Information Literacy

As researchers, we need to be aware of what the information we're finding is and evaluating whether it is real, true, reliable, credible, and useful. We need what's called "Information Literacy"

Information Literacy

- What is information literacy?
  - The American Library Association defines "information literacy" as a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information."
- You must be careful where and how you get your information, always check where your sources got their information, and make sure all of those sources are credible
  - You can't always trust the internet
    - People can post pretty much anything they want
    - You can purchase almost any domain you can think of for a lot cheaper than you thought: https://www.hover.com/domains/results?q=journalforscience.org
  - You can't always trust the information you're given:
    - https://ed.ted.com/lessons/how-to-spot-a-misleading-graph-lea-gaslowitz
  - You can't always trust yourself!

Confirmation Bias

- What is confirmation bias?
  - The tendency to believe information is credible if it conforms to the reader's/viewer's existing belief system, or not credible if it does not conform
    - **The Misconception:** Your opinions are the result of years of rational, objective analysis.
    - **The Truth:** Your opinions are the result of years of paying attention to information which confirmed what you believed while ignoring information which challenged your preconceived notions.
  - We believe what we are already inclined to believe because of the sources that formed our foundational or core understandings
    - The foundations are based on what is familiar and safe—what is comfortable and doesn't challenge your world

Backfire Effect

- Have you heard about how George Washington had wooden teeth?
  - It turns out that's a myth. He actually had several sets of false teeth that were made of different materials including from gold, ivory, lead and animal teeth.
  - How does that information make you feel?
    - Probably neutral, right? It's an interesting new fact I suppose.

- Now what if I told you Washington had another set of dentures made from the teeth of his slaves? That Washington's dentist would remove healthy teeth from living people to make those dentures? How does that information make you feel? How do you respond?
    - http://theoatmeal.com/comics/believe
    - If this information caused you to reject the idea, ask yourself why that is. Why would you accept one fact about his teeth neutrally, but reject the other?
- This is called the "backfire effect"
    - https://www.youtube.com/watch?v=Q8NydsXl32s
    - Although we like to think that we are sensible, rational humans, we are still just smart dumb animals
        - **The Misconception:** When your beliefs are challenged with facts, you alter your opinions and incorporate the new information into your thinking.
        - **The Truth:** When your deepest convictions are challenged by contradictory evidence, your beliefs get stronger.
    - Once something is added to your collection of beliefs, you protect it from harm. You do it instinctively and unconsciously when confronted with attitude-inconsistent information. You stick to your beliefs instead of questioning them. When someone tries to correct you, tries to dilute your misconceptions, it backfires and strengthens them instead.
    - You react to information that challenges your core beliefs/perspectives the same way you would a physical threat—your brain responds to protect you and doubles down on your conviction despite the evidence
    - Over time, the backfire effect helps make you less skeptical of those things which allow you to continue seeing your beliefs and attitudes as true and proper.

Research Tips

- So how do we combat these problems within ourselves and with the information we find?
    - We have to be aware of our biases and preconceptions and try to control our reactions
    - We have to do good research and seek out experts
    - Our claims need to come from the research, not vice versa
        - Don't start with your argument, start with a question and find find your argument in the research
    - We have to acknowledge our biases, keep open minds, be skeptical/think critically of what we read and hear, track claims to their sources, cross-check information, etc.
    - This doesn't mean that we need to change our core beliefs or understanding about issues, but it does mean that we cannot just accept our irrational emotional response.
    - We have to seek the truth, not confirmation.