THE PHILOSOPHY OF WRITING

CONTENTS

- The Philosophy of Writing
- The Ethics
- Settling the authorship issues
- Writing Process Flow
- Writing
- Conclusion

THE PHILOSPHY OF WRITING

- Research is the foundation of progress and advancement.
- Writing and publication are the pillars.

PAPER AND PURPOSE

- A scientific paper is an INTELLECTUAL DOCUMENT which contains a report on new KNOWLEDGE (FINDINGS).

- The report is written in a way to convince readers that the findings are true and important

OBJECTIVES OF PUBLICATION

- The fundamental purpose of publishing papers is to share findings/knowledge.
- The objectives of sharing findings/knowledge are:
  - Verifying the scientific results through reviews & critiques
  - Enhancing knowledge through exchange of information
  - A means to measure the scholarly value (achievement)
  - Complementing other research activities
  - Solving problems
- Ultimately, to contribute towards the betterment of human lives

THE OTHER OBJECTIVES

- To have a sense of personal achievement
- To prove you are a good scientist
- To satisfy the KPI
- To get a promotion

ETHICS

“Now it's time for the actual research. You will quickly find out that (a) your project is not as simple as you thought it would be and

(b) you can't actually solve the problem. However -- and this is very important -- you must publish anyway .”

E. Robert Schulman Charlottesville, Virginia

ETHICS IN WRITING

- Common unethical mistakes:
  - Using other people‘s words or data (plagiarism).
  - Putting your name on work you didn't do.
  - Not reporting others' related or contradictory work.
  - Writing an abstract with no data.
  - Publishing the same results many times.

ETHICS IN PUBLICATION: REFERENCING

"The real purpose of introductions, of course, is to cite your own work , the work of your advisor, the work of your spouse, the work of a friend from college, or even the work of someone you've never met, as long as your name happens to be on the paper".

E. Robert Schulman Charlottesville, Virginia

AUTHORSHIP ISSUE

SETTLING THE AUTHORSHIP ISSUES: DEFINING AUTHORSHIP

- A paper is an intellectual document
- Without the intellectual contents, a paper is just a piece of paper
- Who are the authors:
  - Those providing Intellectual contributions i.e anybody that contributes to the intellectual contents of the paper
- Order of appearance: Whoever contributes the most, appears first

THE WRITE POSITION

A SURVEY OF PERCEIVED CONTRIBUTIONS TO PAPERS BASED ON BYLINE POSITION AND NUMBER OF AUTHORS

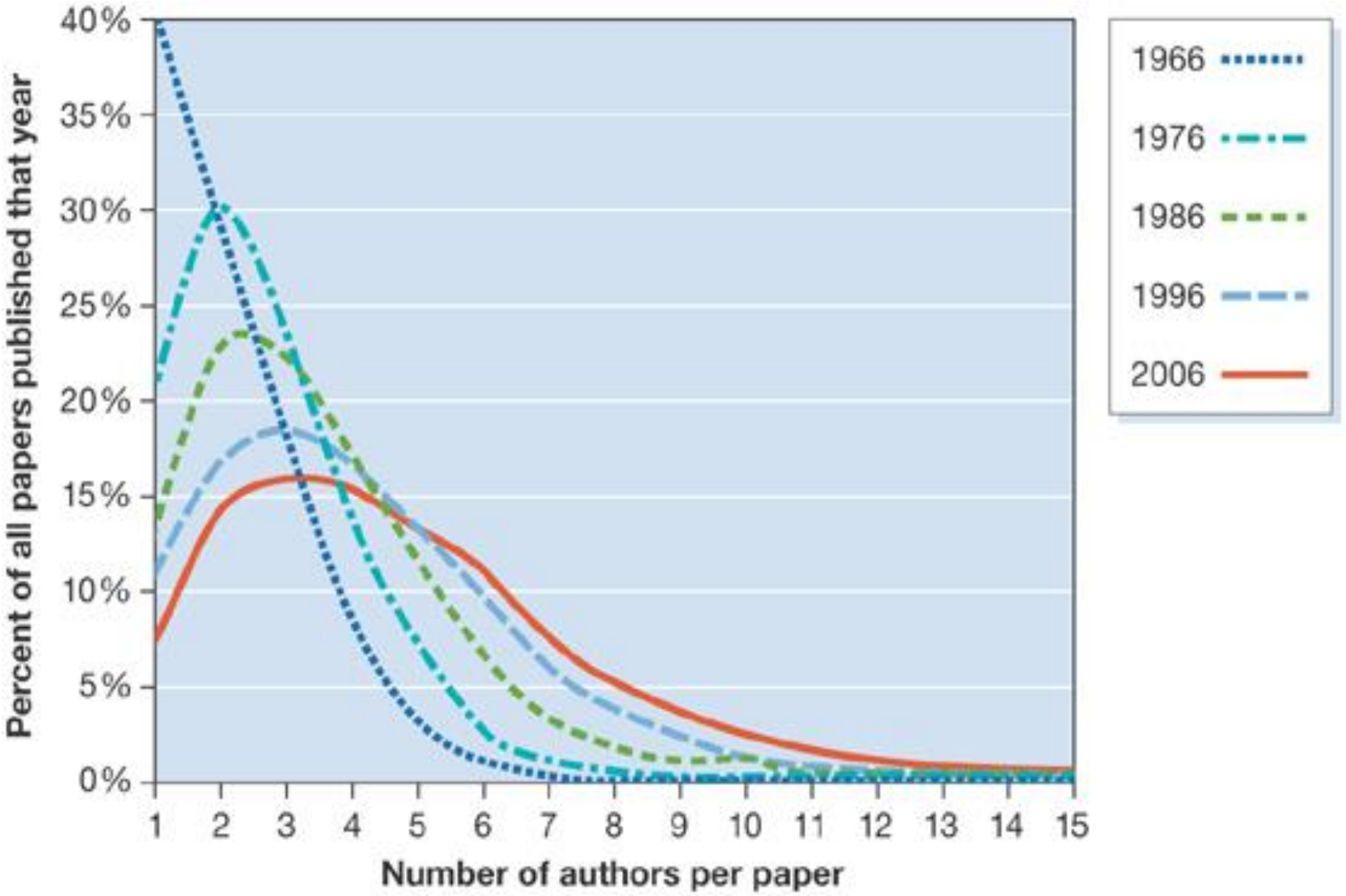
"Qualitatively speaking, those listed first or last in the byline are generally apportioned more credit for the work than middle authors. "

Jonathan D. Wren, et.al.

EMBO reports (2007) **8**, 988 - 991

TREND IN THE NUMBER OF AUTHORS

Jonathan D. Wren, et.al. *EMBO reports* (2007) **8**, 988 - 991



INTELLECTUAL CONTRIBUTIONS

- Original structured idea (conceptualized idea)
- Theoretical development
- Data collection design (simulation, experiment, survey etc.)
- Results analysis and interpretations
- Analysis and critical review/evaluation of previous studies

Note: Writing is NOT necessarily an intellectual contribution. It is an editorial contribution. **Thus, the article's writer may not be an author.**

OTHER CONTRIBUTIONS

- Financially
- Logistically
- Morally
- Physically
- Administratively,
- Editorially, etc.

Those providing the contributions above are not authors.

They should be acknowledged in a different way.

WRITING PROCESS FLOW

WRITING PROCESS FLOW

- Pre-writing = Preparation Stage
- Writing Process = Composition Stage
- Post-Writing = Editing and Publication Stage

THE WRITING PROCESS FLOW

1. Research Planning
2. Obtaining results
3. Organizing results
4. Planning for publication
5. Writing the title
6. Writing the abstract
7. Writing the introduction
8. Writing the main body
   - Methodology: Theory, Sim., Exp.
   - Results and Discussion
9. Writing the conclusion
10. Pre-submission reviewing and editing
11. Submitting
12. Correcting
13. Publishing

Pre-Writing (preparation stage)

Writing stage

Post-Writing (editing and publication stage)

WHAT IS IT IN A PAPER?

- A paper is a report about;
  - The **S**ystem under study
  - The **P**roblems to solve
  - The **A**chievements in solving the problems
  - The **M**ethods used to achieve them

It's all about **S P A M**

TYPICAL FORMAT/CONTENTS OF PAPER

Title
Abstract
Introduction
Methodology
Results
Discussion
Conclusion
Acknowledgment
Reference

TYPICAL FORMAT/CONTENTS OF PAPER; AGAIN

Title	1st summary of SPAM
Abstract	2nd summary of SPAM
Introduction	3rd summary of SPAM
Methodology	M
Results & Discussion	A
Conclusion	4th Summary of SPAM
Acknowledgment	
Reference	

CONSTRUCTION OF SPAM

CONSTRUCTING THE TITLE (1ST SUMMARY)

- A title should indicate:
  - The System you are working on
  - The Problems you are solving
  - Your Achievements
  - Your Methodology

State each point in one or two words, and join them together

SAMPLE TITLES

- **A widely tunable hybrid brillouin-erbium fiber laser (BEFL) System** Mohamad K. Abdullah, Suhairi Shaharudin, Mohd Adzir Mahdi, and Rosdisham Endut
- **A New Family of Optical Code Sequences for Spectral-Amplitude-Coding Optical CDMA Systems** S. A. Aljunid, M. Ismail, A. R. Ramli, Borhanuddin M. Ali, and Mohamad Khazani Abdullah
- **Broadband Dielectric Resonator Antenna With Metal Coating**

  Tze-Hsuan Chang, Jean-Fu Kiang

WRITING THE ABSTRACT (2ND SUMMARY)

- Another summary of **S P A M**
- Elaborate each point in 1 or 2 sentences, join them into a paragraph

SAMPLE ABSTRACT

- We demonstrate a simple method for generating a multiwavelength Brillouin comb by utilizing a linear cavity of hybrid Brillouin– erbium fiber lasers (BEFLs). The optimization of Brillouin pump wavelength, power, and erbium gain played a significant role in determining the maximum number of Brillouin Stokes signals generated. Simultaneous and stable multiple-wavelength laser output of 22 lines with 10.88-GHz channel spacing has been obtained with good flatness.

ABSTRACT - EXERCISE

- We have implemented a new service differentiation technique in the optical domain using a spectral amplitude-coding (SAC) variant of optical code division multiple access (OCDMA). The newly developed code, named KS (Khazani–Syed) is compared mathematically with other codes which use similar techniques. In our proposal, multiple weights are used to support ‘triple-play’ services (audio, video and data) with different quality-of-service (QoS) requirements. The results characterizing the bit-error rate (BER) with respect to the total number of active users show that KS offers a significantly improved performance over the previous reported techniques by accommodating additional 30 users with shorter code length and smaller code weight at BER of 10−9. In variable weight system, we have shown that KS codes with larger weight always have the best performance when other users of different weights are present in the system.

WRITING THE INTRODUCTION (3RD SUMMARY)

Introduction section should clearly describe:

- The System under study
- Background Review:
  - Motivation factor: The importance of the area of research
  - Problem Statement: The specific problems you attempt to solve
- Critical Review: Limitations of existing solutions
- The achievements (main results)
- The methodology (in brief)

SAMPLE INTRODUCTION

- Optical spectrum code-division multiple-access (OSCDMA) is a multiplexing technique adapted from the successful implementation in wireless networks. & The advantages of OSCDMA technique over other multiplexing techniques such as time-division multiple-access and frequency-division multiple-access are numerous [3],[8].Many codes have been proposed for OSCDMA such as optical orthogonal codes (OOCs) [4],prime codes, and modified frequency-hopping (MFH) codes [5].However, these codes suffer from various limitations one way or another. The codes' constructions are either complicated (e.g., OOC and MFH codes), the cross-correlation are not ideal (e.g., Hadamard and Prime codes), or the code length is too long (e.g., OOC and Prime code). Long code lengths are considered disadvantageous in its implementation since either very wide band sources or very narrow filter bandwidths are required. For example, if the chip width (filter bandwidth) of 0.5 nm is used, the OOC code will require a spectrum width of 182 nm and prime code will require 480.5 nm, whereas, modified double weight (MDW) only requires 45 nm. It will be shown that the transmission performance of MDW codes is significantly better than that of Hadamard and MFH codes. This is achieved through theoretical calculation and software simulation.

Revise! More samples!

WRITING THE MAIN BODY

- METHODOLOGY:
  1. Methods in generating/qualifying data
     - (Theory, Simulation, Experiment, Survey (Actual, Perception))
  2. Methods in analyzing data

     (Factor Analysis, Anova, Regression, SEM etc.)
- RESULTS AND DISCUSSIONS
  1. Analysis of Trend
  2. Analysis of Reason
  3. Comparative Analysis

WRITING THE MAIN BODY: METHODOLOGY-SIMULATION/EXPERIMENT

- Describe setup/ configuration (design) of the system
- Describe the working principle of the design
- Describe the components used especially the important ones
- Describe how the design is different from others (existing ones)
- Highlight the design advantages i.e in terms of simplicity, cost etc.
- Provide the specification of the system design/set-up in running texts or in tabular forms.
- Describe the assumptions made (sometimes, certain devices are used to simulate real environments)

WRITING THE MAIN BODY: METHODOLOGY - SURVEY

- Survey Questions
  - Objective – Likert Scale vs Open Ended
  - Qualitative vs Quantitative
  - Validity and Reliability
- Sampling
  - Sample size
  - Sample Framework – sample independency
  - Reliability of samples
- Methods of Data Collection
  - Face to Face, Phone Interview, On-line, Mail
  - Focus Group, Study Case, Expert Opinion
  - Participatory and Observation
- Methods of Data Analysis
  - Descriptive analysis
  - Factor Analysis
  - Analysis of variance
  - Modeling – SEM
  - Tools used

WRITING THE MAIN BODY: RESULTS AND DISCUSSIONS

- Present the data:

  Graphs, Charts, Tables
- Analyze the data:
  1. Relationship analysis
  2. Comparative analysis
  3. Optimization analysis
- Discuss the data:
  1. Analysis of trend
  2. Analysis of reason

CONTINUE

- Justify if any of your results is inferior to others’
- Highlight your better results
- Explain why and how the better results are achieved
- Relate the explanation to the theory
- Substantiate every claim (conclusive statements) using the results and/ or referencing except for the obvious, well known facts

WRITING THE CONCLUSION (4TH SUMMARY)

- Elaborate the items in the Abstract a little further focusing on the results (achievements), and your advantages

SAMPLE CONCLUSION

- In this letter, we have proposed a new family of optical code structure for amplitude-spectral encoding optical CDMA system. It has been shown that the MDW code performs better than the system encoded with Hadamard and MFH codes. The advantages of the proposed code are numerous, including easy and efficient code construction, simple encoder–decoder design, existence for every natural number , ideal cross-corre-lation , and high SNR. The simulated result of one of the four MDW coded carriers running at 10 Gb/s over a communication-standard fiber shows a good quality transmission at the BER of 10^{-12}.

Revise! More samples!

WRITING THE REFERENCES

- Ensure that all references are quoted in the text
- More references in Introduction, and Results and Discussion
- Normally, at least 5 references
- Avoid URL-sites
- Follow formats
- The later the better

SOME GENERAL POINTERS IN WRITING

- Specific Figures , Equations, Tables are Proper nouns (Figure 1, Eqn 4.2, Table 2)
- Always begin a section with texts; never begins with a figure
- Always accompany a figure, table with text description
- All conclusions must be substantiated either by your own results or by references
- Titles should not have periods
- Always mention why a section is important for your study; how is it relevant to your study.
- Avoid long sentences
- Put quotation marks clearly, else you may be mis-understood for plagiarism
- Good to keep your completed paper for sometime, and review it again before submitting it for publication
- Criticize your paper thoroughly before the reviewers do it for you

CONCLUSION

- Writing a technical paper is not about composition; it is about presenting specific information in a structured/standard way
- As long as one is clear about his/her study's SPAM, paper writing is just a natural, straight forward process
- Planning is an important part of writing/publishing that many tend to ignore

THANK YOU