

There Should Be No Alternatives to Truth in Science — Just the Truth and Nothing but the Truth*

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Commentary

In 2022, Planet Earth entered its third year of a pandemic that as a result of a virus assumed to have its origin in bats has taken the lives of over 5 million of its citizens. At the same time, we are witnessing first hand the immediate consequences of climate change. The benefits of the progress that results from scientific research in combatting these and other challenges are obvious and it is imperative that governments and the public follow the science. But is there also a crisis in truth? As scientists, have we lost some of our shine and respect? Do governments and the public still look to us for our expert advice? If not, then why not? In their timely article “Truth in Science”, Koby Taswell and co-authors [1] make an important and novel contribution to the literature that provides important insights, with numerous examples, into what is an evolving problem in science, but not just in science, and that is the erosion of trust. Indeed, trust in what is ‘truth’ in all aspects of our lives has taken a major hit in recent years.

Unfortunately, it comes as no surprise today that an unhealthy percentage of the public do not trust the information provided by what should be reliable sources. Is this really a surprise when just five years ago a counselor to the President of the United States cites that there are “alternative facts” in a defense of what was disinformation about the crowd size for the inauguration made by the White House Press Secretary? It seemed that the White House was telling the world that it was acceptable for government officials to intentionally lie to the public. This disinformation seems to fit what Taswell *et al.* categorize as “caco-information”, but the White House spokesperson as “alternative facts”. Of course, there are many other examples from around the world suggesting we are in the midst of a pandemic of misinformation, disinformation, and malinformation. Science should be above this and there should be no alternative facts in science, but unfortunately in every profession there are bad apples. To counter this view, it is imperative that as scientists we are accountable and transparent in our actions.

Science should be about discovering the truth and in Taswell’s paper the scientific process is outlined and it is worthwhile stressing the importance of reproducibility as the core of scientific process and that as the authors state: “Conducting this process rigorously with unbiased and objective investigation enables greater confidence in obtaining results we consider more reliable and trustworthy.” In their paper, useful definitions are also provided with examples that aid in distinguishing

misinformation in publications (authors did not know the information was incorrect) from disinformation where authors intentionally provide false information. Provided that the authors correct the errors, misinformation may be benign in impact. Anti-information describes the situation when authors although initially unaware of the falsehood then refuse to correct the mistakes once they are recognized. Caco-information defines cases where the authors are aware of the falsehood and willfully refuse to make a retraction.

One can readily see how these scenarios play out in real life and stimulate the reader to think of the conspiracy theories that have been spread over, for instance, the safety of wind turbines, vaccines, and promotion of ineffective and dangerous treatments for COVID-19. To help us, the authors provide examples. But how do we improve our status and restore trust so that the public follows the science and not conspiracy theories? As the authors discuss, we have to restore trust and that can be achieved by how we personally behave in our pursuit of scientific research. We must lead by example with the highest ethical standards. At the same time working together with media, we must also improve our ability to effectively and truthfully communicate our scientific research, not only to the scientific community but also to the public. Hopefully, as scientists we are all up to the challenge.

Citation

Brainiacs 2022 Volume 3 Issue 1 Edoc TA47DA3F7, Pages 1 – 1
Title: “There Should Be No Alternatives to Truth in Science”
Authors: Christopher R. Triggles
Dates: received 2022-Jan-14, published 2022-Feb-12, endorsed 2022-Feb-01, typeset 2022-Feb-12
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Contact: C. R. Triggles at Weill Cornell Medicine-Qatar
URL: www.BrainiacsJournal.org/arc/pub/Triggles2022SSBNAT
PDP: [/Nexus/Brainiacs/Triggles2022SSBNAT](https://Nexus/Brainiacs/Triggles2022SSBNAT)
DOI: [10.48085/TA47DA3F7](https://doi.org/10.48085/TA47DA3F7)

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* Document received 2022-Jan-14, published 2022-Feb-12.

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