



Ethical Matters

Giving Appropriate Credit and Other Good Manners in Science

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The Garden of Eden



(Painting by Pieter Breughel)

Most of the time, most academics probably realize they are lucky to have their intellectual freedom, and the peace that can come from quietly doing their scientific work.

Temptations in the Garden of Eden



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It is a great shame to lose this by being tempted by greed, overcompetitiveness, or sometimes even outright warfare with rivals
... *but it happens*

What is Academic Malpractice?

5-Minute Activity

With your neighbours:

List some examples of *academic malpractice* or *scientific misconduct*. Include cases you have heard about (if any).

Be ready to report back to the class.

(Answers I Prepared Earlier)

Faking results [Stem Cell Fake Results](#), [Psychology Faked Studies](#), [Damage Caused by Faked Results](#)

Suppression of unhelpful results (also cherry-picking)

Bare assertion

Not revealing sources of funding openly

Plagiarism of actual text or whole papers

Plagiarism of ideas (more insidious)

Insufficient background checking (google all variants of keywords)

Salami-slicing (publishing tiny increments of your work)

Self-plagiarism (especially aggressive/cynical)

Self-citation (especially aggressive/cynical)

Leaving out important sources from references

Ungenerous citation of important sources

Self-serving referee practices, including tactical reviewing of grants

Failure to acknowledge significant help in Acknowledgments

Manipulating author order on a paper

... the class may have come up with better ones

More on these can be found at

http://en.wikipedia.org/wiki/Scientific_misconduct
and also discussed as an observer at [Prof David Corne's page](#).

Temptations to Malpractice

5-Minute Activity

With your neighbours

Take any of the cases/types of malpractice listed previously, and explain WHY an otherwise upstanding, ethical person may have been tempted into this behaviour.

(Answers I Prepared Earlier)

Someone else wrongs you first — revenge

Someone else wrongs you and you conclude that everyone is “at it”
— you become cynical

You just want to get on in a competitive environment

- You need to make your work look more original to compete so you are not open about your sources
- You need to keep your academic rivals down, or your work will be forgotten
- You need to make your citation statistics look better
- You need to get funding; you must ensure rivals will not get it ahead of you

How to Avoid Misconduct and Be a Good “Guy”

The Golden Rule

Regard your neighbour's gain as your own gain, and your neighbour's loss as your own loss.

—T'ai Shang Kan Ying P'ien

This maxim is expressed in every world religion and is a basis for ethics, rights, or morality in innumerable settings.

Really Applying the Golden Rule

Notice that the golden rule *requires us to make a definite act of imagination*. We need to imagine things from the other's point of view, and feel their loss or their gain.

“You never really understand a person until you consider things from his point of view... Until you climb inside of his skin and walk around in it.”

— Harper Lee, *To Kill a Mockingbird*

The Golden Rule in Practice

Make a **conscious effort** at some point during the writing or reviewing process to ask these sorts of questions

- Would I like my research described in that way?
- Would I like my ideas or words used without full credit being given?
- Would I like my name spelt incorrectly, or my paper's title, venue, or page numbers listed with errors in it?
- Would I like it if someone held back important information in a paper, and I wasted my time subsequently as a result?
- Reviewing: Would I regard it as fair to receive this review; would I be helped by the comments?

Kant's Categorical Imperative: Universalizability

Another way to test your writing or your work is to imagine that everyone else in the scientific or academic community acted in the same way at all times.

Would the resultant state be good, or even logically consistent?

Kant in Practice

Imagine if ...

Everyone faked results

Everyone cherry-picked their best results and hid inconvenient ones

Everyone was ungenerous in describing others' work

Everyone misspelt words and names, and was careless about referencing

Everyone reviewed to further their own ends (benefits), not the authors'

Everyone cited as many of their own papers as possible to increase their citation statistics !

Convinced?

The Golden Rule and Kant's Categorical Imperative both seem convincing (you may need to read more about them than I have included here) as ways to act *in theory*.

But still we are tempted to cheat or serve ourselves more than others in the general community.

Why is this?

... Most of the time, I am convinced, it is because others are not following the Golden Rule ! We need to rise above that or we will become part of a larger malaise.

Nobody's Perfect

Some lighter relief from all this:

Let's face it, sometimes we are all going to have to make some compromise to honesty and openness in our scientific writing, to sound scientific and stylish.

If we didn't we'd sound like this ...

<http://imgur.com/gallery/yPH3k>

which is a round-up of ***#overlyhonestmethods*** (on Twitter)

(Thanks to Prof David Corne for pointing me to this).

Further Practical Advice

Avoiding unintentional plagiarism of text

Never write with a source document open in front of you. Ever.

Read source documents first. Write in your own words later. If your writing is crap, go back and read the source documents again and sleep on it. Write again in your own words the next day. Repeat until good.

If you must quote — not that usual in most scientific writing — then of course make sure you quote accurately and copy the source across at the same time.

Copying figures

If you think a figure in a paper is very nice, you may want to include it in your paper. What should you do?

Redraw it and give an acknowledgment in the figure caption, such as "Figure redrawn from [4], fig. 2".

If you adapt it or improve it, you should still acknowledge the original source if you still started from there, "Adapted from [4], fig. 2".

Copying mathematics

Sometimes, you need to give a mathematical background to your work, and it is (almost) exactly the same background as can be found in paper X or book Y.

You cannot just copy it !

You must again write down the main equations, theorems or whatever you need, and then consider if you really need to give the same derivations of them, and same sort of supporting discussion or should adapt it for your particular context (probably this is the case). Close the source document, and try to write the maths and discussion on your own.

Still acknowledge sources if you took most of the equations from one place, and if they are not *common knowledge*.

Hear no evil

Scenario 1: You are at a conference and tell someone your latest research idea while chatting over coffee. 3 months later he publishes it.

Can you prove you gave him the idea? (He may have had it already).
What would you do?

Scenario 2: You are at a conference and someone tells you their latest research idea. It is exactly what you were going to do already. You work hard to publish it in 3 months. You are then accused of plagiarism by the other person. What would you do?

Moral: Be careful about who you tell ideas to, and also of listening to unpublished ideas, unless you are agreeing to work with the other person (and be careful even then).

A Word About Copyright Violation

Plagiarism is not against the law, copyright violation is.

Yet plagiarism (in academic writing) is worse.

If you violate copyright, e.g. by including a photograph or figure photocopied (or imported) without permission (but you give the source), then the publisher or copyright owner may take legal action particularly if you were making commercial gain from this, or causing a commercial loss to them. It is a civil matter (not criminal), and you would be liable to a fine.

Do not include photographs or imported/photocopied figures you do not own in papers, since papers do make money for the publisher.

Consequences of Misconduct

The Ignominy of a Plagiarism Ruling Against You

Having your paper ruled as violating Publication Principles looks like [this](#). (Click on the actual pdf to see how the paper looks forever more).

Other Consequences

Basically, it gets noticed . . .

Editors notice your unkind or self-serving reviews

Authors and fellow scientists notice you do not give credit generously

Peer review bodies for grants notice that you always seem to discredit your fellow scientists

Prof David Corne at Heriot-Watt University has a nice [page](#) about professional misconduct, and writes more about these and other consequences there. Some other ideas in these slides also come from reading his page.

Less than Generous Citation

My biggest bugbear in regard to ethics in the scientific community is people building very closely on someone's work, and yet only listing the things about it they think are weak, or not citing it for the right reasons at all (but including it in references to cynically hamper a plagiarism allegation).

Please don't do this.

Actual Insanity in Academic Practice

The High h-Index That Isn't

The h-index is a measure of a scientists' overall impact and productivity, based on citation counting.

A scientist has index h if h of his/her N_p papers have at least h citations each, and the other $(N_p - h)$ papers have no more than h citations each.

—Jorge E. Hirsch

<http://en.wikipedia.org/wiki/H-index>

People are manipulating this in at least two ways, which are damaging to themselves and others.

The High h-Index That Isn't

People are manipulating this in at least two ways, which are damaging to themselves and others.

1. Actually citing their own work (specifically those papers that would increase the h-index) in papers largely written for that purpose !
2. Including in databases like Google Scholar work that is not their own including papers written by other authors with a similar (or same) name, or work such as edited Proceedings which should not be included.

I know of someone whose h-index goes from above 20 to below 10 if self-citations are removed from his citation counts.

Author Order Antics

I know someone, a senior figure (not at this University) whose name begins with a letter not far from 'A', who likes to insist that papers and grants should have authors listed in alphabetical order.

Please don't do this to others.

If someone does this to you, get evidence of the journal's real convention on author order (usually it reflects contribution, with major contributor first), and calmly let your co-author know this fact.

Final Word

What is a PhD for?

Isn't it learning how to be a professional academic or scientist; learning how to behave in an acceptable way in the scientific community?

A big part of that is simple ethics. It is simply behaving for the general good, rather than yourself

If you do it, rewards will come. That is the paradox