

Scholarly publishing in the natural sciences

or

The road to tenure and a successful research career

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Outline of presentation

1. Why publish?
2. Choosing the journal
3. How much is enough
4. Planning the research to end in a paper
5. Organizing the data into a manuscript
6. Dealing with rejection

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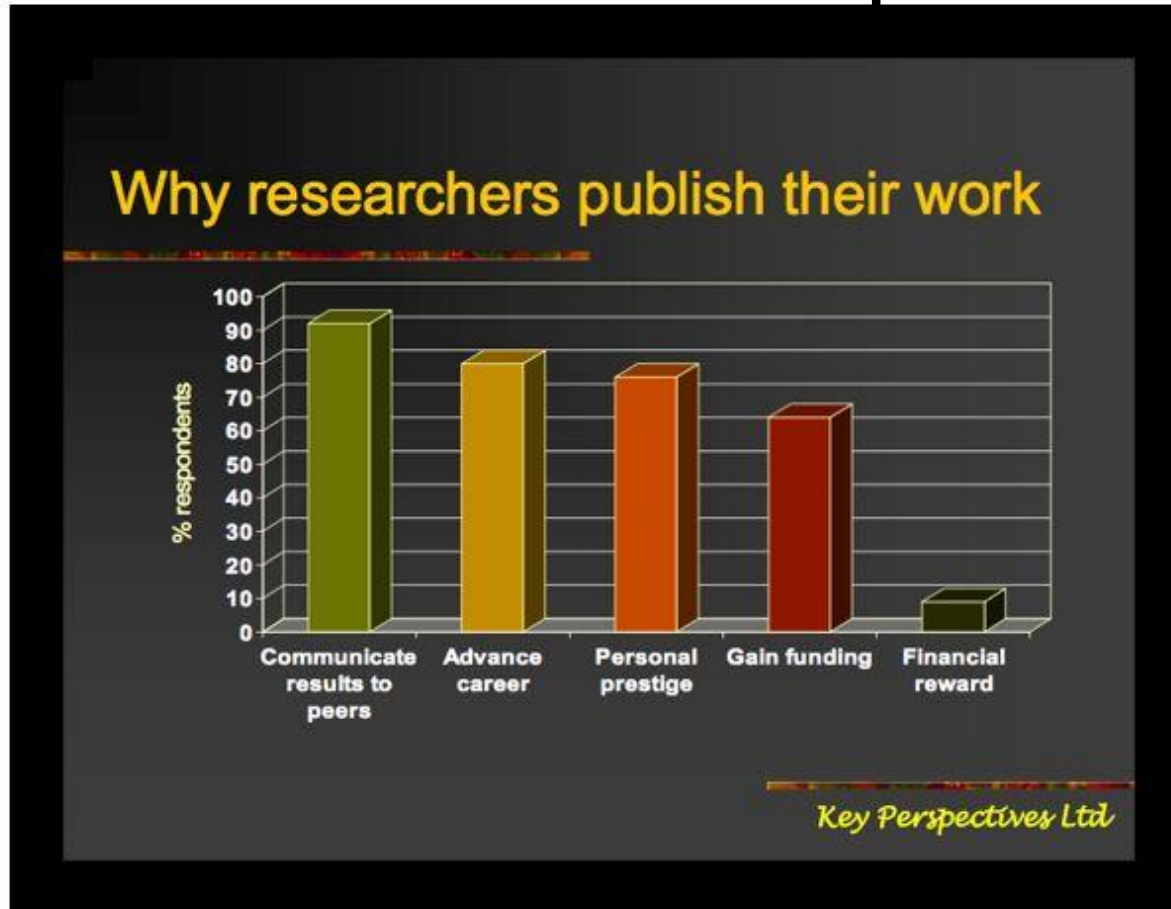
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Why publish?



"Surely you were aware when you accepted the position, Professor, that it was publish or perish."

Motive for publication- communicate results to peers.



Stevan Harnad
Canada
Research Chair in
Cognitive Sciences
Université du
Québec à
Montréal

In science the credit goes to the man who convinces the world, not the man to whom the idea first occurs. [Sir Francis Darwin](#),
Eugenics Review, April 1914 (1848 - 1925)

Why publish?

- The vast majority of research is funded by the taxpayers.
 - Research without contributing to the greater body of knowledge is playing at a hobby at the taxpayer's expense!

Art is I; science is we. Claude Bernard *French physiologist (1813 - 1878)*

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Choosing the Journal

- Who reads the journal?
 - Are they interested in my study?
 - Will they be reviewing my grant applications?
- What is the prestige level of the journal (impact factor)?
 - High impact factor often means that a journal only publishes paper of broad interest.
 - Does my paper match what the journal is looking for?

Choosing the journal

- What exactly is impact factor?

of times papers from the journal are cited in a year

of papers published in a year

Many factors determine impact factor

- Eg, reviews

- American Journal of Physiology GI & Liver: 3.587
- Physiological Reviews: 35.0

Choosing a journal

- For journals that publish original research articles:
 - High impact: Highly novel (also has the highest retraction rate)
 - Medium impact: Important and solid science
 - Mid to low impact: No fundamental flaws in the science, somewhat interesting to some.
 - Low impact: No credit? Bad credit? No Problem!

Choosing the journal

- Find out what you can about the Editor and Editorial Board.
- If there are particular potential reviewers whom you would not want to review your paper, indicate that in the cover letter.
- Don't be afraid to submit to a high impact journal if you think the work is of very broad impact and highly novel.
- Have a plan B.

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How much is enough?

- The two most common mistakes:
 - Pursuit of the least publishable unit
 - Will restrict to lower impact journals
 - Your published work is your reputation: it is easier to count than to read, but people who will be reviewing your grants do know how to read.
 - The unending “just one more experiment” to support that landmark paper. (more common)
 - Often results in reams of data supporting publications by others who published while you dreamed the impossible dream.

How much is enough?

- Do my data tell a story?
- Does this story make an important contribution to the body of knowledge in my field?
- For pre-tenure faculty, numbers are important.
 - Grant reviewers look for evidence of productivity.
 - Department review committees also need to see results, not just plans.
 - Once you have demonstrated productivity and have gotten funding, pursuing the blockbuster is more reasonable.

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Planning the research to end in a paper

- The best time to plan the contents of the publication is before you do the first experiment.
- What is the story to be told (i.e. hypothesis to be tested)?
- What figures or data tables are needed to tell the story?
 - Design experiments to provide those figures.

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Organizing the data into a manuscript

Science is facts; just as houses are made of stones, so is science made of facts; but a pile of stones is not a house and a collection of facts is not necessarily science. [Henri Poincare](#)

French mathematician & physicist (1854 - 1912)

- Did we mention that you should tell a story?
 - Most important- Story should flow from the data, not the converse.
- Presentation of data: Tables vs figures.
 - Tables are appropriate if the individual numbers are inherently meaningful.
 - Figures are superior for communicating relationships.

Organizing the data into a manuscript:

Writing the text

In science one tries to tell people, in such a way as to be understood by everyone, something that no one ever knew before. But in poetry, it's the exact opposite. [Paul Dirac](#) *English physicist in US (1902 - 1984)*

A writer is a person for whom writing is more difficult than it is for other people. [Thomas Mann](#) *German writer (1875 - 1955)*

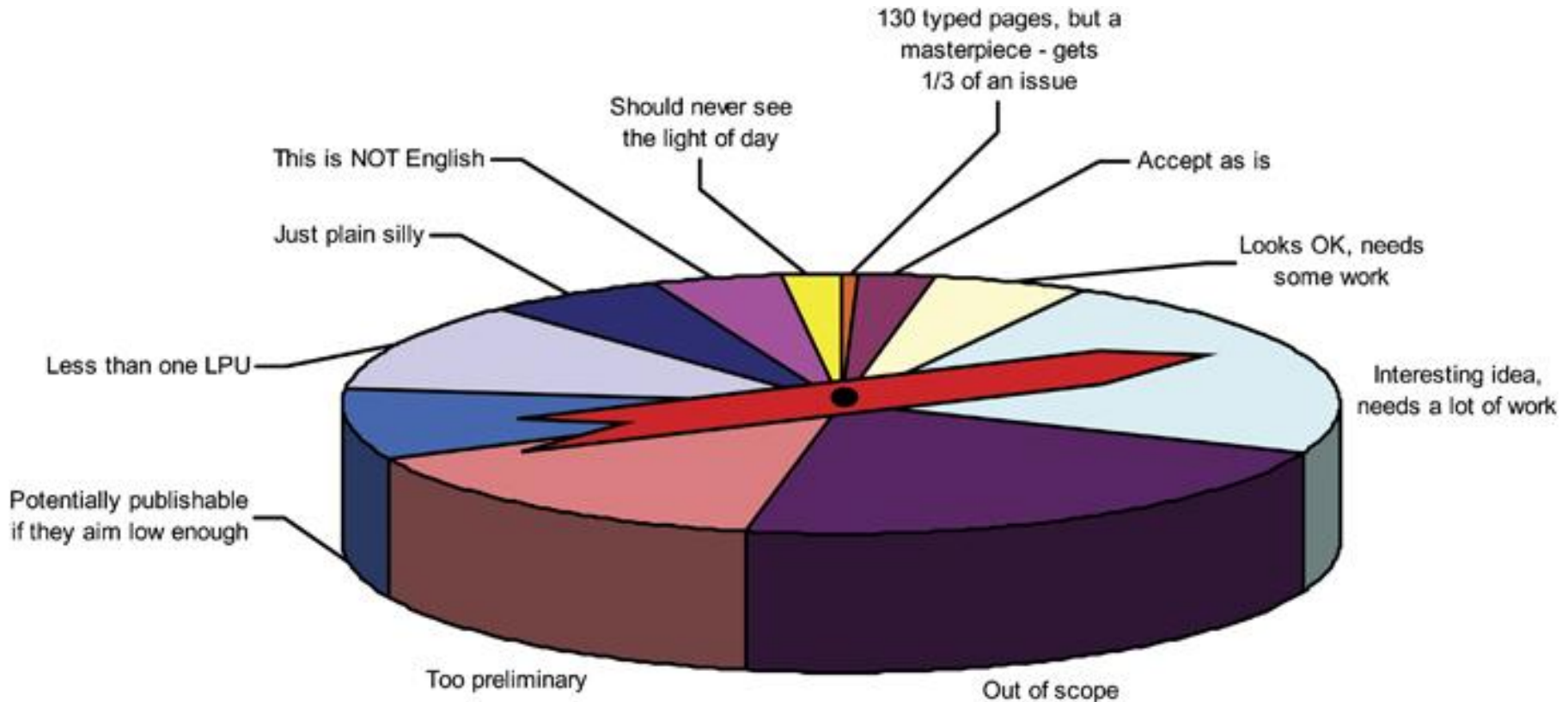
- Figure out what you want to say before you start writing.
- Write simply and directly.
- Write the Methods and results first, then discussion, then introduction. Write the abstract last.

My most important piece of advice to all you would-be writers: when you write, try to leave out all the parts readers skip. [Elmore Leonard](#)

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Dealing with rejection



From Laboratory Investigation

Dealing with rejection

A good many young writers make the mistake of enclosing a stamped, self-addressed envelope, big enough for the manuscript to come back in. This is too much of a temptation to the editor. [Ring Lardner](#), *"How to Write Short Stories"* US author (1885 - 1933)

- Rejection rate for journals can range from < 5% for very low impact journals to > 90% for a few very selective ones.
- Some new models from online journals.
- In general, if you never have a paper rejected, you are probably not setting your sights high enough.

Levels of rejection

- We really like your study, but there are some cosmetic issues that you need to deal with and then we are very happy to accept it.
- We like your study, but one of our reviewers picked on something that is not really serious, but we need to placate him.
- Your study has merit and is interesting, but all of our reviewers agreed that there are significant deficiencies that will likely require additional experiments.
- Your study appears to be sound, but it is not of sufficient impact for this journal.
- Our reviewers found that your study is not novel, uninteresting or seriously flawed.

You know they don't like you when...

"...you state 'thus administration of ... should be of immense benefit'. That is the most preposterous statement I have ever read in any scientific publication based upon animal research. The idea that you would suggest ... indicates that you are not familiar with the past 20 year history of shock therapy in experimental animals."

"The title of your paper ... indicates that you may not have any concept of what multiple organ failure is."

"It is a shame to do all of these experiments... without evaluating the fundamental process..."

"We are left in the dark as to what is happening and we are left with a manuscript which is glib, overstates the case, and provides a promissory note which very likely would never be fulfilled..."

Dealing with rejection

An editor should have a pimp for a brother, so he'd have someone to look up to. [Gene Fowler](#)

- Three choices after receiving a rejection:
 - Revise according to reviewers' comments
 - Revise and find another journal
 - Rethink

It is a good morning exercise for a research scientist to discard a pet hypothesis every day before breakfast. It keeps him young. [Konrad Lorenz](#) *German (Austrian-born) ethologist (1903 - 1989)*