Publish or Perish

Arsineh Hecobian
Introduction

• What do I do for a living?
  • Research scientist in atmospheric sciences

• Why did I decide to do this presentation?
  • Published scientific journal articles, published essays and poems in English and other languages, worked as an editor, worked as a technical writer, reviewed others articles…..

Yet, I still struggle with this thing called writing!!!
So I decided to a do a review of what I know works to…
INSPIRE ME!!!!
Overview

• The recipe for writing
  • A paragraph, an article, a report, a grant application
  • A short story, a poem, a blog, a book

• Time management
Is Writing Difficult? A Challenge?

What are some reasons we think writing is difficult?
Stages of the writing “process”

• Prepare: research, data, background search, literature search
• Write
• Edit
• Share
• Revise
• Send in for publication
• Revise
• PUBLISH!!!
Planning the Story

• Why: Purpose (motivation, forward)
• Who: Audience (journal, book genre)
• What: Content

• When: Time constraints
• Where: Space constraints
Effective Communication

• What is your message?
  - Oil and gas operations have affected the concentrations of ambient pollutants in North Dakota.
  - She lived her life with courage and strength.

• Write your message in one sentence:
  - What:
  - So what: This can cause health and environmental concerns.
Identifying Your Audience

- Specialists
  - More specific detail
- General
  - More background
Design

- Title
- Abstract
- Introduction
  - Background
  - Motivation
- Body
- Conclusion
Title

• Simple and specific
• Don’t use a question or complete sentence

Red hens undergo spontaneous chromosome rearrangement when exposed to ultraviolet light

Ultraviolet light-induced chromosome rearrangement in red hens

• Mention the main subject of the study
Abstract and Summary

- **Abstract**
  - Need: Why did I feel the need to conduct this research
  - Task: What did I do to address this need
  - Object: What the present document shows (result of addressing the need)

- **Summary**
  - Findings: What did I find by conducting this research
  - Conclusion: What the findings mean for the audience
  - Perspective: Recommendation for future work
Introduction

Statement of the problem under investigation

- Background
- Previous research
- The need for research presented here
Body
Materials and Methods

• All the information needed to communicate your message

• Not specific directions given in a laboratory notebook

  First pour agar into six petri plates. Then inoculate the plates with the bacteria.
  
  Six plates were prepared with agar and inoculated with the bacteria.
Body

Results and Discussion

• Results
  • Summarize the data and describe the results of the experiment.

• Discussion
  • Interpret the data and the results of the experiment.

• Focus on the important parts, not the small details.

• Discuss unexpected results. It is often as valuable (sometimes more) as expected ones.
Conclusions

• Answer the question posed in the Introduction.

• Readers should be able to read Introduction and Conclusions to have a complete idea of the paper. Sometimes Abstract and Conclusions.
Other

- Author list
- Acknowledgements
- References
  - Update again after the final review but before submitting for publication.
  - Reference management software (Mendeley, Endnote, Zotero, Qiqqa, …)
- Supplementary Material
As a rule, use fewer hierarchical levels than items per level. Humans handle recursion with even more difficulty than lists.

You can apply the effective communication rules to each Chapter, Section, and Subsection.
Sections and Subsections

• Include a paragraph (or more) between the heading of a section and a subsection.
  • It must let readers know what the subsections are (effective redundancy).
Being Clear, Accurate, and Concise

- Word choice
  - Never use a long word where a short one will do.
- Passive voice
  - Active is better than passive
  - Sometimes depends on discipline
- Number of words
  - If it is possible to cut a word out, always do so.

- Clarity
  - Words with well-known meanings
- Accuracy
  - Subject and verb choice
    - Example: *With this method, the volume is underestimated*
    - This method underestimates the volume
- Conciseness
  - Shortest, most clear and accurate sentence to convey your message.
    - Example: *Perform and examination of…*
    - Examine…
<table>
<thead>
<tr>
<th>Instead of:</th>
<th>Write:</th>
</tr>
</thead>
<tbody>
<tr>
<td>prior to</td>
<td>before</td>
</tr>
<tr>
<td>due to the fact that</td>
<td>because</td>
</tr>
<tr>
<td>in a considerable number of cases</td>
<td>often</td>
</tr>
<tr>
<td>the vast majority of</td>
<td>most</td>
</tr>
<tr>
<td>during the time that</td>
<td>when</td>
</tr>
<tr>
<td>in close proximity to</td>
<td>near</td>
</tr>
<tr>
<td>it has long been known that</td>
<td>I'm too lazy to look up the reference 😊</td>
</tr>
</tbody>
</table>

**Wordplay**

1. Use verbs instead of abstract nouns
   *Instead of: take into consideration*
   *Write: consider*

2. Use strong verbs instead of "to be"
   *Instead of: The enzyme was found to be the active agent in catalyzing...*
   *Write: The enzyme catalyzed...*
Example:

• *Single-use, disposable medical devices are packaged and sterilized by the manufacturer. Their packaging must provide protection, facilitate sterilization, maintain sterility…* Reusable devices, by contrast, must be…

• *Medical devices may be broadly divided into two categories, disposable and reusable, having different sterilization requirements.* Single-use, disposable devices are packaged and sterilized by the manufacturer. Their… Reusable devices, by contrast, must be…
Example

- Figure 2 shows the evolution of the Ge content in the SiGe layer. Obviously, there is a nearly linear decrease of the Ge content with increasing influence…

- The geranium content decreases linearly with increasing influence (Figure 2).
The number of triangles that are used to describe a mesh can be scaled up or down. This can be achieved by performing edge collapses and vertex splits, respectively, as shown in Figure 6.

The number of triangles used to describe a mesh can be scaled up or down through edge collapses or vertex splits respectively (Figure 6).
Example

- Table 5 summarizes the results of our tests. These results show the superiority of…

- The results of our tests are summarized in Table 5. They show the superiority of…

- The results of our tests, summarized in Table 5, show the superiority of…
Revising

- Budget time for it.
- Iterations
- Feedback (who, when)

- Experts in your field
  - Co-authors
  - Colleagues
  - Students
  - Advisor (supervisor)

- Non-Experts
  - My mom
References

• Science: Credit and completeness
• Keep up to date
• Use correct format for journal
• Fiction: Credit
How to improve your writing?

• Read
  • Well written books/articles are inspiring, but they also hone your mind to write more and better
    
    I open my eyes and don’t know where I am or who I am. Not that unusual, I have spent half my life not knowing. Still, this feels different. This confusion is more frightening more total.

• Write
  • Write today, edit another day
What is holding you back from writing?

**THE NEUROBIOLOGY OF WRITING**

**HOW IT'S SUPPOSED TO WORK:**

- **PROCESS LANGUAGE**
  - Temporal Lobes

- **CONTROL HANDS**
  - Motor cortex

- **TRANSMIT COMMAND**
  - Brain stem

- **ACTIVATE MUSCLES**
  - Motor neuron

- **EXECUTE COMMAND**
  - Prefrontal cortex

- **SUCCESS!**
  - Words

- **TYPE**
  - Flexor digitorum

**HOW IT USUALLY WORKS:**

- **CONFUSION**
  - Prefrontal cortex

- **FEAR**
  - Amygdala

- **PANIC**
  - Sympathetic System

- **INADEQUACY**
  - Limbic System

- **INSECURITY**
  - Anterior cingulate cortex

- **MOTIVATION**
  - Inferior frontal gyrus

**WWW.PHDCOMICS.COM**
It’s all in the Chemistry

- Dopamine
  - Motivation to achieve goals and pleasure when achieving them.

- Serotonin
  - Feelings of significance and importance.

- Break down tasks to small achievable steps. Acknowledge each step.
- Create a series of small finish lines.
- Gratitude, vision board.
- Go outside during a break (sun)
Motivation

- Why do you want/need to write?
- Vision boards
- What motivates YOU?

“The people who get on in this world are the people who get up and look for the circumstances they want, and, if they can’t find them, make them.”

—George Bernard Shaw
Procrastination

• Divide and conquer: Break the task down into smaller parts.

• Ability: Past successes.

• Deadlines: Commit to self-defined deadlines.
Focus

1. Set a writing block
2. Create accountability
   • Have a system.
3. Clear distractions
   • Internet free locations
   • WriteRoom, OmmWriter, or Byword.
How to make writing time fun?

The Pomodoro Technique®

1. Set a kitchen/online timer to 25 minutes
2. Find out how much time your activity needs by monitoring how many Pomodoro you need in order to accomplish a specific task
3. Spend a few Pomodoro minutes for recap and review
4. Set a timetable

You can track how you improve over time…

But it won’t help if you do not focus on your task for the 25 minutes!!
SMART goals

- **Specific**
  - Define expectations
  - Avoid generalities and use verbs to start the sentence

- **Measurable**
  - Quality, quantity, timeliness and cost

- **Achievable**
  - Challenging goals within reason. Do not assign too many goals even though each one is within reason

- **Relevant**
  - Link the goal to higher level business unit goals. Ensure the employee understands the link

- **Time-bound**
  - Date or elapsed time to complete the goal
### Stephen Covey’s time management matrix

<table>
<thead>
<tr>
<th>URGENT</th>
<th>NOT URGENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I</strong></td>
<td><strong>I</strong></td>
</tr>
<tr>
<td>Crises</td>
<td>Prevention</td>
</tr>
<tr>
<td>Pressing problems</td>
<td>Preparation</td>
</tr>
<tr>
<td>Deadline driven projects</td>
<td>Relationship building</td>
</tr>
<tr>
<td></td>
<td>Recognizing new opportunities</td>
</tr>
<tr>
<td></td>
<td>Planning</td>
</tr>
<tr>
<td></td>
<td>Values clarification</td>
</tr>
<tr>
<td></td>
<td>True recreation</td>
</tr>
<tr>
<td><strong>II</strong></td>
<td><strong>IV</strong></td>
</tr>
<tr>
<td>Interruptions</td>
<td>Trivia</td>
</tr>
<tr>
<td>Many pressing matters</td>
<td>Busywork</td>
</tr>
<tr>
<td>Some phone calls</td>
<td>Some phone calls</td>
</tr>
<tr>
<td>Some mail</td>
<td>Junk mail</td>
</tr>
<tr>
<td>Some email</td>
<td>Time wasters</td>
</tr>
<tr>
<td>Some reports</td>
<td>Escape activities</td>
</tr>
<tr>
<td>Some meetings</td>
<td></td>
</tr>
<tr>
<td>Many popular activities</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Manage</strong></td>
<td><strong>Focus</strong></td>
</tr>
<tr>
<td>these activities</td>
<td>on these activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduce</strong></td>
<td><strong>AVOID</strong></td>
</tr>
<tr>
<td>these activities</td>
<td>these activities</td>
</tr>
</tbody>
</table>
15 minutes of writing per day
The Seinfeld Strategy

• He said the way to be a better comic was to create better jokes and the way to create better jokes was to write every day.

• X marks the spot and keep up the chain!!!
Rejection

• The fear is real.
• It is OK.
• Use inspiration from your and others past to move forward.
Fun books to spark your creativity

- For scientific writing blocks… Read others articles!
Resources

- Trees, maps, and theorems by Jean-luc Doumont
- http://www.nature.com/scitable/ebooks/english-communication-for-scientists-14053993/contents
- https://cgi.duke.edu/web/sciwriting/
- Writing Science by Joshua Schimel
- https://www.elsevier.com/connect/infographic-tips-to-writing-better-science-papers
- https://www.colby.edu/biology/B117x/writing_papers.html
- http://cirillocompany.de/pages/pomodoro-technique
- http://jamesclear.com/stop-procrastinating-seinfeld-strategy
- https://zenhabits.net/resistance/
- On Writing: A Memoir of the Craft by Stephen King
“I’ve written because it fulfilled me. Maybe it paid off the mortgage on the house and got the kids through college, but those things were on the side—I did it for the buzz. I did it for the pure joy of the thing. And if you can do it for joy, you can do it forever.”

-Stephen King