Needed: Stories about Blowing the Oboe, not the Whistle, On Bad Science

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What is Bad Science?

Scientific Misconduct

- **Falsification of data** – e.g., eliminating "inconvenient" findings.
- **Fabrication of data** – making up data.
- **Plagiarism** – deliberately claiming the work of others as one's own. [Also, self-plagiarism and inadvertently using others' phrases, sentences, etc.]

Lesser Sins

- **Biased sampling**, and other ways of biasing the results.
- **Careless record keeping** and data management.
- **Improper analysis** of data.
- **Improper reporting** of research procedures.
- **Abuse** of subjects and colleagues.
- …and much more.

Solution to Bad Science

Appropriate mentoring may solve the problem of bad science in two ways:

1. Teach young scientists to avoid bad science.
2. Teach the effective responses to people they observe doing bad science.

But how? What skills do mentors need?

Perplexing Insights

Although “bad science” is something virtually every scientist has witnessed…

- Direct confrontation or reporting bad science causes those who lose face to resort to lies, retaliation, etc.
- Students, post-docs, the untenured typically make the problem worse by reporting the misconduct.
- Academic administrators are typically unprepared to deal with allegations of misconduct, some want to cover it up.
- Ethics casebooks outline problems but usually not effective solutions.

Whistleblowing?

- Notorious for causing more damage to the whistleblower than to the culprit.
- Adjudication of the case can take years, at great cost to the whistleblower.
- The whistleblowing rarely prevents the bad science from harming the scientific record, other scientists, and society.
- The cost of whistleblowing is huge to all concerned.

We Need Soft Whistle-Blowing

or

Blowing the Oboe

The Oboe is powerful but quiet.

Five Examples of Oboe Blowing

- Grad students and powerful plagiarist.
- Student who faked data.
- Ending cherry picking by senior PI.
- My colleague's faked data for grant proposal.
- Post doc who was handed a smoking gun by lab boss.

Grad Students & Powerful Plagiarist

Five outstanding PhD students guest edited a journal:

- Received creative but naively written submission from PhD student at another institution, who effusively thanked her advisor, Prof X.
- Received sophisticated version of same paper from Prof. X, with no mention of student.
- After days of worry, sent both papers to Prof X saying they were going to publish them side by side.
- Prof X withdrew his paper.

Student Who Faked Data

Professor asked students each to gather survey data (N=15) and graph it to show fit with hypothesis:

- One student turned in surveys all in same handwriting, that fit hypothesis perfectly. No error variance.
- Prof. lectured on error variance and why we use inferential statistics. Showed illustrative student data.
- Prof showed culprit's data and asked how it was different and what that implied.
- Culprit got red in face, apologized after class and asked for permission to do the assignment correctly.

Cherry Picking by Senior PI

Senior PI continually cherry-picked data that supported his basic hypothesis, ignored "inconvenient" data and ignored junior scientists' objections. The research was going nowhere new as new leads were ignored:

- Junior scientists organized seminars with food & wine.
- Invited colleagues from related fields who were not seen as competitors and didn't arouse defensiveness.
- Colleagues were quick to say things like: " I have a different take on those data." "I see intriguing new possibilities."
- The lab finally began moving in productive new directions.

Falsified Data for a Grant Proposal

Collaborator on grant proposal admitted cooking data he wanted to contribute. Departmental politics meant any accusations would be a disaster for the accuser:

- Partner simply dismissed inclusion of cooked data as dumb idea because not replicable.
- The idea of collaboration died peacefully.

Post-Doc was Handed “Smoking Gun”

Post-docs are perhaps the most vulnerable to the misconduct of their superiors. A post-doc, dependent on lab boss for good recommendations, was handed data “gathered” by boss that were obviously falsified. He was to analyze them and draft an article:

- He contacted prior PhD advisor and others who respected him, in search of a new position.
- Was offered new post-doc position, invented story of why he needed to move, and quit the lab without revealing his true motive for the move.

Blowing the Oboe

- Solves or ameliorates the problem without great harm to the “oboe blower”
- Typically uses guilt and shame induction to cause the wrong-doer to shape up.
- Typically brings out the best, not the worst, in others.
- Is based on a plan that can be preserved as an engaging story to share with others.

Why Share Oboe Stories?

- People remember good stories.
- Tina Gunsalus tells good stories and provides pointers on exactly what to say. Read her book: *The College Administrator's Survival Guide*, 2006.
- Learn how to write (and tell) good stories. Read Kendall Haven's book: *Story Proof: The Science Behind the Startling Power of Story,* 2006.

Why Stories?

We are hardwired to listen to and understand stories.

That is how civilization evolved before the written word.

A Good Story

Why do you remember the story of the grad students and the plagiarizing professor? It is a good story.

- The story is about someone with an **important goal**.
- They run into a **terrible obstacle**.
- **The more they struggle, the more gripping and memorable the story is**.
- There are **key details** that make the story **vivid** and enable the listener to **visualize** it.
- Story ends when person **resolves** problem. We remember the solution.

How Do We Apply Oboe Tactics?

- Identify important problems in RCR.
- Identify some quiet, effective solutions.
- Package them effectively as **memorable stories.**
- Tell them to our students and colleagues to remind them of how to blow the oboe.
- Preserve them through publication in a casebook, article, or online guide to blowing the oboe.

Who Should Create Oboe Tactics?

We all need to.

And we must remember:

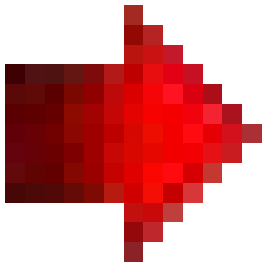
- You probably will neither reform or punish real bad people, but you can at least stop them in their tracks without getting hurt yourself.
- Typically a good oboe tactic requires a lot of creative problem solving among collaborators.
- Some institutional rules are stupid and produce scofflaw behavior. Try to change such rules, not enforce them.
- In some institutions people rightly feel that they must cheat to survive. Seek to change that culture.
- It is important to know how to begin effectively when addressing a wrong-doer

What are Important things to Illustrate with our good stories?

- What are reasonable expectations or solutions to have?
- How much persistence is required to find a good oboe to blow?
- What kinds of things enhance our creativity in finding good oboes?
- When is the institution, not the researcher, the problem?

What is a Reasonable Solution?

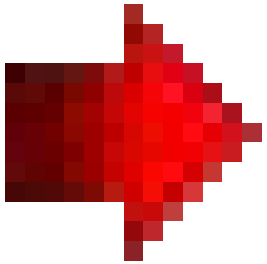
- We need to understand what constitutes solving the problem: Most perpetrators will never be contrite, but want to save face above all, and can be made to shape up.



Find researchers, administrators and lawyers who have figured out how to use logic, guilt induction and other tactics to make perpetrators behave. Get their stories.

Required Persistence

- Understand how long it takes to solve the problem: When dealing with smart, crafty perpetrators, we need to know how much effort and process is required.



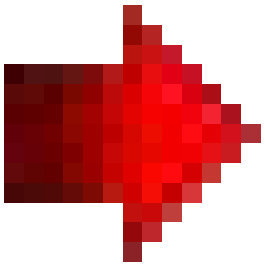
Find cases illustrative of the amount of effort required to solve problems of varying complexity. Problem solvers need to understand *process* and *time commitment*.

Aids to Creativity

- Define the problem(s).
- Engage supportive colleagues in brain storming how to shame or confuse the wrong-doer.
- Envision and practice various solutions via roleplaying.
- Review oboe solutions others have created.
- Don’t rush. Persist.

Cut Out Dumb Rules

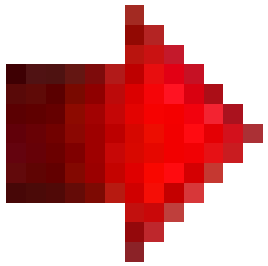
- Identify rules that are nonsensical in some situations.



Find researchers, administrators and lawyers who have sufficient gravitas to make the case for exceptions.

Know What to Say

- When opening discussion with the perpetrator, know exactly what to say. That is half the battle.



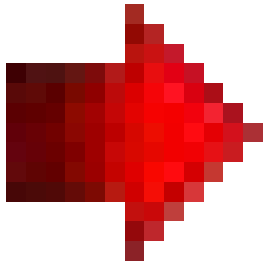
Keep on hand Tina Gunsalus's books:

"*The College Administrator's Survival Guide*" (2006), and

"*The Young Professional's Survival Guide*" (2012)

Stop Crushing Researchers

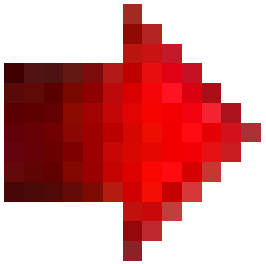
Many institutions have such draconian requirements that people cheat to survive.



Identify “role model institutions” that have created institutional cultures that do **not** make people cheat to survive. Work to have your institution emulate those cultures.

Mentor and Support Researchers

We need to foster good behavior in scientists who inadvertently or purposely initiate unethical behavior.



Identify ways to take colleagues under your wing and teach them to take

pride in more professional and ethical behavior.

Agenda

- Tina Gunsalus writes intriguing books full of good stories about effectively confronting irresponsible conduct.

- We need more stories like that.

- Let's write them! As Editor of JERHRE, I will collect and publish them if you so desire.
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