Dark Energy in Science: How It Drives the Current Inflation in Scientific Endeavor and How Science Could Be Rescued

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Dark Energy in Science: How It Drives the Current Inflation in Scientific Endeavor and How Science Could Be Rescued

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Summary
The current science scene displays its own alarming problems, by some called the "inflation in science". The particular, evidently counter-productive, *elements are generally very well realized by individual scientists, but often are not openly discussed in the scientific community*. These calamities include the lack of basic analysis of the current scientific world itself, by which major influences of corrupt science policies, commercial interests, and the power of traditional views as well as the lack of openness to novel approaches remain in the dark. All this seems related to the bare fact that scientists often claim a basic objectivity but in fact are influenced by subjective human attitudes, no different from any other fields in society. In this essay, the current problems, as observed by the present author and extensively reported by leading scientists all over the world, are listed and discussed and a set of potential solutions is tentatively offered.

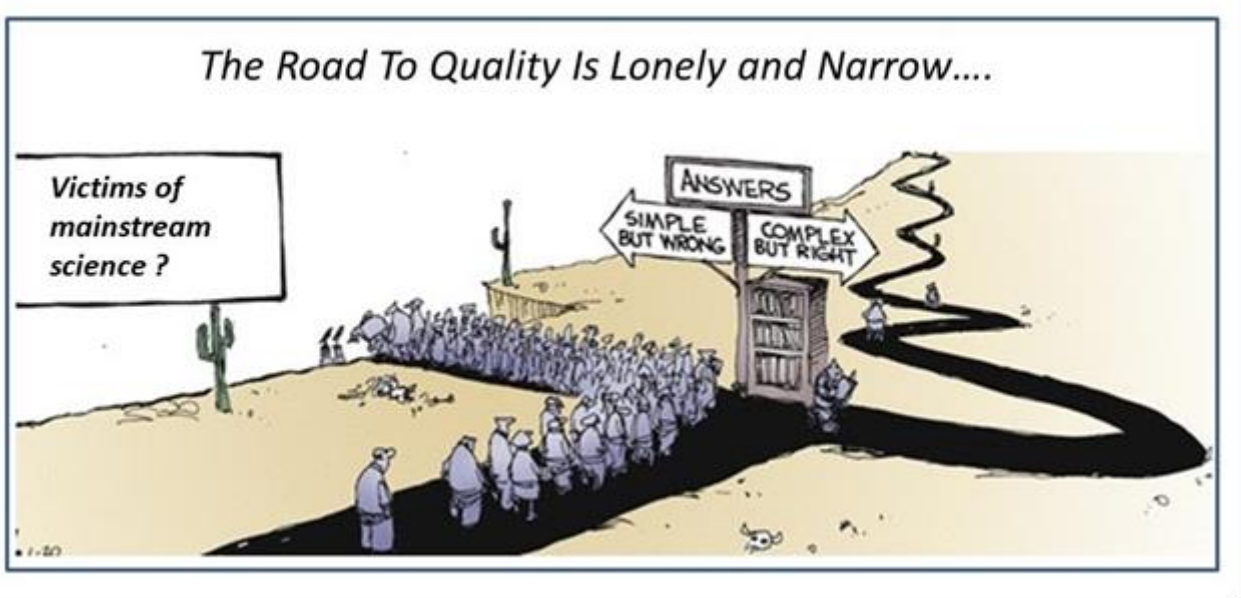
The problems of young scientists in current scientific training
In the last decennium, during the many contacts with, especially, young scientists I encountered a growing disappointment with regard to the scientific scene in general and in particular concerning the lack of real opportunities in realizing their projected careers, as unfortunately experienced by quite a number of them. This seems not only related to the huge problem of finding independent financial support, but also to the uncertainty with regard to potential jobs in the near future. Another major calamity is the pressure felt by some of them to adapt to the current consensus in scientific endeavor, including the barriers in being allowed to come up with novel and sometimes provoking ideas.

Not only the hierarchy within established scientific staffs but even science publisher policies may play a role in this. We do read now of young investigators being kicked out of public science sites or even experiencing forced retraction of their papers due to intense pressure of professionals who claim to protect their established worldview and/or their earlier attained position of administrative power. The young generation learns the rules in a hard way: not only "publish or perish" but also:" adapt to the mainstream or get drowned". Yet, in fact, as we all know, science does largely benefit from fresh ideas either in major, or even more in so called, minor science (**Wolf-Meyer and Cochran, 2016**), who reported on the way in which minor sciences reconfigures dominant sciences.

The present author tentatively coined the latter activity the collective memory acting as an "event horizon" of mainstream science, in a review article on the nature of science and art (**Meijer, 2017**).He now looks gratefully back at his academic work, having educated 60 PhD students in the faculties of Science and Medicine. With the creative staff and hardworking group of students, from 1980 until 2007, in addition to recent work during his retirement up to 2020, the research group produced more than 600, mostly peer reviewed, articles/reviews and book chapters. The group currently obtains 800-2500 views/downloads *per week* with now 16.000 citations (Hirsch index 63).

All this was based on creating an open scientific atmosphere in the past 40 years and real teamwork of staff members, associated post-docs, PhD students as well as pharmaceutical and medical students. The author considers the latter qualitative aspect as more important than the abovementioned quantitative figures.

The instant insight in the worldwide distribution of publications, such as the data mentioned above, is provided by public science sites like ResearchGate and Academis.edu, among many others. This represents the huge impact of Internet on current scientific endeavor. Like Facebook, Twitter and YouTube, these information webs play a clever psychological role, realizing that knowledge acquirement in itself can obtain an addictive aspect: "You reached a milestone", "You have a new achievement" and "Your publication is the highest read in Neurology". Indeed, such media know how to trigger the reward center in our brains.... The relevant questions are whether quality runs parallel with quantity and also whether scientist nowadays can really escape the perverse incentives to which they are constantly exposed.



Nature of the scientific process

The philosophy of science postulates the following central question: What criteria are satisfied by a "good" theory? This question has a long history, and many scientists, as well as philosophers, have considered it. The objective is to be able to choose one theory as preferable to another without introducing cognitive bias (partly cited from **Wikipedia, Models of Scientific Inquiry**):

A proper theory, according to generally accepted wisdom shows a number of typical features:

- Is elegant (formal elegance; no ad hoc modifications)
- Contains few arbitrary or adjustable elements (simplicity/parsimony)
-Agrees with and explains all existing observations (unificatory/explanatory power)
- Makes detailed predictions about future observations that can disprove or falsify the model if they are not borne out.

The desiderata of a "good or proper" theory have been debated for centuries, going back certainly even

prior to “Occam’s razor”, which often is taken as an attribute of a good theory. Occam’s razor might fall under the heading of “elegance”, the first item on the list, but it was cautioned by Albert Einstein: “Everything should be made as simple as possible, but no simpler.” It is arguable that parsimony and elegance “typically can pull in different directions”. The falsifiability item on the list is related to the criterion proposed by **Popper, 1965** as demarcating a scientific theory from a non-scientific theory: both may “explain” observations, but solid scientific theory enables predictions that decide whether it is right or wrong.

Inflationary tendencies in current science

Noticeably, the current science scene displays its own basic problems, by some called the “inflation in science”. The particular, evidently counter-productive, *elements are generally very well realized by individual scientists, but often are not openly discussed in the scientific community*. These calamities include the lack of basic analysis of the current scientific world itself, with its major influences of corrupt science policies, commercial interests, and as mentioned earlier, the power of traditional views as well as the lack of openness to novel approaches. All this seems related to the bare fact that scientists often claim a basic objectivity but in fact are influenced by subjective human attitudes, no different from any other fields in society. **Table 1** pictures some of these implicit personal aspects.

Table 1 represents an attempt to list a number of psycho-social aspects (**Meijer, 2017**) that, collectively, can lead to undermining personal integrity and thereby the integral scientific process perse:

- Each individual develops a worldview that is more or less consistent
- The worldview is created by interaction of the individual with the environment
- Worldviews are integrated in a mental biography that is constantly adapted to personal needs
- A worldview is an implicit part of self-esteem and thus of intellectual survival
- Personal worldviews tend to be intensely defended on the basis of their supposed meaning
- Scientific exploration always takes place within the context of a personal worldview
- Scientists have a worldview that is often claimed by them as objective and rational
- However, scientists will never be fully objective nor rational, since their worldview is, by definition colored by subjectivity
- Due to this field of tension, scientists look for moral support and professional consensus
- Consensus is always temporary and so are scientific theories and worldviews
- Scientists thus are striving for safety, usually found in mainstream science
- Scientist therefore tend to reject exceptions and refute anomalies, claiming to have a skeptical attitude

- Often skepticism takes a form of “moral space fright” and is poorly affected by self-criticism
- Scientists are often poorly educated in analyzing the processes they are part of themselves
- Some scientists identify alternative thinking as an attack on their personal integrity/worldview
- Some tend, therefore, openly to disqualify their opponents or refrain from giving them sufficient credits
- Alternative and innovative thinking however is an essential part of proper scientific endeavor
- Scientists are increasingly involved in money making and commercial science policies
- Some scientists losing theit independence, invalidate their societal task of critical professional assessor
- Scientific findings that are not in the direct interest of multinationals sometimes become discredited in public
- Scientists in such an underlying position have no formal opportunity to submit their complaints
- Science community lacks an independent institution to monitor the quality of scientific debate
- Potential breakthroughs in science may (initially) be largely frustrated by a scientific establishment

Such detrimental effects can only be counteracted by continuous and critical monitoring of scientific quality by means of open discussions on long-term aims, along the lines of ethics and professional attitudes (see also **Eagleman, 2013**). An amazing list of publications, aimed at the current inflation aspect, was published by the **Institute of Venture Science**, with rather critical comments on today’s scientific enterprise. This comprehensive publication list, containing no less than 150 critical, but very professional, articles of senior scientists, reveals an alarming situation in contemporary science and technology. Reading article headings in the Institute reference list such as: *The Twilight of the Scientific Age, The Science Bubble, The Trouble with Science, Destroying Scientific Innovation, Rescuing US Biomedical Research from its Systemic Flaws, Why Most Published Research Findings Are False, Fund People Not Projects, Conform and Be Funded, Classical Peer Review: an Empty Gun, Mismeasurement in Science, Fake, Deceptive as well as Predatory Science journals and conferences, and even the need of “Repairing Research Integrity”*.

Only inspecting these titles listed by this Institute of Venture Science report, already draws quite a dark picture of the state of current science, irrespective of the discipline at stake. Among others, one broadly encounters misuse of anonymous peer review in rejecting papers that may be too competitive or that disagree with the opinion of the reviewer. Other current problems are the frequent decline in governmental research budgets, with the resulting take-over by industrial interests, as well as publisher policies that frustrate open access publishing and many more calamities. All this seems to

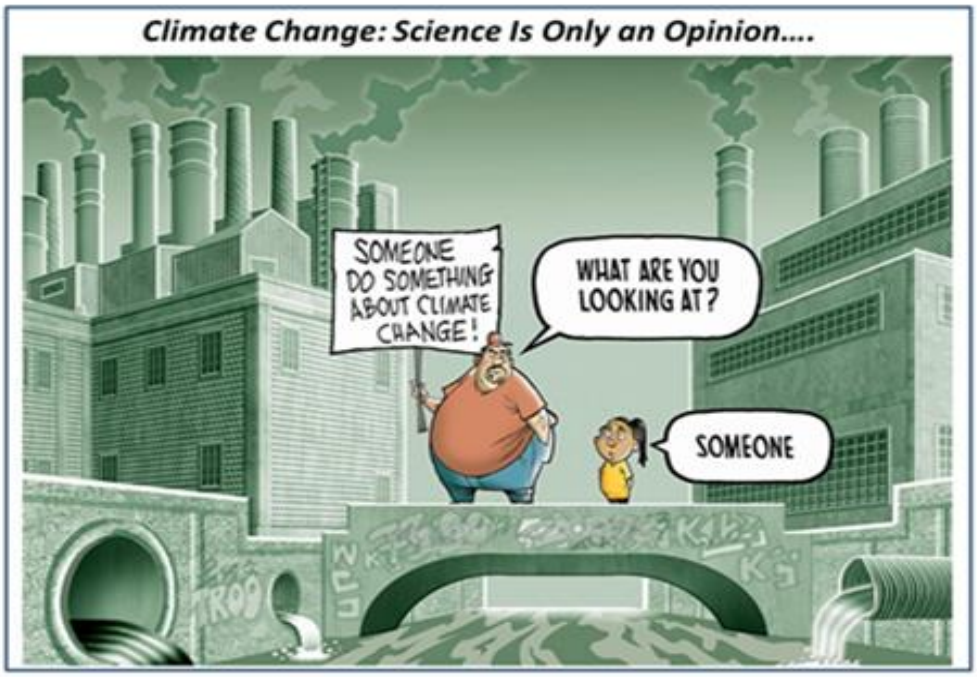
be accompanied by short term financial thinking and favoring shareholder's interests, instead of investments in basic research.

The present position of academic research and education

These problems are not restricted to the country of the abovementioned report, but are clearly observed worldwide (see for instance **Dijstelbloem et al. 2013**). This transparent and very critical essay is titled: *Why science does not work as it should and what to do about it*, mentions some of the current problems:

> -The perverse incentives for attracting ever more students without providing decent tracks for their long-term careers (the so called "PhD factory", products often without a real perspective, yet representing a cheap workforce…)
> -Inadequate procedures and the lack of proper formulation of criteria to evaluate and weigh the fundamental character as opposed to the social relevance of science
> - The pressure of almost obligated collaboration with private partners to cope with largely decreasing governmental research budgets, endangering scientific independent judgement
> - The faulty inward looking of research groups by institutional or (inter)national assessments organizations that almost mechanically seem to use impact factors, citation scores, Hirsch indices etc., instead of appreciating real originality and curiosity driven aspects of the projected research
> - The hierarchic structure between institutional administration and/or national quality assessment organizations and the scientists on the work floor
> -The virtual lack of adequate financial reward for scientific workers that produced innovative work coupled to patent realization
> -The apparent lack of transparency of university research goals towards society at large, that endangers the social support base of academic institutions and invites mistrust in science opinions
> - The academic focus on research output instead of teaching as a primary task of universities coupled to lack of incentives for excellent educational efforts of staff members, apart from the yearly prize as a lip service to this aspect
> - The unbearable workload of the staff members due to the large rise in student numbers, without compensation in extra staff positions that necessitates writing of research projects and grant applications in the late evening hours
> - The insufficient systematic reflection on academic tasks in relation to the changing world and the resulting system failures of excessive me-too research
> - The absence of honest reporting to the public as to the existing divergent opinions in science with regard to current problems of climate change and other environmental disasters that endanger our planet, leading to the nowadays popular saying "science is just another opinion".

A recent essay on "The biggest problems facing science, according to 270 scientists", (**Belluz et al, 2016**), confirms the abovementioned analysis on the European science situation as being very similar to present observations in the USA. This essay reports on young scientists, stating that their careers are being hijacked by perverse incentives and therefore they are forced to overhype their work and prioritize self-preservation over pursuing the best questions and uncovering meaningful truth.



Today only 17 % of the NIH grant applications get approved and many professors spend at least 50% of their time in writing such project proposals while globally an estimated $200 billion is routinely spend on poorly designed and redundant studies. Furthermore, there is major concern on the reproducibility of published work and an important paper showed that only a fraction of recent findings in psychology papers could be replicated (**Stanley et al, 2018).** It is quite clear that the so wanted scientific integrity can easily be corrupted if one entertains a fierce competition for personal grants, tenure track positions and PhD cum laude nominations, on the basis of citations, number and impact factors of publications, given the declining budgets and acceptance rates of 15-20 %.

Publications are increasingly posted on open websites such as arXiv.org, ResearchGate and Aademia.edu, since publication processing costs in middle- to high-impact journal are sky high putting the burden on scientists who are already struggling for funding, while, in addition, subscription to many prestigious journals is extremely costly. There is also major concern how science gets relayed to the public since science journalism is often full of exaggerated, conflicting or even misleading claims, massively inflating the certainty of scientific findings. Universities spend little energy on teaching of communication skills. Post-doc's typically work long hours, being seen as cheap contractors and are relatively low paid for their level of education. They tend to be hired for utmost three years without any perspective for faculty-level position, thereby being unable to start their own families. This lack of perspectives tends to especially affect women contributing to the known gender inequalities in research. All this cumulates in a high level of depression among PhD students and a study in Berkeley (**The Graduate Assembly, 2014**), showed that 47 percent of such students surveyed, feel isolated and/or unsupported mostly being diagnosed as depressed. In conclusion, this essay on the situation in the USA is very clear: science is afflicted with severe problems that threaten to ruin its very fabric.

The present author is generally pleased and even proud of the progress that is made throughout the

whole scientific spectrum: many elegant solutions, creative ideas, amazing novel technologies and groundbreaking results seem to guarantee a bright future for science. Yet, the general conclusion concerning all the inflationary tendencies mentioned in the present paper, is of course that quite a few scientists cannot pretend to be proper examples for the young.

Academic communication to the public

In the past, many potential disasters and detrimental effects have been predicted by science such as environmental pollution with pesticides, insecticides, heavy metals and asbestos, in addition to health risks of tobacco smoking, inadequate nutrition, not to speak about the epidemic use of addicting (painkilling) opioids such as oxycodone. A potential public calamity with unknown long-term implications is the excessive exposure to the ever-increasing density of electromagnetic radiation due to extensive use of cell phones, Wifi, and recently the unrolling of 4G and in the near future that of high density radiation of global 5G networks. A fierce debate on the latter issue is currently taking place throughout the world in which science overall does not take a very clear standpoint since academic opinions on health risks largely differ. It is remarkable that virtual no data is available on effects of 5G EMF on the human organism while the implementation of this telecom system will be realized in the near future. This occurs with millions of 5G-antennes and finally also ten thousands of space satellites being installed that produce a wireless high-density EMF sphere around our planet with potential health threats for millions of people. Meta-analysis of biomedical literature revealed distinct (coherent) EMF frequencies that exhibit beneficial effects on life processes but clearly also detrimental (decoherent) frequencies that, for instance, induce cancer processes (**Meijer et al., 2019**). The notion that 5G technology can be modulated such that beneficial effects on life become dominant and also for the design of protective technologies represents a challenge for science that unfortunately is not picked up sufficiently. Such aspects are not advocated to the public, partly due to the common rejection of any risky discussion on detrimental radiations by the Telecom industries who unfortunately do not take into account *non-thermal* EMF radiation effects, in the setting of safety limits in exposure (**Starkey, 2016, Flydal, 2020**).

Fortunately, such calamities are ultimately recognized by health authorities and public, albeit after initial denial fed by individual scientists or even especially created “scientific” institutions that are aiming to limit commercial damage to the industry involved. These produce so called “neutralizing” counter information, composed of selected scientific data, and meant to confuse both governments and the public with regard to such severe risks (see **Late lessons from early warnings, European Environment Agency**).

The counterproductive division of mainstream science and its challengers

Remarkably counterproductive in the exercise of science also is the ongoing lack of real dialogue between consensus/mainstream science and so called "anomalous" science (a distinction that is quite nonsensical from a science philosophical standpoint).

It was the renown Thomas Kuhn who stated that anomalous observations can be fundamental for breakthroughs and even paradigm changes in science. Proper science requires independent thinking and scrutinizing of so called "generally established" knowledge (**Wolf-Meijer and Cochran, 2015**).

Here the present author does not imply the questionable role of so called "skeptics or debunkers", who are always equipped with their usual buzz words of statistics and "Occam razors", but who are seldom critical toward their own criticism (see **Skeptical Investigations**) in ref. list and **Wikipedia: Pseudoskeptisism**).

The latter reference listed the following characteristics of *pseudo-skepticism*:

1.Denying, when only doubt has been established
2. Double standards in the application of criticism
3. The tendency to discredit rather than investigate
4. Presenting insufficient evidence or proof
5. Assuming criticism requires no burden of proof
6. Making unsubstantiated counter-claims
7. Counter-claims based on plausibility rather than empirical evidence
8. Suggesting that unconvincing evidence provides grounds for completely dismissing a claim

So, holders of majority views can be excessively impatient towards minority intellectual opinions and characterize themselves as skeptics but rather are engaged in the defense of preconceived ideological

positions. One sees this in the, often biased, treatment of, so called, Psi phenomena, that are presently confirmed in metanalysis of literature as statistically highly significant observations (**Radin, 2006**), not to speak of near death experiences (NDE's), as faithfully reported by literally thousands of cases over the whole world that raises fundamental questions on the very nature of consciousness (**Greyson, 2019, Meijer, 2019**).

Another interesting example of this is the long-lasting dialogue on the *potential memory aspect* of structured water molecule domains. While several respectable journals, like Science and Nature, hinted on this memory phenomenon, the particular papers almost automatically discredited as *suspect homeopathy*, or in one case even retracted by the particular *peer reviewed* journal (the latter for mostly technical and representational reasons). This happened after furious protest of alarmed skeptical scientists, notwithstanding the fact that proof for homeopathy was sometimes not even claimed, and instead an interesting biophysical process could be involved. The present author finds the association between the quasi-skeptical labeling in such a homeopathic context unnecessary and counterproductive. It was the renowned, open minded, Nobel Laureate Brian Josephson who made clear that the generally heard opposition that highly diluted solution of active agents do contain insufficient molecules to provide any activity, is beside the point, since the effect claimed has rather involves modification of the water structure (assuming a sort of imprint in the fractally organized water matrix). He made the point that it has been shown in physics that liquid crystals can maintain ordered structures over macroscopic distances, in addition to the fact that water is permanently embedded in an earth magnetic and zero-point energy fields (**Meijer et al., 2019**).

A similar misunderstanding or rather a variety of prejudices seems to be operating in the case of the potential mechanisms of placebo effects in drug studies. Such responses have been scientifically proven on a wide scale, but unfortunately are simply disregarded by mainstream science as "suggestive responses", not worth studying.. However, it stands to reason that more knowledge on the true nature of placebo effects could be of great importance for understanding intrinsic brain mechanisms underlying such remarkable therapeutic effects.

The reader can find relevant information and further critical analyses of current science in: **Bauer, 2014; Huang, 2013**; **Bizzari, 2017; Sarewitz, 2016**, and **Dijstelbloem et al., 2013**. *The overall conclusion is that the great usefulness and challenging character of Science is never in doubt, but the way we operate it is open for much improvement.*

Major misuse of science due to excessive commercial interests

In one of the disciplines of the author, clinical pharmacology, there are clear and present dangers that most of the international research teams are largely influenced by ample financial support of pharmaceutical companies involved, who by all manner of means guide their clinical trials towards a "beneficial outcome", instead of leaving the social responsibility of clinicians for unbiassed and independent evaluation of potential new drugs intact (**see references on Pharmaceutical Industry Policies**). Ten major companies in the period of 2006-2012 were fined for fraud to the amount of 400 million up to 2.3 billion $ each, not that they cared to much since the particular earnings outnumbered the fines many times (**Gotzsche, 2012**).

The present author was formerly engaged, with his colleagues, in creating the Top-Institute Pharma Research, representing a close collaboration between Universities and Pharmaceutical companies in

the Netherlands, (see **Meijer, 2018**), that really succeeded in simulating innovative drug research in the country, from 2005-2013, for instance in the area of anti-cancer, anti-malaria and priority medicines, and neglected (orphan) drugs (**TI Pharma, 2016**). Yet some years later in 2007, the Institute also witnessed the disappearance of the major research orientated company in the Netherlands "Organon" that was sold to one of the multinationals in the USA. This, finally resulting in the complete breakdown of its entire research facilities.

Fortunately, part of Organon's innovative research could be rescued by the creation of some "Start-up" Biopharma companies that later did succeed in designing attractive new medicines. However, if such Startup's are bought by established pharmaceutical companies, this may lead to a great risk for society. Indeed, big Pharma gratefully takes over such Start-up's, but after the takeover may decide to raise the price of the particular medicine even 10- 100 times!

One of the big companies even performed such a trick in the USA with regard to a generic drug relatively cheaply available elsewhere in the world, introducing the same drug at a shockingly inflated price amounting 6000% of the generic price! (**Herper, 2017**). Yet, in spite of such regrettable calamities, many pharmaceutical companies keep high scientific standards for drug innovation, pay their taxes in own countries and refrain from blackmailing health authorities and hospitals with the deep suffering of patients.

The necessity of training in scientific thinking and philosophy of science

Another crucial factor in the induction of science inflation is the deficient science-philosophical education of our students in the current curricula and the related loss of the academic worldviews and scientific fundamentals in university education, in which time is often short and necessary moments of reflection scarce. We hope that we will stick to our most important task in academic teaching: to stimulate our students to formulate pertinent and critical questions, also with regard to analyzing the

processes of which they are part, leading up to a better future for open science and responsible technological innovation.

Does the present diagnosis of science problems invite potential solutions and proper therapy?

Finally, the present author will make a tentative attempt to suggest some major changes in the state of art and organization of scientific endeavor, in order to restore academic quality and public trust:

- Largely decrease the number of students in Universities and other academic institutions by stringent selection at the entrance, this on the basis of demonstrated personal quality and/or directed examinations dependent on the aims of faculties involved. This can only be realized after precise formulation of educational goals and evident long-term societal needs.
- Restore a proper student/staff ratio's further by investments in faculty staff positions and tenure track professor jobs for excellent senior scientist, in order to alleviate the present workload and improve the perspectives for PhD students
- Improve incentives for proven abilities in *science education,* bringing this to the same level as for incentives for performing excellent research
- Limit the automated use of current quality parameters such as number of publications, their impact factors, citations, Hirsch index etc. and emphasize the importance of originality and curiosity driven character of proposals in relation to well thought out scientific questioning as well as potential valorization of the scientific knowledge aimed at.
- Create "*national solidarity financing funds for science and education*" by taxing the extremely rich and impose a percentage wise industrial contribution on basis of the objective profits of large companies/multinationals. Realize, in this context, that at least $8 trillion is present in offshore "safe havens", an amount that is growing each year! (**Alstadsaeter, 2017**). Yearly, only 1 % of this pool would suffice to largely support basic research on a global scale.
- Integrate part of the national research budgets for fundamental research by *pooling* governmental, public and science foundation resources aa well as potential industrial contributions, in order to foster scientific independence of researchers
- Make university/ industry contracts maximally transparent for both sides by defining short- and long-term success parameters and establishing clear incentives for those scientists that contributed to patent applications on the basis of later income from the particular inventions
- Restore the balance between "unfettered" (basic) and strategic research projects and stop the projectification of talented student careers by providing more *core funds* instead of only competitive funding, in order to aim on the long term at a real knowledge society
- Do not only approve individual grant applications, but also finance *multi-disciplinary intra- and inter-institutional projects* (running minimally 6 years), in order to stimulate and practice scientific collaboration and communication. This enables to bring the best scientists, research infrastructure and innovative ideas together. Members of such collaborative projects can help each other in the crucial internal quality control, replication and reproducing results as well as peer reviewing of scientific articles, books and patent applications
- Improve the stability and predictability of grant funding processes by long-term planning and evaluation through formulating the criteria for originality and quality of scientific questioning

- Improve communication between science on one hand and media and public on the other by internal critical self-control and improved training of academic co-workers
- Improve anonymous peer-review procedures of journals by adopting triple-blind evaluation (author, reviewer, journal editor) and provide financial incentives to peer-reviewers to increase solid evaluation.
- Create national appeals committees for scientists to which complaints can be submitted in the case of evident misbehavior or lack of interest of the responsible staff members or assigned coaches
- If personal costs of publication and subscriptions do further rise and predator journals are dominating the scene, the academic community should consider to create their own periodicals to have better control of prices, as well as quality of evaluation.

Recently Hans Radder, (**Radder, 2019**) discussed many of these issues in the framework of the relationship between science and technology, the nature of scientific knowledge, and the nature of public interest, building an argument for how science should be redirected to serve the public interest. The commodification of science, often identified with commercialization, or the selling of expertise and research results and the "capitalization of knowledge" in academia and beyond is seen as a threat to the autonomy of science and academic culture and criticized for undermining the social responsibility of modern science. In "*From Commodification to the Common Good*," the author stipulated the notion of public-interest science. Scientific knowledge, he argues, constitutes a common good only if it serves those affected by the issues at stake, irrespective of commercial gain. Scrutinizing the theory and practices of scientific and technological patenting.

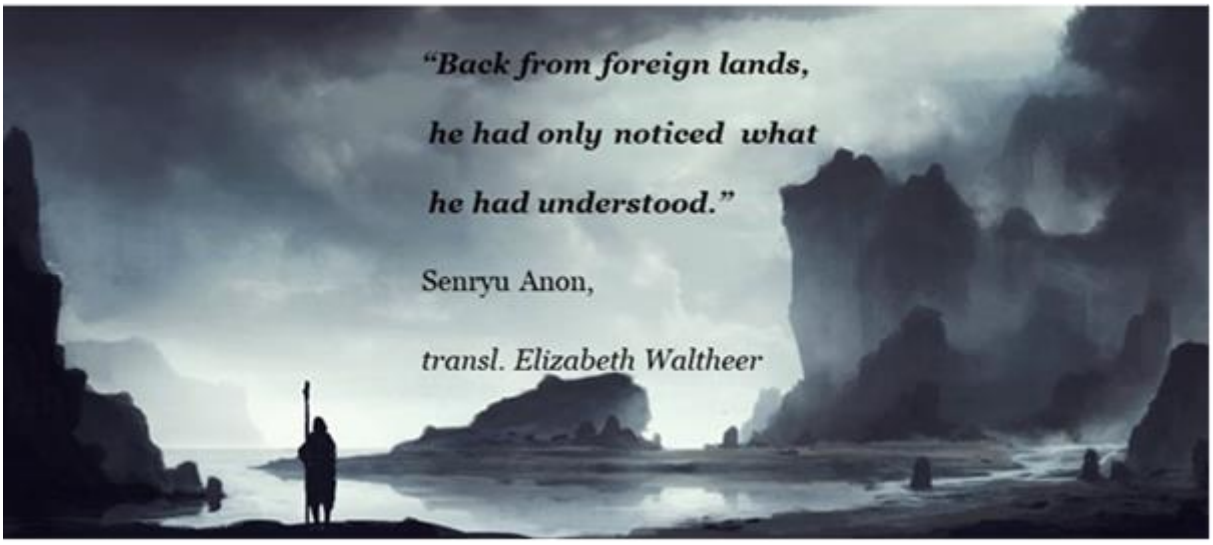
Radder challenges the legitimacy of commercial monopolies and the private appropriation and exploitation of research results, aspects of an "Academic Manifesto", that in spite of its rather provocative style and here and there somewhat unbalanced standpoints, found much international support (**Halffman and Radder, 2015, 2017**). The present author welcomes their list of suggested improvements to heal the academic system, but at the same time opinions that we cannot fully roll back the history of science organization, since the world around us is rapidly changing and each era therefore requires its own solutions. In a recent advisory report of the Royal Netherlands Academy of Sciences (KNAW), it was recommended to establish a new and permanent *rolling grant fund* in the first flow of basic science funds, to combat the current projectification, to promote unfettered research, reduce pressure on the academic system, and ensure continuity. This investment is expected to serve as an important driving force for the Dutch knowledge society in, one or two, decades time.

Recently, **Schafer, 2019**, postulated: The failure of modern education is well established, but reasons for failure are not easily understood and solutions to the problem of education are only scarcely forthcoming. Healing modern educational systems may require revolutionary insight as to how to educate students to think rather with their hearts. A primary reason why education has not evolved to an understanding of what students need to learn in order that they may function *in a future state of-being,* may be attributed to several factors:

- The over-emphasis on technological science and ignorance of natural science
- Evaluating education according to earning-potential
- Disrespect of a hierarchy of learning and wisdom
- Misunderstanding of the principle of "equality" as sameness

- Misunderstanding of personal-social responsibility
- Disregard for teaching students to pursue their intuition

Real-life learning must incorporate all four human functions (Thinking, Feeling, Perceiving, and Intuiting), including "interactivity" within an integrated *process* of self-realization, while the first step in problem-solving requires a comprehensive re-evaluation of the present Media-sphere and its psychological agency as a primary educational edifice. Immunizing the global population from the current entropic diseases can be accomplished by impregnating the unified field of the media-sphere with alternative quantum signatures that are based on the source code embedded in the context of a universal/cosmic consciousness (**Meijer et al, 2019**). No matter how ingenious the mind may be, it is ultimately helpless without moral instruction.



In this framework we should also take an active position in counteracting the dark energy elements that drive scientists apart, try to corrupt their integrity and render science exercise on the whole increasingly ineffective. To this aim we are invited to revisit the wise lessons of Werner Heisenberg, Arthur Schopenhauer, Stefen Schindler and John Wheeler:

> "*What we observe is not nature itself, but nature exposed to our method of questioning*."
>
> Werner Heisenberg

> "*Materialism is the philosophy of the subject (consciousness) that forgets to take account of itself. By ignoring mind in Nature, we ignore the only way we know the world* "
>
> Arthur Schopenhauer

> *It is the best of times. It is the worst of times. Never before has humanity been endowed with such fantastic opportunities. Never before has humanity's survival been so precarious, the threat of self-extinction looming on the near horizon*
>
> Stefen Schindler

"*Someday we'll understand the whole thing as one single marvelous vision, that will seem so overwhelmingly simple and beautiful that we may say to each other: 'Oh, how could we have been so stupid for so long? How could it have been otherwise!*"

John A. Wheeler

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References on Problems in Current Science

Alstadsaeter J, et al. Who Owns the Wealth in Tax Havens?
https://gabriel-zucman.eu/files/AJZ2017b.pdf

Bauer H W (2014). The Science Bubble. EdgeScience, #17, 3-6 February 2014.
http://cts.vresp.com/c/?SocietyforScientific/0f424188e5/67593d1609/4ebd0c59d1

Belluz J et al., (2016). The 7 biggest problems facing science, according to 270 scientists.
https://www.vox.com/2016/7/14/12016710/science-challeges-research-funding-peer-review-process

Bizzarri M, Soto A, Sonnesschein C & Longo G (2017). Saving Science. And Beyond Organisms. Journal of Biological Sciences, 1.

Dijstelbloem H, Huisman F, Miedema *F* . and Mijnhardt W, (2013). Why Science Does Not Work as It Should and What To Do about It. Science in Transition. Position paper.
http://www.scienceintransition.nl/app/uploads/2013/10/Science-in-Transition-Position-Paper-final.pdf

Eagleman D M, (2013). Why Public Dissemination of Science Matters. The Journal of Neuroscience, 33, 12147-12149. https://doi.org/10.1523/JNEUROSCI.2556-13.2013

Flydal E, 2020. Head of Swiss Radiation Protection Committee accused of 5G-swindle. Nordic countries deceived, too. https://einarflydal.com/wp-content/uploads/2020/02/Einar-Flydal-The-Accusations-against-R%C3%B6%C3%B6sli-and-the-BERENIS-20200220_v-3.pdf

Greyson, 2019. Nature of Mind and Consciousness. Is consciousness produced by the brain?
https://www.youtube.com/watch?v=2aWM95RuMqU

Halffman W , Radder H, 2015. The Academic Manifesto: From an Occupied to a Public University Minerva 53:165–187 DOI 10.1007/s11024-015-9270

Halffman W, Radder H, 2017. International Responses to the Academic Manifesto: Reports from Countries

https://www.researchgate.net/publication/319036589_International_Responses_to_the_Academic_Manifesto_Reports_from_14_Countries

Huang S (2013). When Peers Are Not Peers and Don't Know It: The Dunning-Kruger Effect and Self-Fulfilling Prophecy in Peer-Review. Bioessays, 35, 414-416.

Institute of Venture Science. (2016). Critical Comments on Today's Scientific Enterprice. http://venturescience.wixsite.com/ivsci/todays-science

Late lessons from early warnings , European Environment Agency, 2013. https://www.eea.europa.eu/publications/late-lessons-2

Meijer D K F (2017). The Processes of Science and Art Modeled by Toroidal Flow of Information. Open Journal of Philosophy, 8, 365-400. doi: 10.4236/ojpp.2018.84026. https://www.scirp.org/journal/PaperInformation.aspx?PaperID=86591

Meijer D K F, (2018). Organization of Drug Research in the Netherlands from the year 2000: FIGON and Dirk K.F. Meijer. https://www.researchgate.net/publication/334721497_Organization_of_Drug_Research_in_the_Netherlands_from_the_year_2000_FIGON_and_DIrk_KF_Meijer

Meijer D K F, Jerman I, Melkikh A V and Sbitnev V I, (2019). Consciousness in the Universe is Tuned by a Musical Master Code: A Hydrodynamic Superfluid Quantum Space Guides a Conformal Mental Attribute of Reality. The Hard Problem in Consciousness Studies Revisited. To be published in Springer/Nature, 2020 https://www.researchgate.net/publication/338147415_Consciousness_in_the_Universe_is_Tuned_by_a_Musical_Master_Code_A_Hydrodynamic_Superfluid_Quantum_Space_Guides_a_Conformal_Mental_Attribute_of_Reality_The_Hard_Problem_in_Consciousness_Studies_Revisited

Popper, K. (1969). The Logic of Scientific Discovery, Harper & Row, New York, Conjectures and Refutations. The Growth of Scientific Knowledge, RKP, London.

Radder H, 2019. From Commodification to the Common Good: Reconstructing Science, Technology, and Society. https://www.amazon.com/Commodification-Common-Good-Reconstructing-Technology/dp/0822945797

Sarewitz, D. (2016). Saving Science. Science Isn't Self-Correcting, It's Self-Destructing. To Save the Enterprise, Scientists Must Come Out of the Lab and into the Real World. The New Atlantis, 49, 4-40.

The Graduate Assembly. Graduate Student Happiness & Well-Being Report, (2014). http://ga.berkeley.edu/wp-content/uploads/2015/04/wellbeingreport_2014.pdf

Skeptical Investigations. Some Notes on Pseudo-Skepticism. http://www.skepticalinvestigations.org/Examskeptics/skepticism_suppressedscience.htm

Schafer Brock S, (2019). ANTIDOTE FOR CORRUPTION PARADIGM SHIFT IN EDUCATIONAL THEORY. DOI: 10.13140/RG.2.2.35154.91846 https://www.academia.edu/40641922/ANTIDOTE_FOR_CORRUPTION

Stanley, T D, Carter, Evan C, Doucouliagos H, (2018). "What meta-analyses reveal about the replicability of psychological research". *Psychological Bulletin*. **144** (12): 1325–1346.

Starkey S J, (2016). Inaccurate official assessment of radiofrequency safety by the Advisory Group on Non-ionizing Radiation. Rec Environ Health., 31, 493-503 https://www.degruyter.com/view/j/reveh.2016.31.issue-4/reveh-2016-0060/reveh-2016-0060.xml?lang=en

TI Pharma Report. New tracks to Medicines, 2014. The Netherlands.

https://www.lygature.org/files/atoms/files/TI%20Pharma%20Report%20-%20New%20Tracks%20to%20Medicines.pdf

Radin D I and Nelson R ,2006. Entangled Minds. Extrasensory experiences in the quantum reality. New York: Simon & Schuster

Wolf-Meyer M and Cochran C, (2015). Minor science**.** Unifying minor sciences and minor literatures: Reproduction and revolution in quantum consciousness as a model for the anthropology of science**.** Anthropological Theory, Volume: 15, issue: 4, page(s): 407-433 https://journals.sagepub.com/doi/abs/10.1177/1463499615615739

References with regard to Pharmaceutical Industry Policies:

Barnett A, (2003). Revealed: how drug firms 'hoodwink' medical journals" the Guardian.

Bhandari M, Busse JW, Jackowski D, Montori VM, Schunemann H, Sprague S, Mears D, Schemitsch EH, Heels-Ansdell D, Devereaux PJ, (2004). "Association between industry funding and statistically significant pro-industry findings in medical and surgical randomized trials". Canadian Medical Association Journal. **170** (4): 477–480. doi:10.1016/0006-291x(75)90506-9. PMID 4.

Buchkowsky SS; Jewesson PJ, (2004). "Industry sponsorship and authorship of clinical trials over 20 years". *Ann Pharmacother*. **38** (4): 579–85. doi:10.1345/aph.1D267 (htt ps://doi.org/10.1345%2Faph.1D267). PMID 14982982 (https://pubmed.ncbi.nlm.nih.gov/149 82982).

Cosgrove L, Krimsky S, Vijayaraghavan M, Schneider L, (2006). "Financial Ties between DSM-IV Panel Members and the Pharmaceutical Industry". Psychotherapy and Psychosomatics. **75** (3): 154–160.

Drazen J M, (2015). "Revisiting the Commercial–Academic Interface — NEJM". New England Journal of Medicine. **372** (19): 1853 1854. doi:10.1056/NEJMe1503623. PMID 25946285

Egilman D et al. (2012). Spin Your Science Into Gold: Direct to Consumer Marketing Within Social Media Platforms Work 41 Suppl 1, 4494-502. PMID 22317414. – *Review*

Gibson L, (2004). Drug Company Sues Spanish Bulletin Over Fraud Claim. BMJ 328 (7433), 188. . PMID 14739185

Goldacre B, (2014). Bad pharma : how drug companies mislead doctors and harm patients (First American Paperback ed.). pp. 123–124. ISBN 9780865478060

Gøtzsche P C, (2012). Big pharma often commits corporate crime, and this must be stopped. BMJ,;345:e846

Herper M, (2017). Why Did That Drug Price Increase 6,000%? It's The Law. https://www.forbes.com/sites/matthewherper/2017/02/10/a-6000-price-hike-should-give-drug-companies-a-disgusting-sense-of-deja-vu/#77c8693571f5

Light D W, Lexchin J R, (2012). Pharmaceutical research and development: what do we get for all that money BMJ,;344:e4348 doi: 10.1136/bmj.e4348 (Published 7 August 2012)

Lipton E, Thomas K, (2017). "Drug Lobbyists' Battle Cry Over Prices: Blame the Others" (https://www.nytimes.com/2017/05/29/health/drug-lobbyists-battle-cry-over-prices-blame-the-others.html). *New York Times*. Retrieved 30 May 2017.

Moynihan R, (2003). "Who pays for the pizza? Redefining the relationships between doctors and drug companies. 2: Disentanglement". BMJ. 326 (7400): 1193–1196. doi:10.1136/bmj.326.7400.1193. PMC 1126054. PMID 12775622.

Moynihan R, (2003). "Drug company sponsorship of education could be replaced at a fraction of its cost" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1126044). *BMJ*. **326**

Moynihan R, Cassels A, (2005). Selling sickness : how the drug companies are turning us all into patients. Crows Nest, N.S.W.: Allen & Unwin. ISBN 978-1-74114-579-3

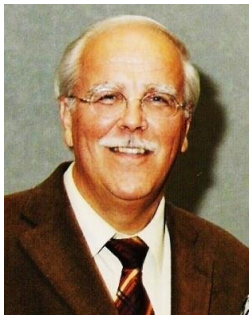
Ornstein T, Weber C, (2013). "Dollars for Docs Mints a Millionaire". ProPublica. Retrieved 19 May 2016.

Perlis RH, Perlis CS, Wu Y, Hwang C, Joseph M, Nierenberg AA, (2005). "Industry sponsorship and financial conflict of interest in the reporting of clinical trials in psychiatry". Am J Psychiatry. **162** (10): 1957–60.

Rosenbaum L, (2015). "Reconnecting the Dots — Reinterpreting Industry–Physician Relations — NEJM". New England Journal of Medicine. **372** (19): 1860–1864. doi:10.1056/NEJMms1502493. PMID 25946288.

Tungaraza T, Poole R, (2007). "Influence of drug company authorship and sponsorship on drug trial outcomes". Br J Psychiatry. **191** (1): 82–3.

White J, (2010). Masterminds Behind Pharmaceutical Fraud Deserve Prison Time. Nat Med 16 (9), 956. Sep PMID 20823868.



Dirk K. F. Meijer, Groningen, 20-2-2020