Evaluating Research Resources

Critical Thinking

- The importance of critically evaluating your sources for authority, relevance, timeliness, and credibility cannot be overstated.
- Anyone can put anything on the internet; and people with strong web and document design skills can make this information look very professional and credible—even if it isn't.
- Since much research is currently done online, and many sources are available electronically, developing your critical evaluation skills is crucial to finding valid, credible evidence to support and develop your ideas.
- In fact, this has become such a challenging issue that there are sites that regularly update its online list of journals that subvert the peer review process and simply publish for profit.

A word about Statistics

- Mark Twain (supposedly quoting British Prime Minister Benjamin Disraeli) famously said, “There are three kinds of lies: lies, damned lies, and statistics.”
- The effective use of statistics can play a critical role in influencing public opinion as well as persuading in the workplace.
- However, as the fame of the above quotation indicates, statistics can be used to mislead rather than accurately inform—whether intentionally or unintentionally.
- When evaluating research sources and presenting your own research, be careful to critically evaluate the authority, content, and purpose of the material, using questions given in Table

Authority **Researchers** **Authors** **Creators**	Who are the researchers/authors/creators? Who is their intended audience? What are their credentials/qualifications? What else has this author written? Is this research funded? By whom? Who benefits? Who has intellectual ownership of this idea? How do I cite it? Where is this source published? What kind of publication is it? **Authoritative Sources:** written by experts for a specialized audience, published in peer-reviewed journals or by respected publishers, and containing well-supported, evidence-based arguments. **Popular Sources:** written for a general (or possibly niche) public audience, often in an informal or journalistic style , published in newspapers, magazines, and websites with a purpose of entertaining or promoting a product; evidence is often “soft” rather than hard.

Content	**Methodology** What is the methodology of their study? Or how has evidence been collected? Is the methodology sound? Can you find obvious flaws? What is its scope? Does it apply to your project? How? How recent and relevant is it? What is the publication date or last update?
	Data Is there sufficient data here to support their claims or hypotheses? Do they offer quantitative and/or qualitative data? Are visual representations of the data misleading or distorted in some way?

Purpose Intended Use and Intended Audience	Why has this author presented this information to this audience? Why am I using this source? Will using this source bolster my credibility or undermine it? Am I "**cherry picking**" – the use of inadequate or unrepresentative data that only supports my position (and ignores substantial amount of data that contradicts it)? Could "**cognitive bias**" be at work here? Have I only consulted the kinds of sources I know will support my idea? Have I failed to consider alternative kinds of sources? Am I representing the data I have collected accurately? Are the data statistically relevant or significant?

Given the pie chart in **Figure 5.2.2**, if you only consulted articles that rejected global warming in a project related to the issue of climate change, you could be guilty of cherry picking and cognitive bias.

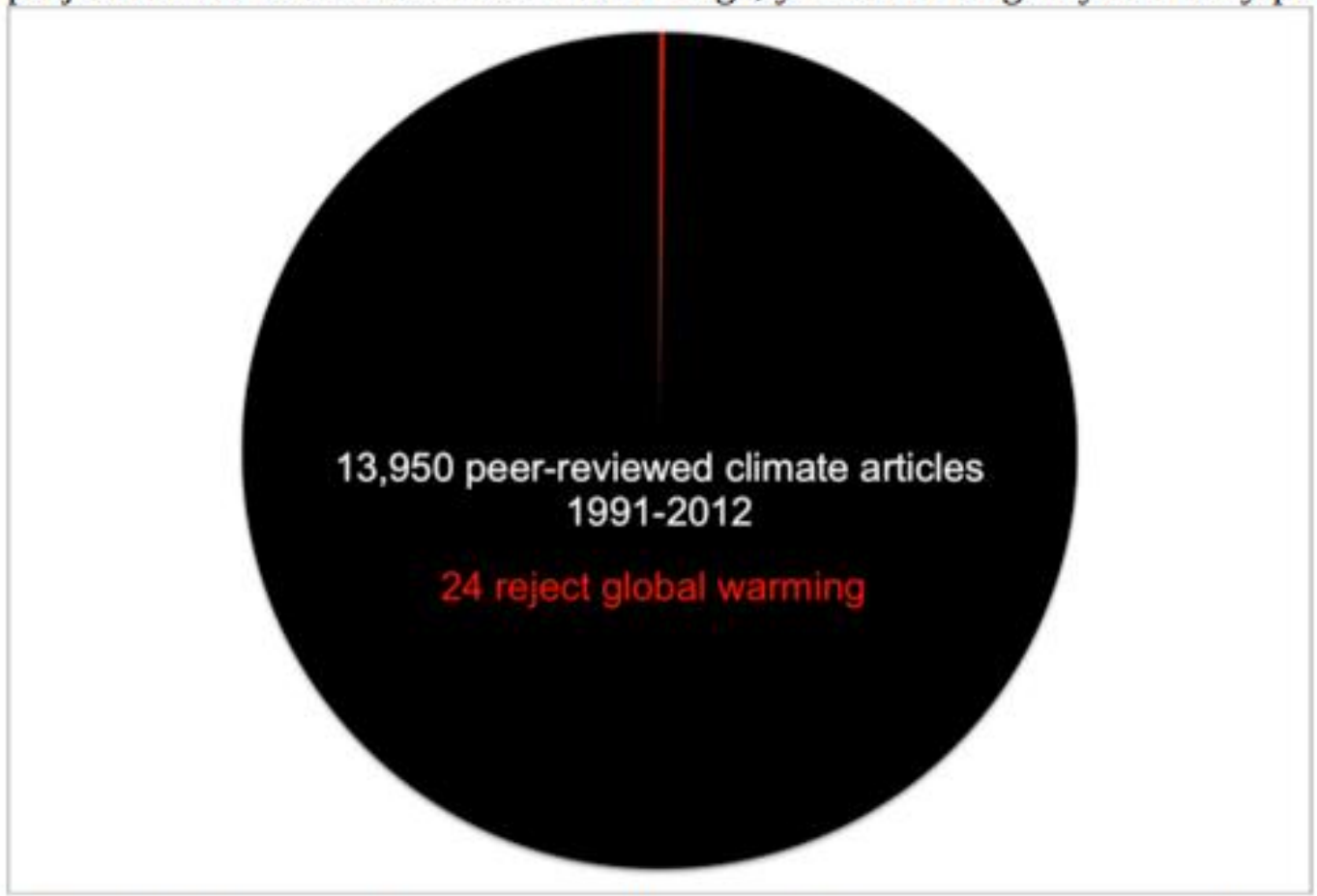

Figure 5.2.2 *The number of articles that reject global warming out of all peer-reviewed climate articles within a 21 year time period.* [4]

Beware of Logical Fallacies

Bandwagon Fallacy	Argument from popularity – "*everyone else is doing it, so we should too!*"
Hasty Generalization	Using insufficient data to come to a general conclusion. *An Australian stole my wallet; therefore, all Australians are thieves!*
Unrepresentative Sample	Using data from a particular subset and generalizing to a larger set that may not share similar characteristics. *e.g.: giving a survey to only female students under 20 and generalizing results to all students.*
False Dilemma	"Either/or fallacy" – presenting only two options when there are usually more possibilities to consider *e.g.: You're either with us or against us.*
Slippery Slope	Claiming that a single cause will lead, eventually, to exaggerated catastrophic results.

Slanted Language	Using language loaded with emotional appeal and either positive or negative connotation to manipulate the reader
False Analogy	Comparing your idea to another that is familiar to the audience but which may not have sufficient similarity to make an accurate comparison *e.g.: Governing a country is like running a business.*
Post hoc, ergo prompter hoc	"After this; therefore, because of this" *e.g.: A happened, then B happened; therefore, A caused B.* Just because one thing happened first, does not necessarily mean that the first thing caused the second thing.
Begging the Question	Circular argument – assuming the truth of the conclusion by its premises. *e.g.: I never lie; therefore, I must be telling the truth.*
Ad hominem	An attack on the person making an argument does not really invalidate that person's argument. It might make them seem a bit less credible, but it does not dismantle the actual argument or invalidate the data.
Straw Man Argument	Making a "straw man" argument means restating the opposing idea in an inaccurately absurd or simplistic manner to more easily refute or undermine it.

Handling Biases

- We all have biases when we write or argue; however, when evaluating sources, you want to be on the look out for bias that is unfair, one-sided, or slanted.
- Consider whether the author has acknowledged and addressed opposing ideas, potential gaps in the research, or limitations of the data.
- Look at the kind of language the author uses:
  - is it slanted, strongly connotative, or emotionally manipulative?
  - Is the supporting evidence presented logically, credibly, and ethically?
  - Has the author cherry-picked or misrepresented sources or ideas?
  - Does the author rely heavily on emotional appeal?

Critical Thinking

- Critical thinking lies at the heart of evaluating sources.
- You want to be rigorous in your selection of evidence, because once you use it in your paper, it will either bolster your own credibility or undermine it.