



## Evaluating Evidence: Crash Course Navigating Digital Information #6

Crash Course: Navigating Digital Information

<https://youtube.com/watch?v=hxhbOvR2TGk>

<https://nerdfighteria.info/v/hxhbOvR2TGk>

Hi, I'm John Green, and this is Crash Course Navigating Digital Information.

So, when you were a kid, did you ever hear the phrase "because I said so?" Like, I most often say that after my kids ask why they can't have M&M's for dinner. The answer to which, of course, is "you will get scurvy if you eat that way." But that just leads to more questions about scurvy, and them begging me to take a multivitamin so that they can eat M&M's- It's because I said so! I say this, because it gets results. You listen to your parents because, you know, they're your parents. And, also because they can take your phone away.

But, of course, as you get older, because I said so no longer cuts it. Like, if you told your boss you deserve a raise because I said so, you'll probably get fired. Also, I can't afford raises, Stan. Do you think my fleet of Lamborghinis pays for itself? I've said it before and I'll say it again, if you want a raise, you need to learn how to change the oil in a Lamborghini. No, you need to provide evidence that you deserve the raise, and that evidence needs to be convincing.

And that's how online information works, too. Not only should you look for reliable sources of information, but they should provide convincing evidence for their claims. Solid evidence, ideally. And, often, they don't. So today we're going to focus on how to tell good evidence from bad evidence, and, maybe more importantly, how to identify "fine, but that doesn't actually prove your point" evidence; the stuff that the internet is built on.

[Intro]

So, in the past few weeks, we've learned how to ask and answer the questions "who said that and why" when we encounter new online information. But, those two questions alone are not enough to properly evaluate information. We need to add another question to our repertoire: what is the evidence?

Why do we need evidence? Can't we just find a trustworthy source and believe whatever they say? Wouldn't that be, you know, easier? Well, yes, and it's important to find and trust reliable sources of information, but the credibility of their claims depends on the evidence provided to back them up.

Evidence could be anything really (text, photos, videos, data), as long as it supports a claim and gives you a good reason to believe that it's true. If someone is making a factual claim, and not just voicing a subjective opinion, then they need to provide proof in order for us to believe it.

This classic tweet by comedian, Nathan Fielder, explains it all. In the photo you see Nathan laughing, looking off camera. The tweet reads, "Out on the town having the time of my life with a bunch of friends. They're all just out of frame, laughing too." To ruin the joke by explaining it, Nathan is probably not out on the town with friends; otherwise, he would show them laughing instead of this lonely selfie. It's funny, because the evidence doesn't back up the claim.

But, often when the evidence does not back up the claim, it's not funny. It's just misinformation, or disinformation. As you probably know from just existing on the internet, it is really easy to hop online and make any claim you want. Like, I know this is going to sound wild, but you can literally type anything you want into this box and click tweet, and share it with the world. Like, the only thing this box will not publish to the public is a thought longer than 280 characters. What a system!

But, the same is true across social media. Politicians claim their opponents are bad choices for government on Facebook. Conspiracy theorists take to YouTube to falsely claim that the Earth is flat. Celebrities use Instagram to claim they lost weight using

lollipops. And, of course, on Tumblr, everyone is claiming that your fave would never, and/or is problematic.

If a source provides no evidence at all to back up its claims, we should be suspicious immediately. I mean, without evidence, we have no way to know if its claims are true, and thus no reason to believe that they are. For instance, take a look at this Facebook post that went viral in the summer of 2018. It was shared 1.5 million times. It says, "NEW DEADLY SPIDER SPREADS ACROSS USA. THE SPIDER FROM HELL. FIVE PEOPLE HAVE DIED THIS WEEK DUE TO THE BITE OF THIS DEADLY SPIDER. THIS SPIDER WAS FIRST SEEN IN SOUTH CAROLINA IN JULY. SINCE THEN IT HAS CAUSED DEATHS IN WEST VIRGINIA, TENNESSEE, AND MISSISSIPPI. ONE BIT FROM THIS SPIDER IS DEADLY. US GOVERNMENT WORKING ON A ANTI-VENOM. AT THIS TIME PLEASE MAKE YOUR FAMILY AND FRIENDS AWARE."

The source for this is a seemingly random Facebook user you don't know. Although, many posts you'll encounter on Facebook are from family or friends or friends of friends, you'll also find posts from strangers. And, if they're not public figures, you may not be able to verify their identity outside of Facebook. So, to determine if their information is trustworthy, we need to look at the evidence.

This post features photos of an admittedly terrifying-looking spiders, but it doesn't include any other evidence. It doesn't say what type of spider this is, where it typically lives, or how it travelled from South Carolina to West Virginia without visiting Virginia. Wait, maybe it's a flying spider. Stan, are we sure that this deadly, flying spider isn't real?

There are also, tellingly, no links to the news stories about the deaths that this spider supposedly caused, because, you know, there weren't any. Also, there is nothing to suggest that the government is studying an antidote, or, for that matter, "a" antidote.

Now, fact-checking site Snopes.com debunked this all pretty easily. They searched reputable sources for deaths attributed to this spider, and found nothing. They also found the person who initially posted this hoax has started other hoaxes in the past.

In this case, the lack of evidence was reason to be very suspicious. We didn't necessarily need Snopes to tell us there's no deadly spider taking over the American South, but it is nice to be able to confirm our suspicions with another party.

But, of course, the mere existence of evidence also is not enough to verify a claim. For instance, Oklahoma senator, James Inhofe, once brought a snowball onto the senate floor in order to disprove global warming. It was February 2015, and he said that scientists had claimed that 2014 was the warmest year on record. Then, he pulled a snowball out of a plastic bag, and threw it on the ground. Inside the senate. He was trying to use the snowball as evidence that the planet was not getting warmer, because it was cold in Washington, D.C. Because, you know, it was winter.

We know, thanks to science, that winter continues to exist in many parts of the world, but, at the same time, the planet as a whole is also warming. A snowball does not disprove climate change any more than a heat wave proves it, because weather is what happens every day in the atmosphere and climate is what's happening overall. And, what's happening overall is that things are getting hotter.

For another example, in 2017, a conspiracy theory cropped up on anonymous internet message boards claiming that the United States Department of Justice was secretly investigating a global pedophile ring. The so-called evidence for this included pictures of



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Hillary Clinton, her daughter, Chelsea Clinton, and Senator John McCain wearing boots for foot injuries at different times. The boots were supposedly covering up ankle monitors tracking them all during the investigation. But, of course, all those photos actually prove is that, you know, feet are easy to injure, and get easier to injure as you age.

All of which brings me to perhaps the most important lesson of this episode: Not all evidence is created equal. The evidence a source provides should come from another reliable source.

And, if you find yourself starting to believe complicated conspiracy theories, which, by the way, I think we all do on the internet in 2018, you need to ask yourself "does this information really make sense, or am I just making it make sense in my brain?" And two, perhaps more importantly, "does this information confirm my pre-existing worldview, which makes me predisposed to believing it?"

Take this Axios report with the headline, "Climate change may boost pests, stress food supplies." It says that global climate change could make millions food insecure in the future. The article goes on to cite the findings of a new study from researchers at the University of Washington, Stanford University, University of Vermont, and University of Colorado. That study was published in *Science*, which some quick lateral reading can tell you is a well-respected peer-reviewed journal. God, I love lateral reading. But, they didn't just cite that one study. Axios also provided context in the form of a Harvard study published in a different peer-reviewed journal, and comments from a scientist not involved in either study. In other words, they showed their receipts.

So really, the search for reliable information online is a search for reliable evidence. Let's take a closer look in the thought bubble.

OK, imagine this posts pops up into your news feed: "I can't believe the mainstream media is hiding this story. The moon landing was fake this whole time." It's accompanied by an image from the 1969 moon landing, and includes a link to a video called "Were The Moon Landings Faked?"

At face value, this post is claiming that the U.S. government never actually sent astronauts to the moon in 1969. The evidence provided is a video purporting to explain how they deceived the public. But, the presence of evidence, here in the form of a video link, does not guarantee the claim's validity.

If you follow the link, you'll find the video in question belongs to a channel called "Alltime Conspiracies." It's a channel filled with videos about conspiracy theories and supposed cover-ups, like "10 Real Life Vampires." Not exactly a trustworthy source. There've only been 4 vampires in real history.

The video itself points out both what conspiracy theorists have said about the moon landing, and also what official sources have said. But, the video is structured to make you think some questions have been left unanswered. YouTube has also added an information panel to the video that points to the Encyclopedia Britannica article on the Apollo Space Program, because YouTube wants you to look for information from other sources, especially around topics that are prone to misinformation.

But, let's be clear: the moon landing definitely happened. And, for it not to have happened, a conspiracy would have needed to involve thousands of people. Thousands of people never conspire to do anything secretly.

The video may have looked interesting, but if you check the evidence, you will see how clearly wrong the post is.

Thanks, thought bubble.

So, sometimes, the source of evidence for a claim will be reliable, it just won't exactly be relevant to the argument. Like, say you read a story online about how e-cigarette companies are marketing their products to be attractive to teens. Someone has commented on it saying, "It's totally safe for kids. After all, they help people stop smoking, don't they?" But, wait a minute. What does smoking cessation have to do with kids using e-cigarettes? Nothing. This is a classic case of utilizing evidence that may be relevant to the broader topic of conversation (in this case, e-cigarettes), but doesn't actually have any bearing on the claim at hand, that e-cigarettes are safe for kids.

And, the use of irrelevant evidence like this can be a big obstacle when evaluating online information, because not only must you determine whether a source sharing information is credible, you also have to determine whether they've provided evidence and whether that evidence is credible. And this irrelevant evidence, or that doesn't quite make the right point, is all around us online.

One very popular form of irrelevant evidence is the spurious correlation. A spurious correlation is the implied causal relationship between events that are coincidentally linked. And, this happens constantly with data. For instance, there's a strong correlation between the number of people who drown by falling into a pool every year and the number of films Nicolas Cage appears in in that year. But, Nicolas Cage movies do not, like, throw people into pools, because correlation is not causation.

For instance, plenty of blog posts and misleading news articles have incorrectly implied a connection between the rate of vaccines given to children and the rate of autism diagnoses. In the past few decades, the number of vaccines recommended for kids has gone up as new medical discoveries have been made, and the prevalence of autism spectrum disorder has also increased over the past few decades. Despite bountiful scientific evidence showing there is no link between these two facts, many continue to believe and use the web to spread the idea that vaccines cause autism. In fact, they've been so successful in spreading this spurious correlation that a drop in vaccination rates and an outbreak of measles swept through Europe in 2018.

So, this is not, like, only about spiders that don't exist. This is, in some cases, a true matter of life and death. Interrogating the evidence our online sources provide us is incredibly important. We need to ask whether that evidence is reliable and whether it actually backs up the claim being made. The quality of our evidence, like the quality of our information, affects the quality of our decisions, and also the prevalence of measles.

We'll dig even deeper into evidence next week. I'll see you then.

[Outro]

Thank you for watching Crash Course, which is filmed here in Indianapolis, Indiana with the help of all of these nice people.

For this series, Crash Course has teamed up with MediaWise, a project out of the Poynter Institute that was created with support from Google. The Poynter Institute is a non-profit journalism school. The goal of MediaWise is to teach students how to assess the accuracy of information they encounter online. The MediaWise curriculum was developed by the Stanford History Education Group based on civic online reasoning research they began in 2015.

If you're interested in learning more about MediaWise and fact checking, you can visit [@MediaWise](#) on Instagram.



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Thanks again for watching, and thanks to MediaWise and the Stanford History Education Group for working with us on this project.