Perverse Incentives in Science
(And a tiny bit about what to do about them)

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Daily Telegraph plans to link journalists' pay with article popularity

Guardian has seen email revealing plan, which is said to have dismayed staff who fear it will warp priorities

The Daily Telegraph wants to link some elements of journalists’ pay to the popularity of their articles, an email seen by the Guardian reveals, in a plan that has alarmed staff who fear it will encourage them to focus on sensationalism and tabloid-style headlines.

The newspaper's editor, Paul Dacre, outlines in the email how the move would increase journalists' pay depending on the number of visits their articles receive. He says the move is a way to ensure that the Telegraph is 'competitive' and that 'the future success of the Telegraph is built on the back of our journalism'.

The Telegraph has more than 100,000 paying digital subscribers, who read online content for £1.50 a week, and more than one million paying readers, who take out print subscriptions for £2 a week.

Dacre adds: ‘The Telegraph is a serious, professional and respected newspaper. It is the most influential national newspaper. It is not “the tabloid” and it is not built on sensationalism and celebrity pictures.'
Perverse incentives are everywhere

• Clickbait in journalism

• Short-termism in politics

• Cheating in education

• The *endless cycle of unproductive rage* on social media
Science is probably the best thing humans ever invented.

Academia, on the other hand, really isn't.
Perverse incentives in academia

• Academics come to value:
  • Publication count
  • Citations (and the h-index)
  • Grant money
  • “Impact”
  • Excitement/Flashiness/Novelty
  • “A good story”
  • Attention/fame/plaudits
  • Avoiding awkward social interactions

• But not necessarily:
  • Quality
  • Rigour
  • Reproducibility
  • Replicability
  • Openness
  • Transparency
"I suspect that unconscious or dimly perceived finagling, doctoring, and massaging are rampant, endemic, and unavoidable in a profession that awards status and power for clean and unambiguous discovery."

Mertonian Norms

1. Universalism
2. Disinterestedness
3. Communalism
4. Organised scepticism
de Vries et al. (2018), *Psychol Med*, 48(15), 2453-2455
Disproportionate self-citation

The work that will have the highest impact and receive the most citations is work that can appeal to all three of these elements—that is, work that engenders what I have called consummate or complete love (Sternberg, 1986b). Very few endeavors will produce that kind of effect. To produce such work, a scientist needs to be not only analytically intelligent (Sternberg, 1985b, 1986a, 1997c; Sternberg & Grigorenko, 2002), but also, and more importantly, highly creative (Sternberg, 2016a; Sternberg & Davidson, 1982; Sternberg & Lubart, 1995.) A scientist needs to be socially as well as practically smart—to have a sense of how to produce work that can reach people and possibly change their minds (Kihlstrom & Cantor, 2011; Sternberg, 1997b; Sternberg & Hedlund, 2002; Sternberg & Smith, 1985; Wagner, 2011). It is perhaps ironic, therefore, that graduate schools place so much emphasis on choosing students for analytical skills, because these are probably not the ones that, alone, will propel students to do research that is highly cited (Sternberg & Sternberg, 2017). The tests may identify the best consumers of information but not necessarily the best producers of it (Spear-Swerling & Sternberg, 1994; Sternberg, 1986a). Scientists who reach the top levels of creative work (what has been called “Big C”— Kaufman & Beghetto, 2009) inevitably complement analytical skills with creative and practical ones—analytical skills are probably necessary but far from sufficient for high levels of scientific success (Sternberg, 2016a, 2016b, 2016c). Most of all, perhaps, the scientist needs luck—that his or her work is timed just right to reach the needs and wants of his or her audience (Gaughan, 2010; Merton & Barber, 2004). And if one has the timing right, an echo chamber can result, whereby a few people citing work can lead to others citing it and then to still others citing it. Creativity always involves a match that continues over some period of time between the work of the individual, the state of the domain of work, and the field of people pursuing work in that domain (Csikszentmihalyi, 1988, 2013; Gardner, 2011).

Noted by Eiko Fried (2018)
(Self-)plagiarism

‘Self-plagiarism occurs when you fail adequately to cite your own work... In extreme cases, someone might attempt to publish exactly the same paper twice without noting that the paper has been previously published.’

- Robert Sternberg (2017)
*The Psychologist’s Companion*
[my italics]
Salami-slicing

A novel relationship for schizophrenia, bipolar and major depressive disorder Part 5: a hint from chromosome 5 high density association screen.
Chen X¹, Long F¹, Cai B², Chen X², Chen G¹.

A Novel Relationship for Schizophrenia, Bipolar and Major Depressive Disorder Part 6: A Hint from Chromosome 6 High Density Association Screen.
Chen X, Long F, Cai B, Chen XH, Chen G¹.

A novel relationship for schizophrenia, bipolar and major depressive disorder Part 7: A hint from chromosome 7 high density association screen.
Chen X¹, Long F¹, Cai B², Chen X², Chen G³.
Predatory journals

CALL FOR ARTICLES  SPECIAL ISSUE - AUGUST 2021

Journal of Neurosurgery and Clinical Neurology [JNCN]
Journal of Medical Case Reports and Case series [JMCRCS]- [2692-9880]
Journal of Community Medicine and Public Health Reports [JCMPHR]- [ISSN: 2692-9899] IF: 0.01

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Predatory… book writers?

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Lavon Perry.
AND EVEN FORMING "CITATION RINGS", WHERE THEY MAKE SECRET DEALS TO CITE ONE ANOTHER'S PAPERS, WHETHER THEY'RE RELEVANT OR NOT?

HEY THERE MAC. HOW WOULD YOU LIKE TO SCORE A LITTLE... ACADEMIC ESTEEM?
Break neophilia

Or, more specifically, break the link between novelty and publication decisions

https://www.cos.io/our-services/registered-reports
Reward things we like

We implicitly reward bad behaviours, so let’s explicitly reward good ones

• Hiring and promotion decisions

• Open Science Awards

• A way to reward fraud-checkers and data sleuths?
Use social motivations

*Including shame, even if it doesn’t sound very nice*

- It’s bad to make basic statistical errors
- It’s bad to not to be open/transparent
- It’s bad to write a dumbed-down pop-science book
- It’s bad for 40% of your citations to be to your own work
- Etc.

- Scientists often react terribly to criticism - maybe they wouldn’t if criticism was the norm

- New ways of apportioning credit for scientific research
Harness selfishness

Careerism is unavoidable, but we can show people that more rigorous science can help and not hinder

• “5 selfish reasons to work reproducibly”

1. Reproducibility helps to avoid disaster
2. Reproducibility makes it easier to write papers
3. Reproducibility helps reviewers see it your way
4. Reproducibility enables continuity of your work
5. Reproducibility helps to build your reputation

Markowetz (2015) Genome Biology 16, 274
Spread the word

Have this conversation at all levels of academia – lack of awareness is a huge part of the problem

Frequency of Crisis Narrative in Web of Science Records

- other/non classifiable
- endorses crisis
- questions crisis

Fanelli (2018), PNAS, 115(11), 2628-2631
Perverse incentives are *everywhere*

**World View | 06 July 2021**

**Beware performative reproducibility**

Well-meant changes to improve science could become empty gestures unless underlying values change.

Stuart Buck
Thanks

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