

Writing to Be Read: From Data to Knowledge

Tilahun Amede

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Premises in Science

- ✓ Writing manuscripts for peer reviewed journals is a learned skill
- ✓ All scientists must publish their work.
- ✓ Research was never really conducted if it is not published
- ✓ People are still able to get their work published even if it seems similar to previously published work
- ✓ Scientific knowledge is a communal resource; it's available for others to judge and affirm as important



Premises continue..

- The intent of a scientific article is so other scientists can reproduce your results and corroborate your claims
- If the article is lacking in detail, results will come out different and your work will not be able to be verified.
- The proof of good research is a publication in reputable journal
- Therefore: **Read as many scientific journal articles as possible and start drafting!!**



Publish or Perish?

- Preeminent communication tool; exchange of findings among researchers.
- Keeping score; a researcher accumulates a list of papers, that serves as a score sheet in awarding positions, promotions, and research grants
- Process spawns new insights and innovative thoughts



Five reasons impeding publishing scientific work

- The research is not worthy of publication,
- Scientists are too busy to publish,
- Scientists are too picky and critical of their own work,
- Researchers lack the skill in writing
- Scientists cannot take criticism and are unwilling to have their work scrutinized by others, and
- Miscellaneous excuses.



To publish, you should ask

- Am I familiar with the scientific literature?
- Does my work recognize what has been done by others?
- Is my research too broad/shallow to reach a conclusion?
- Does my supervisor publish in this area? Where?
- Do I need to wait for my supervisor's pressure to publish?
- Is my work publishable? where? In what form?



To improve your writing (Janzen, 1996)

- **Focus on the reader:** If you can't hold a reader's attention, it scarcely matters what you can do. You've already lost!!
- **Tell the story:** It is like fiction. "Science is built up with facts, as a house is with stones. But a collection of facts is no more a science than a heap of stones is a house".
- **Be brief:** "You must have made this paper longer than usual, only because you didn't take time and make efforts to make it better."
- **Emphasize the new:** It is better to fail in originality than to succeed in imitation.



.. Continue

- **Perform thought experiments:**
Experiments do not always need laboratories and equipment.
- **Speculate:** Careful, measured speculation is a key element of effective scientific writing
- **Read widely:** greatest part of a writer's time is spent in reading, in order to write; a man may turn over half a library to make one book
- **Inject personality:** Writing is a personal transaction between two people, conducted on paper, and the transaction will go well to the extent that it retains openness and integrity



Science daily, 2005

- ✓ Writers who use long words, choose complicated font styles are seen as less intelligent than those who stick with basic vocabulary and plain text;
- ✓ People tended to rate the intelligence of authors in simpler language, using easy words, as higher than those who authored more complex words;
- ✓ Anything that makes a text hard to read and understand, long words or complicated fonts, will lower readers' evaluations of the text and its author



Effective Title of a Paper

- Be informative and lucid in few words
- Include a subtitle, if further detail is needed
- Avoid nonstandard abbreviations
- Begin with an important term to give immediate impact
- Avoid subjective evaluations



Good and Bad titles

Bad title: Effect of P-application on Soil Acidity in

Good title: Reversal effect of P-application on Soil Acidity in...

Bad title: BNF and its role in improving LWP in...

Good title: Biological Nitrogen Fixation and its role in improving Livestock water....

Bad title: Studies on the feed quality of *Vicia villosa* under...

Good title: *Vicia villosa*' s feed quality is determined by..

Bad title: A novel method for determining the molecular weights of denatured proteins

Good title: A rapid method for determining the molecular weights of protein: ...



An abstract

What an abstract should contain? The content mirrors closely the elements that comprise the traditional research paper, namely:

- Introduction - catching the reader's interest: emphasis, short, clarity, background, objectives of present work.
- Materials and methods - not just for scientific investigations but what inputs were required, what approaches did you take?
- Results or findings - describe the key results in a logical and chronological order.
- Discussion - discuss the results, implications, highlight significance. Be certain to get the message over but do not restate the results.
- Conclusions - summarize what has been done so the reader is left in no doubt as to what you did



Introduction

- Background for the work you are doing
- Research questions
- What ideas were studied? What others have said, findings?
- Hypothesis of your work
- Tell the reader why he/she should keep reading



Materials and Methods

- Description of the equipment and materials employed
- Detailed description of the experiments.
- Explanation of the way in which the work was done. Emphasize the features that are new
- Explain in sufficient details; e.g. experimental designs,..
- Experimental facts should be given in the past tense

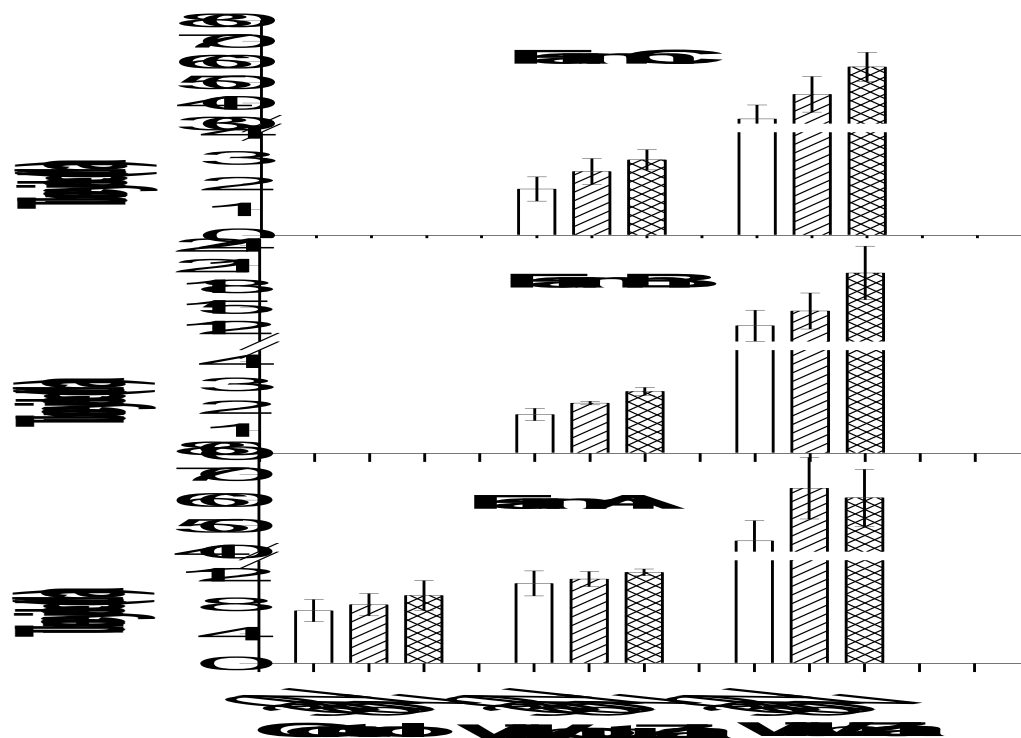


Results

- Orderly arrangement of results.
Choose an order that serves best the needs of clearness, coherence, and emphasis.
- Clearly display what you have found;
no speculation, no discussion!
- Self explanatory figures and tables



Year	Annual rainfall (mm)	Rain fall amount during the growing period (mm)										Mean temperature (oC) (SD)
		March	April	May	June	July	August	September	October	November	December	
2002	1057	121.9	97.7	173.3	83.9	90.5	225.2	54.2	58.6	2.0	96.4	20.2 (0.9)
2003	1254	62.0	131.3	66.6	186.7	198.1	262.6	36.2	62.4	40.3	86.0	20.2 (1.5)
2004	1204	41.0	277.8	106.0	103.3	185.2	159.3	63.6	93.0	39.2	27.7	19.9 (1.2)
2005	1619	186.9	208.4	323.2	108.4	241.7	134.5	151.5	107.2	113.5	5.0	20.0 (1.4)
2006	1371	125.5	222.1	142.6	101.7	136.7	258.6	62.1	133.4	37.6	120.9	19.6 (0.8)



Discussion

- What conclusions could be drawn from your results?
- Main principles, causal relations, or generalizations that are shown by the results.
- Choose main points which you wish to prove.
- Exceptions and opposing theories, and explanations of these
- Comparison of your results and interpretations with those of others
- Discuss similar points in the same order, and use similar forms of expression.
- Align with the materials in the introduction
- Making inference if it is beyond your scope
- Recommend further research, issues..



References

- First thing people check to assess quality
- Latest in years except most influential ones
- Extensive citation / selective citation
- Grey literature / peer reviewed papers



What do you write first?

1. Tables/ figures/ frameworks/ models
2. Materials and Methods
3. Results
4. Introduction
5. Discussion
6. References
7. Title
8. Abstract



Where to publish?

- Identifying appropriate journal-a challenge;
- Currently more than 400 predatory journals- publish as far as you pay them; 24 hours.
- Drain credibility; loose recognition; misuse your good data
- Impact factors, as best indicators
- Checking the editorial board, history, who is writing among peers;
- Search through Ulrich international periodicals





WHAT?!! You mean you want the revision of the original revised revision to be REVISED?!!!

**Rule # 1: You Must Excite the
Editors and the Reviewers
(covering letter, neat, concise,
orderly..)**



Rule # 2

***Reviewers are never wrong,
Reviewers are never right;***

***they simply provide an assessment
of material that you provided
in your application***



Rule \$ 3

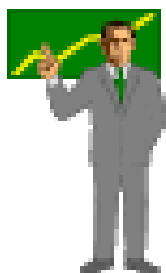
Comments in the summary statement are never about you as a person.

The comments are about the material that you provided in your application and the way in which you provided the information



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Rule # 4



Secure a Mentor(s)

Who can provide advice and guidance

Secure a Collaborator(s)

Who can provide needed experimental expertise

Rule # 5: Wait for your turn

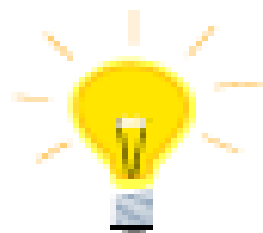
Author's track record could be a factor in publishing success.

"Editors are human; they can be influenced by past work, name they recognize"

... many papers include the names of established scientists among their authors even when they may have contributed little to the work



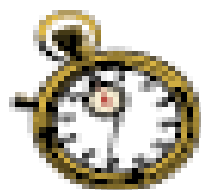
Elements of success



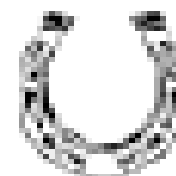
**Good
Ideas**



**Good
Reviewers**



**Good
Timing**



**Good
Luck**



**Good
Presentations**



**Good
Grantsmanship**

Good Luck !

