

Scientific Writing and Ethics Course, University of Cologne: 24-26 April 2018

In Collaboration with Geoverbund ABC/J and Funded by: SAGES

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Setting the Scene

I was fortunate to be one of two fully-funded SAGES candidates selected to participate in a Scientific Writing and Ethics Course in Cologne last week. Not only was this a chance to spend some time in the European-version of Spring, it was a fantastic opportunity to learn best-practices and pick-up valuable tips for authoring scientific papers, before I had developed any bad habits!

The course was hosted by the University of Cologne over 2.5 days and was delivered by the visiting Professor Markus Flury, from the Washington State University. Well-subscribed, with about 40 students enrolled, the course focussed on the key principles and goals of writing scientific papers. Professor Flury is well-versed in the 'art' of scientific papers, having published over 100 peer-reviewed articles and 10 book chapters. He is also an experienced Journal Editor and provided some personal insight into the editorial process and key considerations for publication.

Professor Flury has a practical approach to publishing, the main message to choose the right option for you and your research. He emphasised that many key considerations should be made in the initial stages: for instance, choosing and researching the style conditions of your preferred journal; agreeing on the list of co-authors (all of whom should understand the responsibility associated with accreditation); and taking into account the costs associated with publication, whether it be for 'open access' versus the traditional access format or deciding to submit your figures in colour instead of black and white – nobody wants an unexpected bill at the end of the day.

Why Writing a Scientific Paper?

Outline

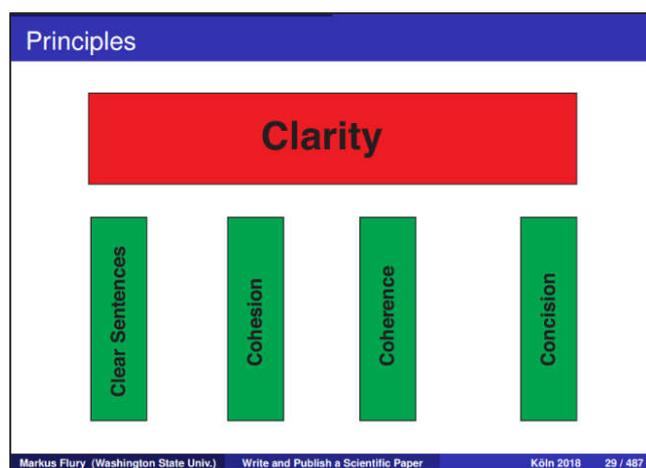
- 1 Why Writing a Scientific Paper?
- 2 The Scientific Publication
- 3 Approach to Writing a Paper
- 4 Title, List of Authors, Abstract
- 5 Introduction, Materials & Methods, References
- 6 Results, Discussion, Conclusions, Acknowledgments
- 7 Tables, Figures, Photographs
- 8 Paper Review
- 9 Scientific Style and English
- 10 Introduction into Scientific Typesetting
- 11 Scientific Misconduct and Ethics
- 12 Summary

Markus Flury (Washington State Univ.) Write and Publish a Scientific Paper Köln 2018 56 / 487

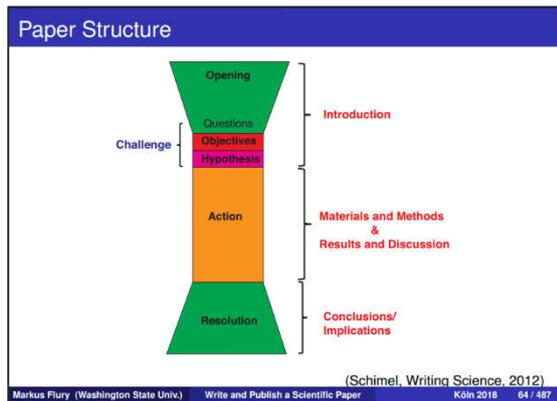
The 4 Cs for Clarity

The course combined several elements and was interactive, which made for an engaged and enthusiastic audience; students were encouraged to share their own experiences as well as their current work, which allowed the class (us) to apply some of the knowledge we had learnt along the way, for instance, discussing a clearer way to present results, or re-working a sentence to conclude a discussion point better.

The principles that should guide the process at all stages are known as the 4 Cs: Clear Sentences; Cohesion; Coherence; and Concision, culminating in, **Clarity**.



The Scientific Paper as A Recipe



The structure of a typical paper was broken down into the component parts, much in the style of a recipe for the different courses of an extravagant meal!

For each component, we were taken through the main aims of the section and how to achieve them efficiently. This was a useful breakdown highlighting simple yet important rules, for instance, which tense to use for each section, how and when to reference, how to present data as clearly as possible – the main goals always to provide clarity to the reader and tell a story.

Scientific Ethics

We looked at examples of published researchers, having been through the peer-review process, who had later been found guilty of some form of academic misconduct, through plagiarism, falsification of data or even fabrication of results. These high-profile examples illustrated the responsibility that comes with publishing research. As scientists we have a moral and ethical responsibility to ensure any research is a scrupulous account of what was done and what was found, and that it contributes meaningfully and accurately to the shared knowledge base. Scientific literature is the community's record of observation and analysis and misuse could have severe consequences, not only to lessen the integrity of the scientific community.

Current Issues in the World of Publishing

As part of the pre-coursework we were asked to read a selection of articles concerning current topics pertinent to publication which we then presented in groups throughout the course. This was a valuable exercise to understand the complexity of the publishing industry, to evaluate the potential shortfalls of the system and what Journals are doing to solve known issues. Current matters include recommendations for a pragmatic author and co-author accreditation systems; acknowledging the burden of an unpaid reviewer; predicting the consequences of journals striving to increase their impact factors and reminding the experienced scientific community of their responsibility to mentor and engage in active teaching of appropriate academic conduct to early-career researchers.

A Word on Writing

It's not easy! Professor Flury, an experienced author, re-iterated throughout, that the process of writing an academic paper is not an easy one. Revising drafts, editing whole paragraphs, even single lines, can be a long and mentally-tiring process. Whilst hearing it doesn't change that fact, it certainly helps to know that you're not alone! With that in mind, and remembering the four principles for clarity, I am hopeful that when I come to write my first paper, the lessons from this course will be a very helping hand.

*"To communicate an idea, you must have something to say, and you must have someone to say it to, and you must organize what you want to say, and you must arrange it in the order you want to say it in, and you must write it, rewrite it, and re-write it several times, and you must be willing to think hard and work hard on mechanical details, such as diction, notation, and punctuation. **That's all there is to it ...**"*

—Paul Halmos in "How to write mathematics"

And Finally, Koln!

To top it off, my fellow SAGES-colleague and I had the fantastic opportunity to visit the city of Koln. It is a vibrant city, abundant in historical buildings, green parks and good beer! What could be a better combination for productive learning? Prost!

