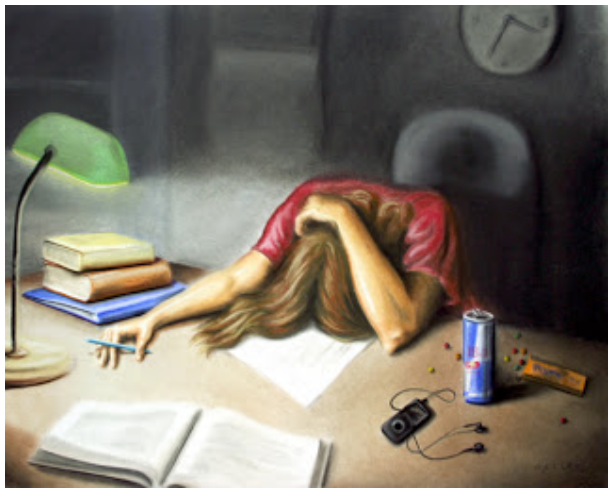
How to improve the acceptance of scientific papers

Robert Puers
KULeuven ESAT-MICAS



http://thealchemistskitchen.blogspot.com.tr

What is this story about ?

- Writing a paper : abstract, structure
- Selecting a journal
- The reviewers side
- How to react on the reviewers comments
- General recommendations

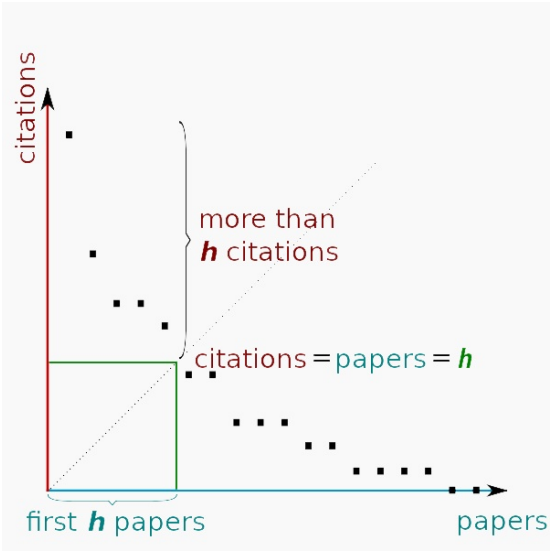
The importance of a scientific paper

- Scientific manuscript is intended to
  - Communicate new information
  - Teach new material to a willing audience
- To share research results with fellow scientists
- Justify the money spent by taxpayers

Why would you write a paper ?

- It is the measure of your scientific output
  - Important of CV, and for building 'reputation' in academic careers
  - Success in obtaining governmental research funds is directly related
  - Be aware, though, of publication digestion

- Citation record
  - Important if you go for an academic career
  - The bare number
  - But also : h-index : number N of your papers that have been cited more that N times (huh?)



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Where to submit your findings ?

- Selecting a journal :
  - take the time to verify it's SCOPE
  - Ask yourself why it's readers would want to read your paper
  - Importance to the Editorial Board (≠ reviewers !)
  - Ask advise from your supervisors
  - Follow the journal's instructions in detail. Check again after finishing
- Impact factor is another 'dragon'
  - Calculated on the past two years
  - Unfair comparison with e.g. medical journals

Important tips when starting

- Starting from a template may help a lot !
  - http://www.ieee.org/documents/transactions_journals.pdf
  - http://atom.iop.org/atom/help.nsf/LookupJournalSpecific/general-guidelines-for-authors~**
  - It avoids the starting blank : fear of the white paper
- Before starting, make sure you have a clear plan. Discuss this with your supervisor.
- Write with precision, clarity and economy !

Structure of the paper

- Title
- Introduction
- Materials, methods, simulation, manufacturing sequence
- Measurements and results
- Discussion and conclusions
- Acknowledgements
- References
- Abstract (comes first, but is best written when the paper is ready)

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General advise

- After finishing your actual research, take the time to check literature again (you will be amazed)
- In order to gain trust from your reader (reviewer), build up from literature. What is already known is credible !
- Then, by sufficient information on a new observation in the manuscript, you can gradually build up to new paradigms.
- Make sure the reader goes with you in your progress
- This approach is less offensive, since the reader already has something to agree upon

The title

- Is it concise and informative?
- It should contain :
  - The name of the device under study
  - The particular aspect or system studied
  - The variables manipulated
- Try to be creative in its formulation
- Avoid lengthy titles
- Be aware it should catch the attention
- Be clear

The abstract

- Must be a self-contained unit capable to fully inform the reader
- The title is the attractor, but the abstract is the catalyst
  - Should be clear and bright to catch the attention of your peers
  - Should be as short as possible and only focus on the highlights
  - No details on procedures
  - Contains the motivation of the research, the objectives
  - Briefly describes the achieved results, and quantifies the most important improvements you achieved
- The quality of its content is essential for readers to continue or to abolish reading.
  - Warning : avoid extreme exposure. This may turn upon you

The introduction

- Its purpose is to present the question and to place it in the context of what is already known
- Must provide the purpose, scope and general approach
- Do not highlight the results yet. Leave that for later
- Avoid digging too much into background information, but just introduce **your** research. Leave comparison for the discussion section, where you can fully use it to strengthen your work

Methods

- Meticulous description of experimental procedures
- When already published elsewhere, cite it (also your own !)
- Sufficient detail must allow others to repeat your work
- Mention why each procedure was done
- Use (active) past tense for what you performed, but present tense for conclusions. Avoid use of future tense.
- Avoid contractions (didn't, wasn't,…)

Results & discussion (not to be mixed up)

- Data may be presented in figures or tables, but still must be part of the text.
- In the discussion, results are matched to the hypothesis given earlier on. Do it in an honest way !
- Here, it is appropriate to compare to the data of previous studies. It will strengthen your point
- Give explanations for unexpected results and observations
  - At this point, do not invent other experiments. It violates the flow
- Summarize the principal points the reader should remember

After the writing

- Proof read your article for :
  - Grammar and spelling
  - Incomplete or cluttered phrases
  - Layout : tables and figures split over pages
  - Headings, footers, references (format !)
- Check the instructions for authors once more
- Pay special attention again on the abstract
- Check if your sponsors or funding is mentioned in the acknowledgments

Some more tips

- Do not get anecdotal : a research paper summarizes a study, it does not tell who did what
- Do not write everything you know about the subject. Stick to the appropriate, and use reference for the background
- Objectivity is absolutely essential:
  - No superlatives ! (huge, enormous, incredible, drastic, …)
  - No subjectivity : feelings, opinions, drama

Some more tips

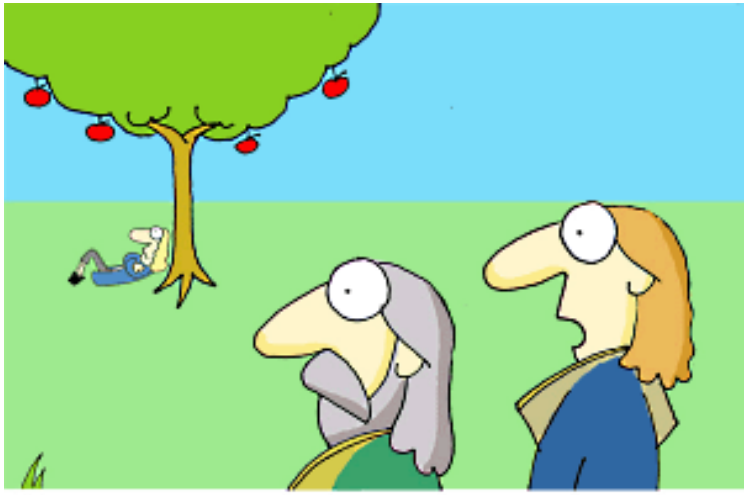
- Prepare in time the final 'details' that are needed for the final submission:
  - Correct format for submission : check the new layout did not destroy yours
  - Copyright forms : who has to sign
  - Co-authors : correct spelling, correct affiliation names. Inform them in time. Should they proof read too ?
  - Letter to the editor : make sure you have the correct name (check latest issue of the journal !)

The other side : guidelines for the reviewer

- Is the work scientifically rigorous & accurate ?
- Is the work appropriate for the journal ?
- Are the ideas expressed clearly and concisely ?
- Are the references recent and appropriate ?
- Is the balance correct ?
- Is there sufficient originality ?
- Is the motivation soundly explained ?
- Are figures, tables and captions essential and clear ?

The other side : guidelines for the reviewer

- Are the results backed-up with evidence ?
- Do you understand the work ?
- Are the results interesting for our community ?
- Is the work incremental ?



"Reviewers have asked him to reproduce the experiment."

http://aro.koyauniversity.org/about/reviewers

Merit of the review process

- To help editors to make a decision
- To improve the quality of the paper
- Ensures readers the information given is reliable
- Helps reviewers to keep up to date

What causes anger with the reviewer ?

- To bolster one's own ego & trying to impress the reader
- Abnormal observations are detected that conflict with thesis, and an explanation is given without proof
- Excessive use of the word "new"
- Detection of a parallel submission of the same research elsewhere (by the same authors)
- Provide references, but not comparing to them
- Not mentioning important (key)references

Funny ‘honest’ statements

Anastasia Kulpa Grant MacEwans univ Edmonton, Alberta, Canada

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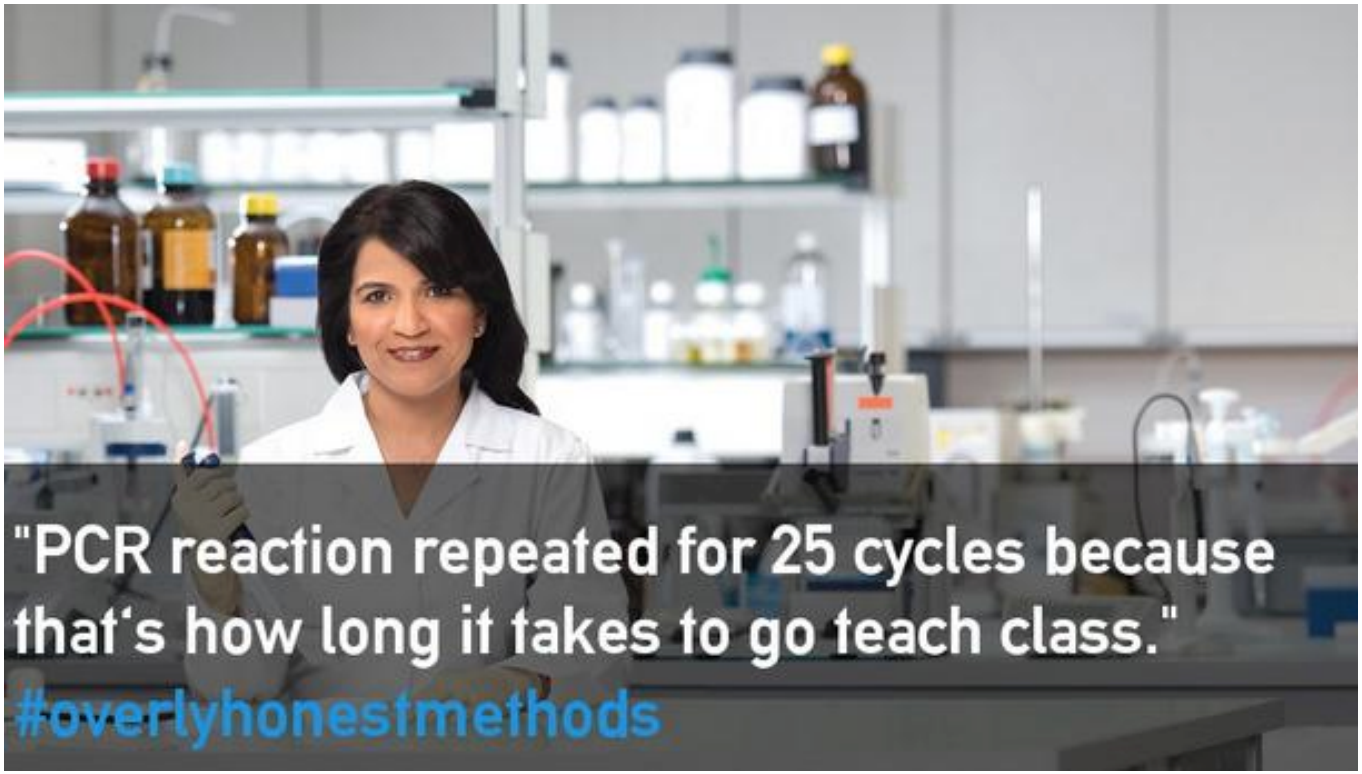
Funny ‘honest’ statements



Anastasia Kulpa Grant MacEwans univ Edmonton, Alberta, Canada5.jpg

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Funny ‘honest’ statements

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What about the reviewers themselves

- They are all human
- Ego is also present over there
- Confidentiality is expected (?)

- Task for the editor to buffer the egos

And, what about posters ?

- The message remains : be clear !
- 5 to 10% most important : objective / goal
  - What is this poster about
  - Try to give that spark for the reader to go on
- 30 to 40% methods
  - Describe it in an understandable and attractive way for the non-expert
- 40 to 50% measurement, results and discussion
  - Focus on the highlights, that put your results in perspective
- 10% Conclusions : what has been achieved.
- Most important : avoid long texts, use cartoons instead

Lessons learned / recommendations

- Gradually build up your story
  - From accepted and understood knowledge to the phenomena you describe
  - Do it linearly / do not produce a *deus ex machina* to make your point
- Use short, precise sentences
- Find a balance between being instructive and complexity
- Make adequate reference to the community, less to yourself
- In the review process :
  - Be patient and polite
  - Do an effort to understand why the reviewer asks those particular questions

Material used for this presentation

- E. Wager, “How to survive peer review”, BMJ Books, 2002
- S. Steingraber “Guidelines for writing scientific papers”, 1985, in Honors Organismal Biology Lab, Mich.State Univ.
- IOP guidelines for reviewers
- P. Ohlckers, “Publish or perish - a guide to write scientific papers”, Vestfold univ, Oct 2013
- S. Senturia, “How to Avoid The Reviewer’s Axe: One Editor’s View “, JMEMS Editorial 2003

Thank you !

Photograph: Radu Razvan/Alamy

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