

Young Researchers Seminar 2005

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How to write a successful paper

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Ten points about successful scientific papers

- State the problem clearly
- Find the right journal
- Get straight to the main point
- Do not overelaborate
- Do not be arrogant
- Write at most 25 pages
- Learn the language
- Listen to referees
- Do not mix science and politics
- Never give up

State the problem clearly

- This is not a clearly stated problem:

”This study looks at data from the NHTSA FARS database
...”

- A good suggestion is to formulate the research problem as a question or a set of questions:

What was the effect of ...?

What can explain the association between ...?

Find the right journal

- Browse past issues of the journal to see the type of papers published in it
 - First try your most preferred journal, but submit the paper only to one journal
 - There are always many journals to choose between
 - Submission to a website is today the most common system
 - Await final decision before doing more with the paper:
 - If it is accepted, go celebrate with your friends
 - If it is rejected, try another journal (more about this later)
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Get straight to the main point

- Do not repeat the whole research process – get straight to what you found out
- You may briefly describe the current state of knowledge, but a lengthy literature review detracts from your own contribution (unless the paper is a literature review)
- Tell what you did and what you found out, not what you contemplated along the way but ended up not doing

Do not overelaborate

- To overelaborate is to explain the obvious – to explain things that every intelligent reader will know or ought to understand
- Examples:
 - Explaining what an average value is
 - Explaining the p-value of a statistical test
 - Statements like this (I wrote this myself very many years ago):
 - "If two trains were to meet on a single track section, they would crash"

Do not be arrogant

- It is arrogant when you dismiss all past research as useless or less valuable than your own
- It is arrogant when you do not explain things that need to be explained, such as new or uncommon concepts
- It is arrogant when you belittle readers, by telling them that "it easily follows that", or "as readers may easily verify" – in other words: You are dumb if you cannot follow this

This simplifies to:

$$\begin{aligned}
 & \text{pdf}(w, r, A_{22}) \\
 &= \frac{\text{etr}\left\{-\frac{T}{2}(I + \beta\beta')\bar{\Pi}'_{22}\bar{\Pi}_{22}\right\}}{2^{(1/2)K_3(n+1)}\Gamma_{n+1}\left(\frac{K_3}{2}\right)} \\
 & \quad \times {}_0F_1\left(\frac{K_3}{2}; \frac{T}{4}\{w\bar{\Pi}_{22}\beta\beta'\bar{\Pi}'_{22} + \bar{\Pi}_{22}(1 + \beta r')A_{22}(I + r\beta')\bar{\Pi}'_{22}\}\right) \\
 & \quad \times \exp\left(-\frac{1}{2}(w + r'A_{22}r)\right)\text{etr}\left(-\frac{1}{2}A_{22}\right)\{w\det A_{22}\}^{(1/2)(K_3-n-2)}\det A_{22} \\
 &= \frac{\text{etr}\left\{-\frac{T}{2}(I + \beta\beta')\bar{\Pi}'_{22}\bar{\Pi}_{22}\right\}}{2^{(1/2)K_3(n+1)}\Gamma_{n+1}\left(\frac{K_3}{2}\right)} \\
 & \quad \times {}_0F_1\left(\frac{K_3}{2}; \left\{\frac{T}{4}w\bar{\Pi}_{22}\beta\beta'\bar{\Pi}'_{22} + \bar{\Pi}_{22}(I + \beta r')A_{22}(I + r\beta')\bar{\Pi}'_{22}\right\}\right) \\
 & \quad \times \exp\left(-\frac{1}{2}w\right)\text{etr}\left(-\frac{1}{2}(I + rr')A_{22}\right)w^{(1/2)(K_3-n-2)}(\det A_{22})^{(1/2)(K_3-n)}.
 \end{aligned}$$

Write at most 25 pages

- These should be double spaced
- Papers longer than about 25 pages often try to swallow too much
- It is a common error of novice authors to write too long papers
- As a rule, a paper should be self-contained (i.e. one should not have to read another report to understand the paper)
- Sometimes, however, details requiring lots of space will have to be omitted

Learn the language

- By far the most common language in scientific publishing is English
- Editors and referees cannot be expected to act as linguistic consultants
- Papers can be rejected because they are difficult to understand
- Try to think and write in the language you want the paper to be published in – translations are rarely very good

Listen to referees

- Referee reports nearly always suggest ways to improve a paper
- Pay close attention to comments given by referees – try to treat them constructively
- If you disagree with the referees, state your disagreement and the reasons for it
- As a general rule, however, I recommend authors to comply with referee comments

Do not mix science and politics

- Transport research is applied research – it is often intended to help solve specific problems
- It is tempting for researchers to propose policy measures based on the results of their research
- In general, this temptation should be resisted: many findings have no obvious policy implications, or these may be highly controversial

Never give up

- Getting a scientific paper published is not easy – it requires a dedicated effort
- It is always disappointing to be rejected
- Everybody gets rejected – even Nobel laureates
- How should one deal with it?
 - Go home and sulk: May give some short-term comfort
 - Try another journal: Nearly always a good idea
 - Drastically revise the paper: Helps sometimes, but is a lot of work