montana State University.

She has had a variety of careers in the sciences, from teaching undergraduate Geology at Skidmore College and being a freelance writer, to working in the applied Geosciences with water quality, public water supply, and now climate change.

Polarizing issues such as climate change have never been easy for people to discuss - whether on or off the Internet.

Freelance writer and science educator Karen Kirk once had a very personal brush with climate change deniers, one which heightened her desire to better understand the power of social media forums as an asset to opening discussion surrounding scientific issues. In her words, "I was always interested in the people part of it, and I feel like this is a perfect forum to really get underneath what people are saying."

It began when Kirk, who works in a ski area in the winters, wrote an article in a magazine for ski and snowboard instructors about climate change. She said, "I thought, well, we work in the winter sports industry, shouldn't we know about climate change? [The article] caused a giant controversy which I got completely blindsided by and I got sucked into overextending myself and was quite attacked and that's why I decided to start studying the architecture of these arguments."

The arguments were the same as is stereotypical of climate change deniers, but now Kirk was receiving direct emails and letters insulting her, "It went from being completely abstract to being completely personal."

Instead of being put off by the backlash, Kirk became more curious about the discussions people were having online about climate change. "As an educator and someone who is interested about science education in the public, it's the perfect lens," Kirk said.

While she personally believes in climate change, her primary interest is looking into and analyzing the discussions that people are having on both sides of the controversy. "I want people to be effective, I want people to be heard on both sides, and I want people to understand that there's this big common ground in the middle," Kirk said.

She presented a TEDx talk on this very topic, which prompted her to look even deeper into the comments she saw online to see how she, and others could communicate more effectively.

"My main interest is getting through to people … whether that be with good science education or good communication," Kirk said. She feels that this idea is the pattern of her past work and the inspiration for the research project she began.

Kirk began her project by looking at articles on climate science on different Facebook pages online and scrolling right to the the section that most users don't dare to enter: the comments.

To analyse the discussions going on around climate change online, Kirk feels that the comments are an excellent place to begin, "You can see what everyone feels about everything, for better or worse." By seeing the users interact, you can evaluate how people feel and why they feel that way, essentially which part of the argument resonates with them.

She collected data from sites across the spectrum of main media, governmental agencies and specialist media; The New York Times, CNN, Washington Post, Fox News, NOAA and NASA. She looked at the users and the response, not the article itself.

The transition from qualitative to quantitative data came through her use of scales. She would classify the comments on different factors based on the emotions/reasoning patterns they express. For each news source she would analyze the top 100 comments, and then use the percentage of comments that fulfilled the criteria to create a ratio from that news source of occurrences that she could compare across news sources.

Some examples of categories would be whether someone was using a reference, or just reacting, and what reasoning they were using. She also used a vitriol index, which is a numerical representation of how much negativity the user is generating in their comment. A comment could be considered vitriolic, "If you were attacking someone, or just using a general inflammatory tone."

Other main index is the productivity index, which is "kind of the opposite", and measures if you are offering support, adding information, citing sources. "Once you have categories like that you can easily compare between different [media] outlets," Kirk said.

The vitriol index sees the highest frequencies of hostility in Fox News, where Kirk reports that out of 100 posts there are 69 instances of vitriolic or uncivil behavior, while most of the other sites were in the 30s and 40s.

The productivity index was really high at agencies like NASA (95/100) and NOAA (88/100).

At NASA and NOAA, "The high productivity index ratings show that it is possible to have a place on social media that's not an echo chamber, where people are conversing back and forth on the different sides, and they're doing so, more often than not, with productive types of behaviors," Kirk said.

Kirk saw things going on very differently at the opposite end of the spectrum with vitriol, "What was going on at Fox News was basically the opposite." Fox News has the most agreement of all the sources. "It was hard to even code the level of agreement at Fox News," said Kirk. Despite this, Fox has one of the highest scores on vitriol. "There's the most yelling, the most nastiness, the most bad behavior, and the most agreement … that, to me, is incredibly interesting," Kirk said. This is bolstered by how Fox News scored half as well as NOAA in productive behaviors.

When it comes to the content of the posts, about two-thirds of the discussion is centered around science, with the rest talking about policy and a little about the human impact.

Even though a lot of the discussion is about science, Kirn says that a lot of that references climate change denial myths. "You're 100% guaranteed to see that on every thread," Kirk said. She also sees that the second most common counterpoint is that scientists are corrupt.

Despite this, she did notice a patterns though the comments she was reading. She found it remarkable that only one side of the climate change debate posted in support of each other; people who believe in climate change. She observes a lack of support among people who deny climate change. "Even when they agree with each other they don't stop and say, 'Hey! I like how you said that," Kirk said.

She now uses this to inspire her personal interactions online. "When I'm in the dumps I just go on and support my people who need support. It's a great way to get in there without putting yourself at any kind of risk, and the person you support really appreciates it," Kirk said.

Based on her empirical data and personal observations, Kirk recommends agencies like NASA and NOAA as a good starting point for students who are looking to engage in a productive dialogue online. Kirk said, "Any discussion you can have anywhere is wonderful. Everyone has their comfortable place … I think the key strategy is to start looking for where there's commonalities as opposed to where there's differences. That's bound to lead to a good discussion where everyone will come out gaining something."

To students who may be apprehensive, the best way to start is to find people with genuine questions in the middle, and see if you can help them with their questions. "Find those little places where you can just add information that will just help someone have a little information about earth systems, or policy, or whatever your angle is," Kirk said, "In doing that you're not only being nice, you're also carrying the flag for science."●