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Of science, baseball, and cricket . . .

Posted on August 4th, 2011 by earlelland

Most people laughed in 2005 when comedian [Stephen Colbert](#) coined the term “truthiness.” The idea was that there are some things we all know based on our “gut feelings,” that are guided by our instinct and that lack any linkage to logic, evidence or data. The term struck such a resounding chord that it’s now firmly entrenched in our vernacular.

Sadly though, the humor seems to have faded over time, leaving us with the frustrating conclusion that all too many members of the public run their lives based on the “truthiness” of what they hear, instead of facts.



In essence, belief has overwhelmed evidence, and that seems to be just fine with lots of folks.

That’s the only explanation I can come up with to explain the results of a [new Rasmussen Reports poll](#) of Americans that shows that two thirds of those surveyed believe that scientists have falsified their work to strengthen their claims about [global climate change](#).

The poll, based on a survey of more than 1,000 people in July, revealed that “69 percent say it’s at least somewhat likely that some scientists have falsified research data in order to support their own theories and beliefs,” according to Rasmussen. Of those surveyed, 40 percent believed that falsification was “very likely.”

Such survey results are, by any measure, disturbing but the hurt researchers feel on hearing them is amplified. In general, the rules of science are rigid and specific – conclusions are drawn based on a preponderance of evidence and data and are usually muted based on a healthy, critical skepticism. Scientists universally need strong facts to reach a finding.

“Beliefs,” per se, have little bearing in the process of science.

But they seem to be everything as far as today’s public is concerned.

Adding to researchers’ dismay is the obvious fact that the public apparently doesn’t understand science. More than almost every other human endeavor, science is self-correcting over time. False or flawed research results are usually corrected quickly as other scientists try to build on past discoveries. If findings have been fudged, it skews future work, and the malfeasance quickly becomes obvious.

That’s the way science works.

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And the more controversial the science, and the greater the policy implications of the work, the faster science's self-correcting mechanism come into play.

But beliefs are personal and tightly held. Most people will readily reveal their beliefs but fewer are ready to explain their reasoning. And when the beliefs are questioned, folks' answers are rarely based on real evidence – they're usually rooted in "truthiness."

In public opinion polls like this latest Rasmussen survey, while questioners may ask for a person's opinion or belief, but they rarely ask for the basis of that belief.

That's just the way that polls work.

The danger in all of this is that beliefs are self-perpetuating. Humans inherently drift to others who share their thinking, and that behavior has been shown to be increasing in recent years. And with two-thirds of the American people lacking any reasonable measure of scientific literacy, it bodes ill for scientists and researchers locked into a system requiring facts.



It's almost as if most Americans are watching a game on the field, and believe it is baseball.

Scientists, however, perceive it as cricket.__EH



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Kara // Aug 5, 2011 at 10:49 am

I think you are right on here- that the average public does not understand the rigors of peer reviewed research. I am also amazed by this poll, in light of another area of "truthiness"- the link between autism and vaccines. In this case, you have the reverse of what you are reporting here- where someone actually DID bad science, it was revealed and exposed, and YET, the belief that the link is there still exists.

Many people still believe that you can 'make' data show anything that you believe is true, and there is a lot of skepticism that surrounds findings....unless they support what they believe as well.

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RICHARD D. STACY // Aug 5, 2011 at 4:41 pm

Mark Twain expressed this issue quite well: "Loyalty to a petrified opinion never yet broke a chain or freed a human soul."

Tim McCarthy // Aug 8, 2011 at 9:44 am

Your article seems to ignore the fact that a large part of the climate debate is being fueled by politics. And politics is about as far from science as one can get. So, since the people being polled likely base their response on what they learn through the news, and the news is slanted by the politics, what do you expect?

Debbie // Aug 8, 2011 at 12:02 pm

Sadly, it's true. And according to a recent study*, it only takes a mere 10% of the population to set a belief for the rest.

* http://www.eurekalert.org/pub_releases/2011-07/rpi-mrs072511.php

Christina // Aug 8, 2011 at 5:52 pm

I am bothered by the number of assumptions that the author takes for granted in this article:

Assumption one: That the individuals polled are scientifically illiterate. While the statistic presented on the lack of scientifically literate Americans may be accurate, there is no proof to suggest that those surveyed fall into that category. The author also displays prejudicial lack of respect toward those surveyed by referring to them as "folk" several times, as though to he really wanted to call them "country bumpkins".

Assumption two: That those surveyed chose their answers based on beliefs and not facts. Is there any proof of this claim or are you merely dissatisfied with the survey results and looking to discredit them? And yes, I'm asking for proof of the author's assertions about a group of people of which he has, by his own admission, no knowledge though his comments are declared as concretely as if he knew each of the 1000 anonymous individuals personally.

Assumption three: That the scientific method is self-correcting and therefore true. To be self-correcting you would at one time have to be incorrect, otherwise there would be no need for the "correcting" part of self-correcting. Science has changed over time, so how could it be always correct AND change. Also, the scientific method itself declares that no theory can ever be seriously considered certain as new evidence falsifying it can be discovered. Also, the author speaks of the scientific method as though it is above suspicion, but it is still practiced by human beings; flawed, imperfect people. It may be that a general distrust of their fellow human beings truthfulness (not truthiness) that caused those surveyed to respond as they did.

Assumption four: That a survey is anything more than the opinion of a faceless crowd. The author bemoans the fact that the survey does not ask for the basis of the individuals' opinions, while admitting that that is

the nature of polls. Polls are opinions and do not contain facts, though they are often treated as such. “60% percent of people believe such and such 30% of the time, therefore...” They may be based on fact or belief (or both), but they are anonymous, so they have little value beyond the narrow subject to which they pertain. This can be frustrating to anyone trying to interpreting their results, as well as the fact that the interpreter cannot help but bring their own opinions (favorable or not based on fact, belief, or both) into the mix.

The only real fact that seems to have emerged in the article is that the author disagrees with the poll results and feels badly about the poor “hurt researchers” that have suffered as a result.

[earleholland](#) // Aug 8, 2011 at 8:47 pm

Christina:

As to your assumption one, the statistic on the proportion of the scientifically literate is valid and well documented in surveys over the last couple of decades. The use of the term “folk” is not meant disparagingly but instead reflects the heritage of the author — a Southerner — whose writing style includes such non-prejudicial characterizations of the population. You are correct that neither thee nor me know whether they are “country bumpkins” or simply people who have been deprived of basic scientific knowledge. While you chide me for your perception of assumptions on my part, you seem equally guilty.

As to assumption two, since there is no evidence supporting a contention that widespread falsification is rampant in the realm of climate science, one can only surmise that the explanation of survey respondents’ statements lies with their beliefs, which require no evidence. Allegations of wrong-doing by climate scientists have been investigated countless times in recent years and there has been no widescale finding of falsification. In the absence of evidence, all that’s left is belief, albeit false.

As to assumption three, science is, of course self-correcting and you are correct in saying that it can be wrong, but its errors are always corrected over time. Saying that among the millions of scientists and researchers, there are a few who may yield to human frailty is not license to castigate the entire community. Most of us learned early in elementary school that there is a basic lack of fairness in punishing the community for the errors of a few of its members, and yet you defend that same basically flawed logic. If there is a general mistrust of scientists — as you infer and as the survey responses suggest — then it is certainly not based on any assessment of the evidence.

As to assumption four, poll results have taken on a power in modern society far exceeding their value as indications of public attitudes. Political systems and decision-makers now respond to poll results in much the same way they used to respond to fact, data and evidence. Your argument that “an interpreter cannot help but bring the own opinions into the mix” suggests that you either have a poor understanding of how valid social science research is done, or that you again assume behavior (and corruption) among everyone — or both.

In a time when serious questions are being raised about the scientific prowess of the United States, and the weakening of its long-held scientific

leadership worldwide, further indications of a loss in scientific literacy among our people is a cause for major concern.___EH

Mike Carrell // Sep 14, 2011 at 8:29 am

I agree that polls are just that—polls, and don't really tell us much. There was a poll a few years ago that showed over 80% of 9/11 conspiracy believers were registered Democrats. The same poll a year later showed the number went up to 85%—so like Debbie said above, strange beliefs can foster more of the same. But so what—we certainly know we don't need to believe in a 9/11 conspiracy to belong to the Democratic party!

As for the scientific illiterate—there was a great study released recently that shows your education level is actually inverse to scientific positions held. Cultural beliefs actually drive what the public believes with science, and more education on the facts is actually detrimental:

<http://www.culturalcognition.net/browse-papers/the-tragedy-of-the-risk-perception-commons-culture-conflict.html>

[James Smith](#) // Oct 3, 2011 at 9:45 pm

When you mix politics and science you get guilt by association. Science has taken some hits in credibility over the years when contradictory studies muddy the results. There have been some faked studies which hurt the integrity of the efforts to prove any conclusion.

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« [The thugs are coming . . . Not what Ben meant . . .](#) »

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