

## Cheerleaders Science Question

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Questions can be wrong, and I blame Einstein for infesting science with wrong questions and wrong statements.

There is a Science Cheerleaders site [1], for some strange reason it thinks science needs cheerleaders the same as sport does. It says:

“Hey fans, look alive! **You** are the new face of science. This is your first stop to learn about, do, and shape science. We've got plenty of Science Cheerleaders who are NBA and NFL cheerleaders-turned-scientists and engineers to cheer you along.”

There was a test at this site [2]. I sat the test and had no problems with the questions except for one question, and that prompted me to think that questions can be ill-composed and to think of Pinocchio's nose. [3]

Here is the question--

Which of the following is NOT part of the scientific method?

- 1) Careful observation of nature
- 2) Building theories to explain what you observe
- 3) Testing the predictions of those theories against observations
- 4) They are all part of the scientific method

If you answer option (4) then you could mean two different things. You could be saying--

(a) careful observation of nature AND building theories to explain what you observe AND testing the predictions of those theories is NOT part of the scientific method, because that is what the question is asking for namely the something that is not the scientific method. [4]

OR

By saying option (4) you are saying -

(b) The question is wrong

So what does answering the question with option (4) mean? Does it mean answer (a) or answer (b)?

I think the human language is ambiguous, and this type of question highlights that.

It then made me realise that bad questions give ambiguous answers and much of science is based on that due to Einstein's influence. The website on Science Cheerleaders is just following Einstein's influence as role model and posing bad questions.

The question was just wrong; it was not structured correctly and it was not then possible to answer it unambiguously. This made me realise that science is infested by people with this wrong approach to handling statements and questions; an issue picked up in Pinocchio's nose. [3]

References

[1] <http://www.sciencecheerleader.com/>

[2] [http://www.sciencecheerleader.com/brain\\_makeover\\_quiz/](http://www.sciencecheerleader.com/brain_makeover_quiz/)

[3] see related article Pinocchio's nose: "Pinocchio's nose paradox: the failure of lie detectors and the failure of science"

[4] Further elaboration is necessary- if you were to answer (1) then you were saying that “careful observation of nature” was not part of the scientific method, but that (2) Building theories to explain what you observe and (3) Testing the predictions of those theories against observations were part of the scientific method. But then option (4) is worrying because it includes options (1)-(3). So saying option (1) was wrong, means that by not stating option (4) that via it option (1) was also simultaneously part of the scientific method i.e. claiming option (1) you are saying that it was BOTH part of the scientific method and NOT part of the scientific method. Similar problem ensues if you choose option (2) or option (3).

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