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Instituto de  
Línguas da  
UFSCar

**Aplicação da Prova de Proficiência em língua estrangeira para  
programas de pós-graduação – UFSCar  
SELEÇÃO 2019/2020**

Identificação do(a) candidato(a)	Código numérico:	I			
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**AVALIAÇÃO DE PROFICIÊNCIA EM LÍNGUA ESTRANGEIRA – INGLÊS  
06/10/2019  
DURAÇÃO: 03 HORAS**

A prova terá a duração de **três horas** e consiste na resolução de 10 questões objetivas e 01 questão dissertativa. O candidato deverá demonstrar competência de leitura em língua estrangeira, por meio do desenvolvimento de questões de compreensão de texto. As RESPOSTAS deverão ser redigidas EM PORTUGUÊS.

Para cada questão (de 01 a 10), no **gabarito** a seguir, assinale apenas **uma** resposta, cobrindo a letra correspondente à **alternativa escolhida**. As questões com mais de uma resposta assinalada serão desconsideradas. Ao final da prova, devolva todas as folhas utilizadas, inclusive os rascunhos, antes de sair da sala.

Obs.: É permitido o uso somente de **dicionário impresso**.

***Bom trabalho!***

**GABARITO**

***Assinalar apenas uma alternativa para cada questão.***

Questão 1	<b>A</b>	<b>B</b>	<b>C</b>
Questão 2	<b>A</b>	<b>B</b>	<b>C</b>
Questão 3	<b>A</b>	<b>B</b>	<b>C</b>
Questão 4	<b>A</b>	<b>B</b>	<b>C</b>
Questão 5	<b>A</b>	<b>B</b>	<b>C</b>
Questão 6	<b>A</b>	<b>B</b>	<b>C</b>
Questão 7	<b>A</b>	<b>B</b>	<b>C</b>
Questão 8	<b>A</b>	<b>B</b>	<b>C</b>
Questão 9	<b>A</b>	<b>B</b>	<b>C</b>
Questão 10	<b>A</b>	<b>B</b>	<b>C</b>

## TEXTO PARA AS QUESTÕES DE 01 A 10

### **Academic Research in the 21st Century: Maintaining Scientific Integrity in a Climate of Perverse Incentives and Hypercompetition**

**Marc A. Edwards; Siddhartha Roy**

#### **Introduction**

The incentives and reward structure of academia have undergone a dramatic change in the last half century. Competition has increased for tenure-track positions, and most U.S. PhD graduates are selecting careers in industry, government, or elsewhere partly because the current supply of PhDs far exceeds available academic positions. Universities are also increasingly “balancing their budgets on the backs of adjuncts” given that part-time or adjunct professor jobs make up 76% of the academic labor force, while getting paid on average \$2,700 per class, without benefits or job security. There are other concerns about the culture of modern academia, as reflected by studies showing that the attractiveness of academic research careers decreases over the course of students' PhD program at Tier-1 institutions relative to other careers, reflecting the overemphasis on quantitative metrics, competition for limited funding, and difficulties pursuing science as a public good.

In this article, we will (1) describe how perverse incentives and hypercompetition are altering academic behavior of researchers and universities, reducing scientific progress and increasing unethical actions, (2) propose a conceptual model that describes how emphasis on quantity versus quality can adversely affect true scientific progress, (3) consider ramifications of this environment on the next generation of Science, Technology, Engineering and Mathematics (STEM) researchers, public perception, and the future of science itself, and finally, (4) offer recommendations that could help our scientific institutions increase productivity and maintain public trust. We hope to begin a conversation among all stakeholders who acknowledge perverse incentives throughout academia, consider changes to increase scientific progress, and uphold “high ethical standards” in the profession.

#### **Perverse Incentives in Research Academia: The New Normal?**

Academics are human and readily respond to incentives. The need to achieve tenure has influenced faculty decisions, priorities, and activities since the concept first became popular. Recently, however, an emphasis on quantitative performance metrics, increased competition for static or reduced federal research funding, and a steady shift toward operating public universities on a private business model are creating an increasingly perverse academic culture. These changes may be creating problems in academia at both individual and institutional levels

#### **Quantitative performance metrics: effect on individual researchers and productivity**

The goal of measuring scientific productivity has given rise to quantitative performance metrics, including publication count, citations, combined citation-publication counts, journal impact factors (JIF), total research dollars, and total patents. These quantitative metrics now dominate decision-making in faculty hiring, promotion and tenure, awards, and funding. Because these measures are subject to manipulation, they are doomed to become misleading and even counterproductive.

Ultimately, the well-intentioned use of quantitative metrics may create inequities and outcomes worse than the systems they replaced. Specifically, if rewards are disproportionately given to individuals manipulating their metrics, problems of the old

subjective paradigms may be tame by comparison. In a 2010 survey, 71% of respondents stated that they feared colleagues can “game” or “cheat” their way into better evaluations at their institutions, demonstrating that scientists are acutely attuned to the possibility of abuses in the current system.

Quantitative metrics are scholar centric and reward output, which is not necessarily the same as achieving a goal of socially relevant and impactful research outcomes. Scientific output as measured by cited work has doubled every 9 years since about World War II, producing “busier academics, shorter and less comprehensive papers”, and a change in climate from “publish or perish” to “funding or famine”. Questions have been raised about how sustainable this exponential increase in the knowledge industry is and how much of the growth is illusory and results from manipulation. (...)

## Summary

While quantitative metrics provide an objective means of evaluating research productivity relative to subjective measures, now that they have become a target, they cease to be useful and may even be counterproductive. A continued overemphasis on quantitative metrics will pressure all but the most ethical scientists, to overemphasize quantity at the expense of quality, create pressures to “cut corners” throughout the system, and select for scientists attracted to perverse incentives.

Scientific societies, research institutions, academic journals and individuals have made similar arguments, and some have signed the San Francisco Declaration of Research Assessment (DORA). The DORA recognizes the need for improving “ways in which output of scientific research are evaluated” and calls for challenging research assessment practices, especially the JIF, which are currently in place. Signatories include the American Society for Cell Biology, American Association for the Advancement of Science, Howard Hughes Medical Institute, and Proceedings of The National Academy of Sciences, among 737 organizations and 12,229 individuals as of June 30, 2016. Indeed, publishers of *Nature*, *Science*, and other journals have called for downplaying the JIF metric, and the American Society of Microbiology is announcing plans to “purge the conversation of the impact factor” and remove them from all their journals. The argument is not to get rid of metrics, but to reduce their importance in decision-making by institutions and funding agencies, and perhaps invest resources toward creating more meaningful metrics. DORA would be a step in the right direction of halting the “avalanche” of performance metrics dominating research assessment, which are unreliable and have long been hypothesized to threaten the quality of research.

## Performance metrics: effect on institutions

The perverse incentives for academic institutions are growing in scope and impact, as best exemplified by *U.S. News & World Report* annual rankings that purportedly measure “academic excellence”. The rankings have strongly influenced, positively or negatively, public perceptions regarding the quality of education and opportunities they offer. Although *U.S. News & World Report* rankings have been dismissed by some, they still undeniably wield extraordinary influence on college administrators and university leadership—the perceptions created by the objective quantitative ranking determines “how students, parents, high schools, and colleges pursue and perceive education” in practice.

The rankings rely on subjective proprietary formula and algorithms, the original validity of which has since been undermined by *Goodhart's law*—universities have attempted to game the system by redistributing resources or investing in areas that the ranking metrics emphasize. Northeastern University, for instance, unapologetically rose from #162 in 1996 to #42 in 2015 by explicitly changing their class sizes, acceptance rates, and even peer

assessment. More than 90% of 576 college admission officers thought other institutions were submitting false data to *U.S. News* according to a 2013 Gallup and Inside Higher Ed poll, which creates further pressures to cheat throughout the system to maintain a ranking perceived to be fair as discussed in preceding sections.

### **Hypercompetitive funding environments**

The federal government's role in financing research and development (R&D), creating new knowledge, or fulfilling public missions like national security, agriculture, infrastructure, and environmental health has become paramount. The cost of high-risk, long-term research, which often has uncertain prospects and/or utility, has been largely borne by the U.S. government in the aftermath of World War II, forming part of an ecosystem with universities and industries contributing to the collective progress of mankind.

However, in the current competitive global environment where China is projected to outspend the U.S. on R&D by 2020, some worry that the “edifice of American innovation rests on an increasingly rickety foundation” because of a decline in spending on federal R&D in the past decade. U.S. “Research Intensity” has declined to 0.78% (2014), which is down from about 2% in the 1960s. With discretionary spending of federal budgets projected to decrease, research intensity is likely to drop even further, despite increased industry funding.

### **The high costs of research misconduct**

The National Science Foundation defines research misconduct as intentional “fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results”. Nationally, the percentage of guilty respondents in research misconduct cases investigated by the Department of Health and Human Services and NSF ranges from 20% to 33%. Direct costs of handling each research misconduct case are \$525,000, and over \$110 million are incurred annually for all such cases at the institutional level in the U.S. A total of 291 articles retracted due to misconduct during 1992–2012 accounted for \$58 M in direct funding from the NIH, which is less than 1% of the agency's budget during this period, but each retracted article accounted for about \$400,000 in direct costs.

Academia and science are expected to be self-policing and self-correcting. However, based on our experiences, we believe there are incentives throughout the system that induce all stakeholders to “pretend misconduct does not happen.” Science has never developed a clear system for reporting, investigating, or dealing with allegations of research misconduct, and those individuals who do attempt to police behavior are likely to be frustrated and suffer severe negative professional repercussions. Academics largely operate on an unenforceable and unwritten honor system, in relation to what is considered fair in reporting research, grant writing practices, and “selling” research ideas, and there is serious doubt as to whether science as a whole can actually be considered self-correcting. While there are exceptional cases where individuals have provided a reality check on overhyped research press releases in areas deemed potentially transformative, limitations of hot research sectors are more often downplayed or ignored. Because every modern scientific mania also creates a quantitative metric windfall for participants and there are few consequences for those responsible after a science bubble finally pops, the only true check on pathological science and a misallocation of resources is the unwritten honor system.

### **If nothing is done, we will create a corrupt academic culture**

The modern academic research enterprise created the existing perverse incentive system, which would have been almost inconceivable to academics of 30–50 years ago. We believe that this creation is a threat to the future of science, and unless immediate action is taken, we

run the risk of “normalization of corruption”, creating a corrupt professional culture akin to that recently revealed in professional cycling or in the Atlanta school cheating scandal.

To review, for the 7 years Lance Armstrong won the Tour de France (1999–2005), 20 out of 21 podium finishers (including Armstrong) were directly tied to doping through admissions, sanctions, public investigations, or failing blood tests. Entire teams cheated together because of a “win-at-all cost culture” that was created and sustained over time because there was no alternative in sight (U.S. ADA, 2012). Numerous warning signs were ignored, and a retrospective analysis indicates that more than half of all Tour de France winners since 1980 had either been tested positive for or confessed to doping. The resultant “culture of doping” put clean athletes under suspicion and ultimately brought worldwide disrepute to the sport. Likewise, the Atlanta Public Schools (APS) scandal provides another example of a perverse incentive system run to its logical conclusion, but in an educational setting. Twelve former APS employees were sent to prison and dozens faced ethics sanctions for falsifying students' results on state-standardized tests. The well-intentioned quantitative test results became high stakes to the APS employees, because the law “triggers serious consequences for students (like grade promotion and graduation); schools (extra resources, reorganization, or closure); districts (potential loss of federal funds), and school employees (bonuses, demotion, poor evaluations, or firing)”. The APS employees betrayed their stated mission of creating a “caring culture of trust and collaboration where every student will graduate ready for college and career,” and participated in creating the illusion of a “high-performing school district”. Clearly, perverse incentives can encourage unethical behavior to manipulate quantitative metrics, even in an institution where the sole goal was to educate children.

An uncontrolled perverse incentive system can create a climate in which participants feel they must cheat to compete, whether it is academia (individual or institutional level) or professional sports. While professional cycling was ultimately discredited and its rewards were not properly distributed to ethical participants, in science, the loss of altruistic actors and trust, and risk of direct harm to the public and the planet raise the dangers immeasurably.

### **What Kind of Profession Are We Creating for the Next Generation of Academics?**

The culture of academia has undergone dramatic change in the last few decades—quite a bit of it has been for the better. Problems with diversity, work-life balance, funding, efficient teaching, public outreach, and engagement have been recognized and partly addressed.

As stewards of the profession, we should continually consider whether our collective actions will leave our field in a state that is better or worse than when we entered it. While factors such as state and federal funding levels are largely beyond our control, we are not powerless and passive actors. Problems with perverse incentives and hypercompetition could be addressed by the following:

- (1) The scope of the problem must be better understood, by systematically mining the experiences and perceptions held by academics in STEM fields, through a comprehensive survey of high-achieving graduate students and researchers.
- (2) The National Science Foundation should commission a panel of economists and social scientists with expertise in perverse incentives, to collect and review input from all levels of academia, including retired National Academy members and distinguished STEM scholars. The panel could also develop a list of “best practices” to guide evaluation of candidates for hiring and promotion, from a long-term perspective of promoting science in the public interest and for the public good, and maintain academia as a desirable career path for altruistic ethical actors.
- (3) Rather than pretending that the problem of research misconduct does not exist, science and engineering students should receive instruction on these subjects at both the undergraduate and graduate levels. Instruction should include a review of real-world

pressures, incentives, and stresses that can increase the likelihood of research misconduct.

- (4) Beyond conventional goals of achieving quantitative metrics, a PhD program should also be viewed as an exercise in building character, with some emphasis on the ideal of practicing science as service to humanity (Huber, 2014).
- (5) Universities need to reduce perverse incentives and uphold research misconduct policies that discourage unethical behavior.

**Fonte:** EDWARDS, M. A.; ROY, S. Academic Research in the 21st Century: Maintaining Scientific Integrity in a Climate of Perverse Incentives and Hypercompetition. In: **Environmental Engineering Science Journal**. Volume 34, Number 1, Jan 2017. Disponível em: <https://www.liebertpub.com/doi/full/10.1089/ees.2016.0223>  
Acesso em: ago 2019 (texto adaptado).

## QUESTÕES

- 1) Escolha a alternativa que apresenta a leitura **CORRETA** em língua portuguesa de alguns dos grupos nominais presentes no título do artigo:

“Academic research in the 21<sup>st</sup> century: maintaining scientific integrity in a climate of perverse incentives and hypercompetition”

- a) acadêmicos pesquisadores do século XXI; clima perverso de incentivos.
  - b) pesquisa acadêmica, integridade científica; incentivos perversos e hipercompetição.
  - c) hipercompetição de incentivos perversa; manutenção científica da integridade.
- 2) Considerando as assertivas que tratam dos aspectos abordados com relação aos objetivos na introdução deste artigo, podemos afirmar que:
- I. Proposta de um modelo conceptual que descreva como a ênfase na quantidade em detrimento da qualidade pode afetar o verdadeiro progresso científico.
  - II. Descrição de como a hipercompetição e os incentivos perversos estão alterando o comportamento acadêmico de pesquisadores e universidades, reduzindo progresso científico e aumentando ações desonestas, que passam por cima da ética na pesquisa;
  - III. Recomendações que possam alavancar produtividade e manter a confiança pública, considerando mudanças para aumento do progresso científico, e manutenção dos altos padrões éticos na profissão.
- a) Somente I está correta.
  - b) II e III estão corretas.
  - c) Todas estão corretas.

- 3) Observe o quadro abaixo extraído do texto e escolha a alternativa que completa corretamente a terceira coluna do quadro, ou seja, o ‘efeito real’ do incentivo:

	<b>Incentive</b>	<b>Intended effect</b>	<b>Actual effect</b>
<b>1</b>	“Researchers rewarded for increased number of publications.”	“Improve research productivity,” provide a means of evaluating performance.	
<b>2</b>	“Researchers rewarded for increased number of citations.”	Reward quality work that influences others.	
<b>3</b>	“Researchers rewarded for increased grant funding.”	“Ensure that research programs are funded, promote growth, generate overhead.”	
<b>4</b>	“Departments rewarded for increasing numbers of BS, MS, and PhD degrees granted.”	“Promote efficiency; stop students from being trapped in degree programs; impress the state legislature.”	

a)	b)	c)
1 Avalanche de artigos abaixo do padrão, com metodologia fraca e aumento de descobertas falsas levando a uma ‘ciência ruim’, qualidade reduzida de revisão por pares.	1 Aumento do tamanho das salas e diminuição dos requisitos de entrada; redução dos requisitos para obtenção do diploma.	1 Lista de referências extensa para aumentar as citações; revisores sugerindo citação nos trabalhos.
2 Lista de referências extensa para aumentar as citações; revisores sugerindo citação nos trabalhos.	2 Avalanche de artigos abaixo do padrão, com metodologia fraca e aumento de descobertas falsas levando a uma ‘ciência ruim’, qualidade reduzida de revisão por pares.	2 Aumento do tamanho das salas e diminuição dos requisitos de entrada; redução dos requisitos para obtenção do diploma.
3 Aumento de tempo para submissão de propostas e diminuição de tempo na análise dos dados.	3 Lista de referências extensa para aumentar as citações; revisores sugerindo citação nos trabalhos.	3 Avalanche de artigos abaixo do padrão, com metodologia fraca e aumento de descobertas falsas levando a uma ‘ciência ruim’, qualidade reduzida de revisão por pares.
4 Aumento do tamanho das salas e diminuição dos requisitos de entrada; redução dos requisitos para obtenção do diploma.	4 Aumento de tempo para submissão de propostas e diminuição de tempo na análise dos dados	4 Aumento de tempo para submissão de propostas e diminuição de tempo na análise dos dados.

- 4) De acordo com o texto, DORA foi assinada e reconhecida como um passo na direção certa em termos de pesquisa científica no mundo. Escolha a alternativa que descreve e explica **CORRETAMENTE** o significado de DORA:
- a) A Declaração Oficial de Acesso à Pesquisa de São Francisco (DORA) estabelece um sistema objetivo de acesso à pesquisa, propondo modos mais justos de se mensurar a produtividade de sociedades científicas, indivíduos pesquisadores e universidades.
  - b) A Declaração de Pesquisadores de São Francisco (DORA) foi assinada pela Sociedade de biologia celular, pela Associação americana para o avanço da ciência, entre outras sociedades, instituições e indivíduos, com o intuito de eliminar totalmente o sistema métrico de mensuração de performance de pesquisadores.
  - c) A Declaração de Avaliação de Pesquisa de São Francisco (DORA) foi assinada por sociedades científicas, instituições de pesquisa, e indivíduos, reconhecendo a necessidade de se melhorar os modos como a pesquisa científica é avaliada.
- 5) Releia os excertos apresentados e escolha a alternativa **CORRETA** com relação às explicações dos termos em destaque:

“Because these measures are subject to manipulation, **they (1)** are doomed to become misleading and even counterproductive. Ultimately, the well-intentioned use of quantitative metrics may create inequities and outcomes worse than the systems **they (2)** replaced.”

“The culture of academia has undergone dramatic change in the last few decades—quite a bit of **it (3)** has been for the better.”

“While professional cycling was ultimately discredited and **its (4)** rewards were not properly distributed to ethical participants, in science, the loss of altruistic actors and trust, and risk of direct harm to the public and the planet raise the dangers immeasurably.”

- a) (1) refere-se aos ‘sujeitos’; (2) refere-se às ‘inequidades’; (3) refere-se à ‘cultura da academia’; (4) refere-se aos ‘ciclistas’.
  - b) (1) refere-se à ‘manipulação’; (2) refere-se aos ‘sistemas’; (3) refere-se às ‘últimas décadas’; (4) refere-se às ‘medalhas’.
  - c) (1) refere-se às ‘medidas’; (2) refere-se às ‘métricas quantitativas’; (3) refere-se à ‘mudança’; (4) refere-se ao ‘ciclismo profissional’.
- 6) Considerando as assertivas que tratam de questões pontuadas no texto sobre os incentivos no contexto de pesquisa acadêmica, podemos afirmar que:
- I. Pesquisadores são humanos e, por isso, reagem negativamente aos incentivos para produção bibliográfica.
  - II. A meta de se mensurar produtividade científica atingiu um patamar de mensuração quantitativa de performance, que inclui a contagem de citações, combinação de citação/publicação, fatores de impacto de revistas científicas, financiamento de pesquisa e patentes.
  - III. A mensuração métrica está voltada ao sistema de recompensa, o que significa que pesquisadores tendem a atingir um objetivo relevante socialmente com resultados impactantes de pesquisas que podem perdurar por muito tempo antes de serem publicadas.



IV. Em uma pesquisa realizada em 2010, 71% dos respondentes disseram temer que seus colegas ‘trapaceassem’ na obtenção de avaliações melhores em suas instituições, o que demonstra que estão sintonizados com a possibilidade de fraudes no sistema atual.

- a) Somente II e IV estão corretas.
- b) Todas estão corretas.
- c) I, II e III estão corretas.

7) Assinale a alternativa **CORRETA** com relação às razões pelas quais há uma comparação entre a pesquisa acadêmica, o ciclismo profissional e as escolas públicas de Atlanta:

- a) Houve a criação de um sistema que mudou completamente o clima de competição nos três contextos, com falsificação de resultados de exames de sangue de atletas e adulteração de documentos, com a divulgação antecipada de resoluções de questões das provas oficiais a alunos de escolas públicas, e com a imposição de um sistema métrico quantitativo para mensurar a publicação de pesquisadores nas áreas STEM.
- b) Nos três casos, o sistema perverso de incentivo criou uma ameaça ao futuro destes contextos, em uma espécie de regularização da corrupção, com a criação de uma cultura profissional corrupta, seja na questão da publicação desenfreada, no *doping* dos atletas ou na falsificação de resultados de provas de alunos nas escolas.
- c) Nos três casos, houve a criação de um sistema falho cujos participantes (atletas, estudantes, pesquisadores) não podem ser totalmente controlados, ou seja, têm flexibilidade para a tomada de decisões em seus contextos, fazendo com que as avaliações oficiais mostrem casos de fraudes nas respectivas áreas.

8) Escolha a alternativa **CORRETA** com relação às assertivas que trazem as questões relacionadas à mensuração de performance e a hipercompetição e seus efeitos nas instituições:

- I. *Rankings* têm influenciado fortemente, de modo positivo ou negativo, percepções públicas no que diz respeito à qualidade da educação e oportunidades que as instituições oferecem.
- II. *Rankings* são baseados em fórmulas e algoritmos subjetivos, fazendo com que universidades mudem seus sistemas, redirecionando recursos e investindo em áreas destacadas pelos rankings.
- III. Num levantamento de 2013, mais de 90% das 576 secretarias de ingresso das instituições achavam que outras instituições estavam submetendo dados falsos na plataforma do *US News ranking*.
- IV. Alimentar as plataformas dos *Rankings* é obrigatório para as instituições, uma vez que são seus dados quantitativos e objetivos que determinam como os pais, estudantes, escolas de ensino médio e universidades percebem a educação.

- a) Somente II e IV estão corretas.
- b) Todas estão corretas.
- c) I, II e III estão corretas.

- 9) Observe as sequências textuais I, II e III abaixo. Com base na numeração atribuída aos seus termos, selecione a alternativa correspondente à sequência numérica que melhor represente a ordem dos termos para sua compreensão em língua portuguesa, de acordo com o contexto de uso.

I - “effects on individual researchers and productivity”

(1) (2) (3) (4)

II - “quantitative performance metrics”

(1) (2) (3)

III – “the high costs of research misconduct”

(1) (2) (3) (4)

- a) I- 3, 2, 1, 4 / II- 1, 2, 3 / III- 1, 2, 3, 4.  
b) I- 1, 3, 2, 4 / II- 3, 1, 2 / III- 1, 2, 4, 3.  
c) I- 1, 2, 3, 4 / II- 1, 3, 2 / III- 4, 3, 2, 1.

- 10) De acordo com o texto, assinale a alternativa que traz informações **CORRETAS** sobre as conclusões deste artigo, ou seja, como os problemas levantados podem ser conduzidos:

- a) Os programas de pós-graduação devem ser entendidos como um lugar de construção de caráter, enfatizando o ideal da prática da ciência a serviço da humanidade, ultrapassando os objetivos convencionais de aquisição de métrica quantitativa.  
b) A dimensão do problema deve ser entendida, explorando eventualmente as experiências e percepções de pesquisadores renomados, com a aplicação de um questionário compreensivo das necessidades de publicações de pós-graduandos e acadêmicos.  
c) Universidades devem reduzir incentivos e aplicar políticas de pesquisa para desencorajar o comportamento desonesto de pesquisadores.

## TEXTO PARA A QUESTÃO 11

### Answers to 18 Questions About Open Science Practices

George C. Banks et al

#### ABSTRACT

Open science refers to an array of practices that promote openness, integrity, and reproducibility in research; the merits of which are being vigorously debated and developed across academic journals, listservs, conference sessions, and professional associations. The current paper identifies and clarifies major issues related to the use of open science practices (e.g., data sharing, study pre-registration, open access journals). We begin with a useful general description of what open science in organizational research represents and adopt a question-and-answer format. Through this format, we then focus on the application of specific open science practices and explore future directions of open science. All of this builds up to a series of specific actionable recommendations provided in conclusion, to help individual researchers, reviewers, journal editors, and other stakeholders develop a more open research environment and culture.



