

Science must speak truth to power

É papel da ciência questionar o poder (e tudo o mais)

João de Deus Barreto Segundo¹, Ana Paula de Oliveira Villalobos², Luis Cláudio Correia³

¹Corresponding author. Federal University of Bahia, BAHIANA – School of Medicine and Public Health. Salvador, Bahia, Brazil. ORCID: 0000-0002-4802-6045. jao.barreto@gmail.com

²Federal University of Bahia. Salvador, Bahia, Brazil. ORCID: 0000-0003-3151-156X. anap.villalobos@terra.com.br

³BAHIANA – School of Medicine and Public Health, São Rafael Hospital. Salvador, Bahia, Brazil. ORCID: 0000-0002-6910-1366. luis.correia@bahiana.edu.br

EVIDENCE is a community of like-minded researchers committed to foster scientific integrity and evidence-based decision making and policy. So, when in the presence of major scientific misconduct, we are compelled to mount a defense of facts, evidence and science.

Unfortunately, we have arrived at the dawn of the age of fake news and alternative facts. It's a time when country leaders and ministers of state bask in reflected glory in broad daylight unapologetically. It's also a time when leaders worldwide slash science, technology and education budgets and meddle with scientific facts and consensus in order to foster political agendas and ideologies¹, dismissing whatever evidence is deemed not suited to further those. From the orchestrated moves to erode women's sexual and reproductive rights and gender studies²⁻³, to a president publicly deploying slurs to refer to students and professors who refuse to give up on public funded education and research⁴.

This new ideology varnishes itself with scientific authority and presents either brittle or shady evidence or none at all to justify policies that make no sense whatsoever. It seems to deny and refuse scientific integrity. Melania Trump's speech in the 2016 Republican National Convention in Ohio,

United States, have not blemished her husband's reputation nor hers even though it was clearly plagiarized from Michelle Obama's speech in the Democratic National Convention eight years prior⁵, as analyzed then in the iThenticate plagiarism detection software by Turnitin. It didn't have any impact on their campaign trail.

In our own country, five months into the new president's term, a minister of state was caught red handed in plagiarism as well⁶. The recently appointed minister of education, Abraham Weintraub, holds a master's degree in administration and lists four published papers in his official public scientific résumé. His last résumé update happened in March 2017⁷. But, if you look his name up on the journals he lists you may find out that he has actually published two papers twice in two different journals as analyzed in the CopySpider plagiarism detection software. So, he has actually published five papers but two are in duplicity and the one thing the two journals that account for his whole publication record have in common is that his brother Arthur Weintraub serves in those journals' respective editorial boards.

The timeline of his publication record as extracted from his résumé and from the journals is scientometric evidence. Let's take a closer look at it.

Abraham Weintraub's first paper was published in November 2012 in *Revista Brasileira de Previdência* (according to the date of acceptance of the paper stamped in the paper's PDF file). Titled "The good, the bad and the ugly: mutual funds and private pension funds industry, who gets the lion's share: government, asset managers or clients?", the paper, according to the CopySpider report, is part of Weintraub's master's degree's thesis. It displays 10,39% of similarity with his thesis which amounts to full originality by scientific editorial standards.

Weintraub's second paper was published in February 2016, after a four-year scientific hiatus, also in the *Revista Brasileira de Previdência*. Titled "A Bela Adormecida: 20 anos depois, o processo inflacionário está em vias de ressurgir. Qual a dinâmica e as consequências desse movimento para a Previdência no Brasil", it also appears to be totally original according to the software report.

It's when we arrive by the third publication of his résumé that things start to get peculiar. Published in June 2016, the original piece is called "Reforma da Previdência no Brasil: aposentadoria pública fásica ou gradual". But, it was published in June 2016 in the *Revista Brasileira de Previdência* and in July 2016 in the *Revista Chilena Del Trabajo* according to the PDF files' publication timestamps. Almost simultaneously, but not quite. Bearing the same titles, the overlapping papers share 87,53% of similarity in the plagiarism detection software report.

The minister also states in his public résumé the publication of an English version, in *Revista Chilena Del Trabajo*, of the paper from February 2016, the one published after his four-year hiatus. The English version *doppelgänger* is titled "Sleeping Beauty: 20 years later, inflation process is about to rise again. The dynamics and consequences of this movement for Social Security in Brazil", a literal translation to "A Bela Adormecida: 20 anos depois, o processo inflacionário está em vias de ressurgir. Qual a dinâmica e as consequências desse movimento para a Previdência no Brasil". This practice is called translation plagiarism and only bilingual readers are able to spot the fraud. To this date, we do not know of any available software that is able to detect translation plagiarism.

These are conducts that should not be shaping the future of science and research in Brazil or elsewhere. Being so, more than ever we have the duty to speak truth to power. We must remember our leaders that to talk the talk, they must walk the walk: one cannot arrogate oneself owner of somebody else's work, or of scientific authority without following the scientific ethos and principles and remain unchallenged. At least, not in the scientific community one cannot.

It would appear that the minister was trying to boost his scientific record in order to position himself in a more positive light among his peers. Called self-serving bias and/or self-enhancement bias, this phenomenon has been under investigation in various fields of research. In psychology and in media studies, evidence regarding those biases suggests that behind the boosting attitudes there is a dire need to preserve ego and self-image. Ultimately, a need to belong to a group⁸⁻¹⁸.

Mounting a defense of facts, evidence, science

Now, more than ever, we must remind ourselves, our peers, society and our leaders that the pursuit of truth is at the heart of the scientific endeavor¹⁹. Science must speak truth to power no matter what. To weigh in on this point, in spite of the Brazilian government apparent aversion to philosophy and sociology²⁰, we must resort to them. Therefore, some theoretical concepts must be further clarified in this text.

Long ago, in a faraway land, long changed and lost, the Homo Sapiens has evolved a very distinctive feature, that is the capability of anticipating threats before they happen and creatively foreshadowing possible future outcomes^{18,21}. Science is one of the byproducts of this most singular feature, being itself a tool to create humanity's own existence by means of intensive intellectual labor and providing better means to control and secure all sorts of resources, material or otherwise²¹.

In order for science to fulfill that existential promise, it is expected to speak truth to power. Any truth to any power²². And to understand the promise, one must understand that ideology is not an enemy of science. Science is itself highly ideological, meaning precisely that it is made of and ruled by ideas²¹. Ideology means precisely a discourse on forms and patterns.

That does not mean that any forms and patterns are going to be interpreted as facts though^{19,22,24-26}. The expected patterns are deemed to be verifiable, communalistic, universalist, disinterested patterns, all systematized through organized skepticism²³.

It is important to differentiate scientific ideology from a set of statements based on a political creed, which is how ideology is popularly understood nowadays. When political creeds are verified and scientifically scrutinized, whatever comes out on the other end could amount to scientific ideology. But not prior to that, never prior to that. By scientific ideology we actually mean a permanent state of inquiry over everything, including politics and society, and our scientific tools and body of knowledge themselves²¹⁻²². That is what constitutes the scientific ethos, its rule of law²³. Consequently, it's not any given discourse either the one that comprises the ideology of science, but a discourse founded on tools and techniques aimed on proving our own ideas wrong²²⁻²³ in the impossibility of proving an idea irrefutably right. Through these ideas, constantly scrutinized to verify correction²²⁻²⁶, we build our very own existence onto this world²¹.

We do not speak of correction lightly either. Correction is to be understood as the capability of a given conjunct of predicates – built through language, which is the manifestation of thought, which is the manifestation of perception – to compose and define the conjunct itself as to confirm or deny the possibility and the plausibility of its own existence. Any body of knowledge will comply with correction under scrutiny to be deemed validated²⁴⁻²⁶. That is the cornerstone of the reliability of the scientific knowledge.

In matters of life and death we do resort to science²², do we not? We resort to science to build urban infrastructure better equipped to withstand the impacts of the climate crisis and to better understand the social upheavals it will bring along with it, to fix broken body parts or to build whole new ones altogether and to better understand the psychology of those in need of them. Even the garden-variety science deniers will eventually seek doctors when ill just as the not so rare anymore flat-earthers eventually will board planes to fly here and there, machines that are able to properly function only because the Earth is not flat and because gravity pulls the airplane towards the center of our planet

all the while its motors are propelling it forward and upwards, resisting gravity. The scientific ethos itself requires creativity²¹, inviting scrutiny as contradiction and dissent are not only tolerated but expected²². The scrutiny is expected to be grounded on established consensuses and not on political ideologies though.

Mounting a defense of life itself

It's necessary to remark how great diversity is for our species, as it builds a multitude of expressions of ideas and survival-oriented solutions¹⁸. These tools, some manifested in the form of art, some in the form of science are cultural assets equally embodying the manifestation of a species creatively trying to anticipate future risks in the spirit of finding better chances of survival¹⁸⁻²¹. But with a multitude of minds all competing or collaborating to find meaning and to give meaning to their lives, struggling to belong¹⁸, we do need the rule of the law to keep a well-ordered life and avoid violence and tyranny. But how are we to decide which tool/idea would be best suited or which group would offer the best solution if all groups are entitled to equally come up with and recommend solutions/laws for the greater good? And what if all groups should think their solution/laws to be best or to be the best...?

Through science²¹.

Science is the only way forward that has been tested time and again and still holds true²². Final, definitive, totally objective and quantifiable truth could be anything but a horizon however scientists remain ethically obliged to aim for correction nonetheless^{19,24-26}. Science propels scientists to have the best interests of society as a primary consideration, not political creeds, not profit, but common good and life itself. Yes, time and again, scientific misconduct is reported, giving perhaps the wrong idea that misconduct could be on the rise: the predictive value of research in general could lie below 50%²⁷. However, evidence of a dwindling morality among the scientific community is weak at best^{28,30}. It could be that, as a community of citizens compelled by our very own need to belong to this very scientific community^{18,29} we are now more mature and attentive in order to fix up the house, cellar mold and all. But, current political attacks on science are compelling us to be more than just

conscious¹. Truth, per commitment, is the inherent norm in concocting scientific knowledge¹⁹. Applying the scientific tools, techniques and ideology to analyze society and politics is therefore not only natural but true. Science, thus, not unlike democracy, is an instrument of self-governance²¹.

It's our duty as scientists now more than ever to properly communicate to society, clearly, what we do and why it is that we do it, all the while being even the more attentive to research integrity.

We do need science and evidence to prepare ourselves for the coming storms and to weather the current one.

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