

# Why I don't believe in science...and students shouldn't either

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As I have been preparing for my last post on SciEd, I've reflected on why I became a science educator to begin with. And I realize it's because I strongly believe that knowledge is an important tool to improve our lives and it should be shared with others. This is strange however, because even though I have this belief, I don't believe in science. So why am I so passionate about something I don't believe in?

## Science and Belief

Science is how we describe the natural world, and if you search the web for "what is science," three words tend to come up more often than others: observation, experiment, and evidence. Observations and experiments may not be perfect, even at the limits of our technologies, and interpretations may be flawed, but it's the evidence that supports, or doesn't, an argument that is the most important. And we choose to either accept it, or not.

I wanted to get an on-the-spot response from a scientist, so I asked one of my colleagues at work, Dr. Briana Pobiner, a paleoanthropologist, "You believe in evolution, right?" I was surprised by how quickly she answered "I don't believe in evolution – I accept the evidence for evolution." The believing isn't what makes evolution true or not, it's that there is evidence that supports it.

There are plenty of other scientists out there that don't like the use of the word "believe." Kevin Padian, of the University of California, Berkeley, wrote an open-access article about science and evolution, entitled "Correcting some common misrepresentations of evolution in textbooks and the media." He states:

"Saying that scientists 'believe' their results suggests, falsely, that their acceptance is not based on evidence, but is based somehow on faith."

The closeness of belief to faith, belief in something without proof, seems to be a reason a number of scientists disapprove of the word. It does tend to introduce religion, which describes the supernatural, something that science cannot accomplish.

Padian continues:

"...it is about the quality of the evidence: scientists accept their results as the best explanation of the problem that we have at present, but we recognize that our findings are subject to reevaluation as new evidence comes to light."

This same sentiment of evolving understandings can be heard in Holly Dunsworth's audio essay "I Am Evolution" on NPR's This I Believe (ironically, I might add).

I reached out to Holly and she told me that there were a number of "science-minded" individuals who did not agree with her essay. They "think that 'to believe' is different than 'to know' because 'knowledge' to many is based on facts and 'belief' is not, so the verbs knowing and believing are therefore different." Where I agree with this perspective, Holly disagrees. But she goes on to say that just having the belief or knowledge is fine, no matter what word is used.

## Teaching process of science, not belief in science

Science, as we know, is not just some body of facts. It is a detailed process of observation, experiment, interpretation, review, and even a little bit of luck and chance. And unlike a linear list of instructions, it is an ongoing, iterative process that can jump to any other step

in the process, as illustrated at Berkley's "Understanding Science" webpage. This is how science should be, and usually is, taught.

Unfortunately, it is impossible for every teacher in every school out there to reproduce every experiment for their students to have a first hand account of the evidence. This means that in almost all classrooms there is a degree of memorizing facts to understand particular concepts. So to an extent you might say that the teachers and students need to have some faith in the publisher that those facts are real, and the other scientists who reviewed the research we also legitimate.

But we do manage to continue advancing despite of this. Leaps and bounds in technologies and scientific research are made by building upon previously vetted and accepted research. Every generation keeps learning newer technologies and up to date research earlier in their education. Sometimes these new leaps and bounds may produce new evidence that causes us to reevaluate our previous findings. But this is still a part of science, an ongoing and dynamic process that continues to bring new questions and answers.

So, no, I do not believe in science. Maybe you could say I believe science. But for sure, I accept the evidence produced through science and that its findings may some day change.

But what about you — do you believe in science?