ICITD Research Colloquium

Writing Good Research Papers

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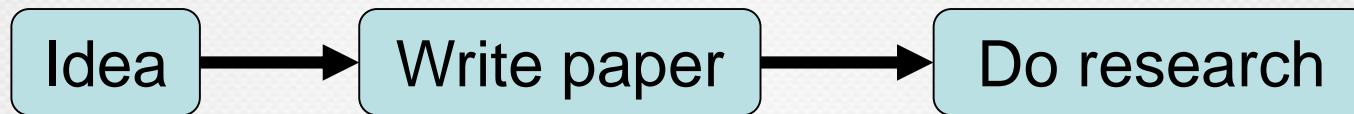Covenant University, Ota, Nigeria

Writing is a skill:

- Good writing is a skill you can learn
- Study well to write well
- It's a skill that is worth learning:
  - You will get more brownie points (more papers accepted etc)
  - Your ideas will have more impact
  - You will have better ideas

Increasing importance

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Writing papers: Model

Idea → Write paper → Do research

- **Forces us to be clear, focused**

- **Crystallises what we don't understand**

- **Opens the way to dialogue with others: reality check, critique, and collaboration**

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WWWAH Rule

- **Problem – What**

- **Reason – Why**

- **Application – Where**

- **Evidence – Any**

- **Method - How**

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Do not be intimidated

Fallacy   You need to have a fantastic idea before you can write a paper.

Rather

✓ Write a paper, and give a talk, about any idea, no matter how weedy and insignificant it may seem to you

✓ Write once, but edit many times
  ✓ Writing the paper is how you develop the idea in the first place
  ✓ Usually turns out more interesting and challenging than it seemed at first.

Papers communicate ideas

- Your goal: to infect the mind of your reader with **your idea**, like a virus

- Papers are far more durable than programs (think Mozart)

The greatest ideas are (literally) worthless if you keep them to yourself

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The Idea

- Figure out what your idea is

- Make certain that the reader is in no doubt what the idea is. Be 100% explicit:
    - "The main idea of this paper is…."
    - "In this section we present the main contributions of the paper."

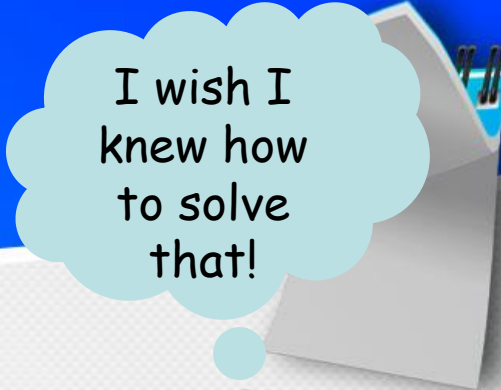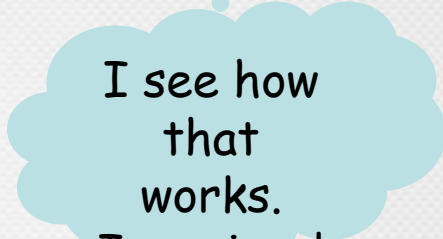- Many papers contain good ideas, but do not distil what they are.

One Clear Sharp Idea

- Your paper should have just one clear, sharp idea

- Read your paper again: did the idea "click"?

- You may not hear clearly what the click is when you start writing; but you must hear when you finish

- If you have lots of ideas, write lots of papers

Your narrative flow (WWWAH)

- **Here is a problem**

- It's an interesting problem

- It's an unsolved problem

- **Here is my idea**

- My idea works (details, data)

- Here's how my idea compares to other people's approaches

I wish I knew how to solve that!

I see how that works. Ingenious!

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Structure (conference paper)

- Title (1000 readers)
- Abstract (4 sentences, 100 readers)
- Introduction (1 page, 100 readers)
- The problem (1 page, 10 readers)
- My idea (2 pages, 10 readers)
- The details (5 pages, 3 readers)
- Related work (1-2 pages, 10 readers)
- Conclusions and further work (0.5 pages)

What is an abstract?

- An abstract is a brief summary of a research article, thesis, review, conference proceeding, or any in-depth analysis of a particular subject or discipline

- It is often used to help the reader quickly ascertain the paper's purpose.

- An abstract acts as the point-of-entry for any given academic paper or patent application.

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A good abstract

- **Sparks interest in your project**

- **Provides a concise description of your research project**

- **States in a clear and simple way the main points of your project**

- **Stands alone**

- **Targets your specific audience!**

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Components of an Abstract

- Title
- Authors
- Problem/Objective
- Methods/Procedure/Approach
- Results/Findings/Product
- Conclusion/Implication

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Abstract (Medical Research)

- Context/Background
- Objective } OBJECTIVE

- Design
- Population/Setting
- Intervention (if applicable) } METHODS
- Outcome measures
- Analysis

- **Results**

- **Conclusion**

Title

- Describe your most important result/the major thing you found or did

- It is the advertisement for the paper

- Keep it relatively short

- Avoid all abbreviations and technical jargon

Authors

- **Your name should go first if you are presenting**

- **Your mentor should generally be an author (usually last author)**

- **Additional people who have worked the project may be authors – be sure to talk to your mentor!**

Objective

- **Motivation – why do we care about the problem?**
- **What practical, artistical, or scientific gap is your project filling?**
- **Why were you drawn to this project?**
- **You will generally need a little background/intro to explain the objective**
- **The objective should catch people's attention – very important**

Methods

- Procedure or approach to the project.

- How did you go about finding your results?

- What steps were taken to carry out the project?

- Don't go into too much detail!

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Results

- A description of your data and observations – enough detail to make it clear

- Still try to avoid jargon

- As a result of your procedure, what was found or created?

- Typically does not include actual data (p-values, survey statistics, gene sequences…)

- NEVER predict your results!!!

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Conclusion

- **What are the larger implications of your work?**

- **What is the bigger picture?**

- **Work on incorporating these implications into your very last sentence**

Helpful Hints

- Look at examples of abstracts in your field
- If your abstract is based on a report or paper:

    1. reread your report or paper and summarize the main points or idea

    2. Don't add any information that is not in your report or paper

Get your mentor's approval!!!!

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References

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