Critical Thinking and the Internet: Skills for a New Era

by Winston Sieck - February 28, 2013

https://www.globalcognition.org/critical-thinking-and-the-internet/

Learning has gotten complicated.

We often need to answer challenging technical and scientific questions to get by in our everyday life.

The web has become the default means to get those answers. Yet learning from the internet is fraught with difficulty.

Searching, sorting, and synthesizing the convoluted maze of potential answers requires a special set of critical thinking skills, tailored to the internet age.

How can we bring critical thinking and the internet together?

Are there specific cognitive skills that we can measure and teach?

Lucia Mason, Nicola Ariasi, and Angela Boldrin of the University of Padova conducted a study on critical thinking and the internet. They published their findings in, "Learning and Instruction."

The researchers used a think-aloud method to uncover the critical thinking skills students used when employing the web to delve into a controversial and unfamiliar topic. In a think-aloud method, study participants say everything that goes through their mind while completing a task.

The researchers hypothesized that certain aspects of critical thinking are particularly relevant in the web context. The cognitive skills that Mason and colleagues investigated are closely related to beliefs about knowledge and learning itself.

In Mason's study, participants scoured the Web to try to address the question, "Can the continual use of mobile, or cell, phones be a health hazard?"

They were also told that they would need to write an essay afterwards.

The topic is typical of tough issues we often face. It's complex and personal. A good understanding of the answer requires us to learn a bit about electromagnetic fields and their relation to human physiology. How we answer affects our communication choices in no small way.

After collecting the data, Mason's team studied transcripts of the participant's thought processes, and created a rubric for critical thinking and the internet.

The researchers classified aspects of critical thinking that they expected to influence learning from the internet.

Mason's team also graded the degree of sophistication of the thought processes. Their rubric highlights a decent set of critical thinking skills for the internet that you can draw on and use yourself:

Judging the Credibility of Websites

Three general approaches you might use to evaluate sources on the internet are:

- *Less sophisticated*: Sites that are more popular have credible information (not recommended!)
- *Relatively sophisticated*: Credible sites are those that are established authorities on the topic (e.g. a ministry of health), and are relatively free of bias
- *More sophisticated*: Seek out websites for scientific research institutes as most credible (for a science question, anyway)

Examining Justifications for Specific Claims

Critical thinking skills for examining specific claims students find on the web include the following:

- *Relatively sophisticated*: Check whether the facts agree with what you already know to be true. For example, for the cell phone problem does a claim about electromagnetism fit with what you learned in school?
- *More sophisticated*: Look for the scientific evidence. Is the claim justified by scientific research that was carried out to address the issue?

Pulling all the Facts Together

A good study tip is to pull together ideas from different sources. But you want to do it in a deep way:

- *Less sophisticated.* Are you just using multiple sources to "add up" your knowledge? This approach doesn't take into account that the sites may offer conflicting stories (perhaps in subtle ways) about what's going on.
- *Relatively sophisticated.* Compare the information that you find, both in terms of the basic facts and the overall story the facts are used to tell. If there is some opposition, check up on the specific point of disagreement and see what you can resolve for yourself.
- *More sophisticated.* In addition to your own comparisons, what discussion is there about the level of consensus among scientists on key points? My personal experience is that scientists always seem to find nuances to disagree about, no matter how much has been learned in their field. Relatively strong agreement among scientists on a specific claim can give you a pretty good feeling about it.

OK, there's a handy rubric to use in your lessons involving critical thinking and the internet.

But, is it useful?

Do people who spontaneously use the relatively and more sophisticated strategies actually learn more from the web?

Mason and her team found that they did.

The researchers analyzed the correlation between sophistication of strategies revealed in the think aloud protocols with the quality of the final essays written and graded after the study.

The participants who tended to engage in more sophisticated critical thinking in the internet learning session, performed better on the essay test.

Being able to effectively learn from the web is essential in modern life.

Fortunately, there appear to be a few general thinking skills that students can master to get the most out of the wealth of information on the web. Fostering these skills is a useful step to bring critical thinking and the internet together.

Image Credit: bill2499

Mason, L., Ariasi, N., & Boldrin, A. (2011). Epistemic beliefs in action: Spontaneous reflections about knowledge and knowing during online information searching and their influence on learning *Learning and Instruction, 21* (1), 137-151 DOI: 10.1016/j.learninstruc.2010.01.001