

Title: BE CRITICAL THEY SAID, IT WILL BE SCIENTIFIC THEY SAID !

Catch phrase for twitter: **#becriticalbescientific**

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Anxiety became an important issue in the scientific world of academic research. The pressure to publish or perish, led most of the researchers to focus on the idea that the only good research is publishable research. However, this competitive environment of research began to harm the quality of the work, begging the question: Is what is represented in this paper actually true? At this point, critical thinking is of major importance. Even if we don't have any concern about indicated research findings, in order to meet the criteria of good research, it is essential to have a critical perspective while reading papers. We should keep in mind to analyze whether the methodology in the study fulfills criteria of good research, and we should be able to suggest if there's a need for improvement. Critical reading should basically lead to deeper questions such as: 'Is this a good argument? Is it biased? Is it verifiable? How good is the evidence?' . So how can we get this perspective and use it in favor of science without any pre-judgment?



Unfortunately, this isn't easy as it seems. Scientists reading through research papers often notice irregularities that need to be addressed. For example, Regina Kunz and her colleagues raised concerns after a randomised controlled trial by Naoyuki Nakao et al. (2003) that was published by The Lancet. This paper examined a combined treatment that led to slower progression of non-diabetic renal diseases. However, when thoroughly examined by the investigation committee, it was discovered that this trial was not approved by the ethics committee, did not involve a statistician (indicating a possibility of falsified data), and was not double-blinded, which resulted in. But the question is, how was it even allowed for this type of research to be published? That's where critical thinking comes into play!

Having shown why it is indispensable that all scientific research should be evaluated critically, we can now discuss how to actually achieve this. Luckily we have a good recipe for it. We can directly begin by checking the title to see if it is descriptive and appealing enough to give a comprehensive idea about the study. Next we target the authors, whose professional qualifications should be compatible with the research topic.

Now we can finally fly in the 'window' of the article, which is the abstract. It should give a good summary about the purpose, main findings and conclusion of the paper. Next step is evaluating the introduction part, by expecting a relevant and recent literature review informing the audience about how this paper fills the gaps in the literature, as well as a good background to understand the problem leading the research.

Our next target is the methods section, which should clearly specify the basis of sample selection and the procedures. Then, we can come to our 'get to the point' part which is the results! It should be criticized by checking all data points and evaluate the credibility of statistical analysis. We should also question if the steps involved in data analysis/exclusion are justified.

Finally, for the discussion and conclusion, we should evaluate if the purpose of study and results meet, and most importantly; if the results are interpreted clearly or manipulatively.

To summarize, critical thinking is a crucial part of science. Improving the quality and transparency of published research is currently a major challenge for scientists, one that can be overcome by maintaining an analytical perspective and questioning information carefully before accepting it as fact. Even if nothing seems suspicious or biased, this approach can help raise new questions and foster progress in the future.

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