Research Reports Workshop

April L. Vise
BUILD Science Writer
September 16, 2016

BUILDing
SCHOLARS

Overview

▸ BUILD Writing Assignments

▸ Basics of a Research Report

▸ The Writing Process
  ▪ Scientific Writing Language

▸ Resources

BUILD Writing Assignments

BUILD Writing Assignments— Why?

▸ Accountability to NIH
  - This grant is writing intensive.
  - We want you to be great biomedical researchers AND writers!

▸ All assignments (but 1) are already required in Mentoring Plan (Chronus)
  ▸ You will receive reminders in Chronus 2 weeks before the due dates.

▸ End product ➡ Senior Honors Thesis

BUILD Writing Assignments — Juniors

Assignment	Due Dates
	Fall 2016
#1 Annotated Bibliography	November 9 → Mentor* November 23 → BUILD
#2 Abstract	December 2 → Mentor* December 12 → BUILD
	Spring 2017
#3 Thesis Proposal	April 24 → Mentor* May 5 → BUILD

*Your mentor needs to review your assignment prior to final submission to BUILD. You may send your draft to your mentor before this date.

BUILD Writing Assignments — Seniors

Assignment	Due Dates
	Fall 2016
Thesis proposal due for those with new mentors	October 10 → BUILD
#1 Thesis—Intro & Methods section	November 9 → Mentor* November 23 → BUILD
	Spring 2017
#2 Thesis—Results & Discussion section	March 20 → Mentor* March 31 → BUILD
#3 Thesis (final)	April 24 → Mentor* May 5 → BUILD (previously Apr. 26)

*Your mentor needs to review your assignment prior to submission to BUILD. You may send your draft to your mentor before this date.

BUILD Writing Assignments— General Guidelines

▸ Use these guidelines to help guide you through your research writing.

▸ Consult with your mentor since there may be a different format more appropriate to your specific field.

BUILD Writing Assignments—Submission Process

▸ Please submit all assignments to buildingscholars@utep.edu with a subject line of "<Insert Assignment Name Here>:[Student's Last Name]".

- cc: **BUILD** when submitting assignments to **YOUR MENTOR**

- cc: **YOUR MENTOR** when submitting assignments to **BUILD**

Writing Circles

▸ Goal: Peer review on written assignments Bring a writing assignment & laptop

  ▪ Any writing assignment, personal statement, CV, resume, etc.

  ▪ For both BUILD juniors and seniors

  ▪ These are optional, but encouraged!

▸ **All sessions will be held on Saturdays in the SCALE-UP room from 10 a.m. to 1 p.m.**

Fall	Spring
October 15	February 4
November 19	April 1

FAQs

- ▶ How do I find a scientific journal in my field?
  - Visit the UTEP library online (or ask a librarian)
    - Intro to Online Databases
      - https://www.youtube.com/watch?v=600V99rF_jQ&feature=youtu.be

- ▶ What is an annotated bibliography?
  - It is a list AND summary of each of your sources/references.

- ▶ Is there an abstract and thesis template?
  - Yes. They are located on the Chronus portal.

Basics of a Research Report

Types of Research Articles

▶ Empirical ✓
- Contains original research based on experience and observation

▶ Review
- Summarizes the current state or progress of a particular subject, topic of area

Empirical Articles— The "Bones"

▸ Abstract

▸ IMRaD
  - Introduction
  - Methods
  - Results, AND
  - Discussion
    (Recommendations/Conclusion)

▸ Citations and References

IMRaD

- Intro
- Methods
- Results
- Discussion

Abstract

- Motivation
  - Why do you care about the problem and results?
- Problem statement
  - What problem are you trying to solve?
- Approach
  - How did you answer your research question?
- Results
  - What is the answer?
- Conclusion
  - What are the implications of your answer?

Abstract — Goals

- Audience can learn about all aspects of your research without actually reading your paper

- Include what is MOST important

IMRaD—Hourglass Technique

Central report sections

- Intro = starts out broad, then focuses on specific study and hypothesis

- Method = very narrow; what you did/used; technical

- Results = still narrow; focuses on specific tests performed to test your hypothesis

- Discussion/Conclusion = starts narrow; summarizes results; becomes broader as you discuss implications and limitations of your research

IMRaD—4 components

‣ Try to follow the Hourglass Technique and FOUR basic components

Introduction

- Intro = starts out broad, then focuses on specific study and hypothesis

- Method
- Results

- Discussion/Conclusion

Introduction—4 components (cont.)

▸ Establish the importance in your field

▸ Provide background facts/information

▸ Define the terminology

▸ Present the problem area/current research focus

Step 1

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Introduction—4 components (cont.)

▸ Discuss previous and/or current research and contributions

Step 2

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Introduction—4 components (cont.)

▸ Locate a gap in the research

▸ Describe the problem you will address

▸ Present a prediction to be tested

Step 3

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Introduction—4 components (cont.)

▸ Describe the present paper (your research)

Step 4

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Methodology

- Intro

- Method = very narrow; what you did/used; detailed; technical

- Results

- Discussion/Conclusion

Methodology—4 components

▸ Provide a general introduction and overview of the materials/methods

▸ Restate the purpose of the work

▸ Give the source of materials/equipment used

▸ Supply essential background information

Step 1

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Methodology—4 components (cont.)

▸ Provide specific and precise details about materials and methods

  ▪ Quantities, temperatures, duration, sequence, conditions, locations, sizes

▸ Justify choices made

▸ Indicate that appropriate care was taken

Step 2

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Methodology—4 components (cont.)

▸ Relate materials/methods to other studies

Step 3

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Methodology—4 components (cont.)

▸ Indicate where problems occurred

Step 4

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press
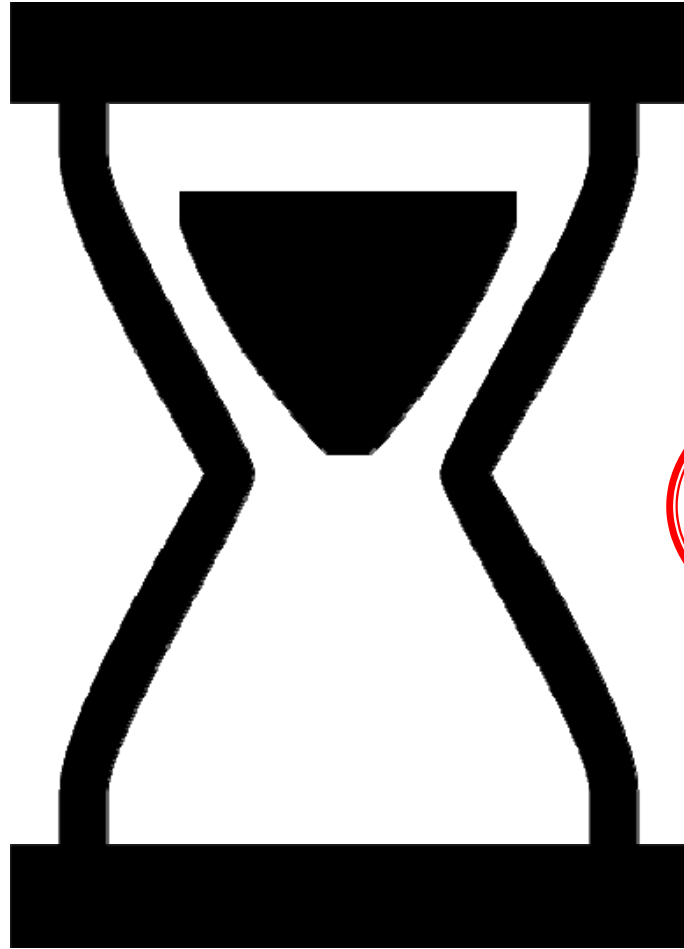
Results

- Intro

- Method

- Results = still narrow; focuses on specific tests performed to test your hypothesis

- Discussion/Conclusion

Results—4 components

▸ Revisit the research aim/existing research

▸ Revisit/expand the methodology

▸ Give general overview of results

Step 1

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Results—4 components (cont.)

- Invitation to view results
  - Make sure reader interprets your data (figures, tables) correctly

- Specific/key results in detail, with or without explanations

- Comparisons with results in other research

- Comparison/s with model predictions

Step 2

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Results—4 components (cont.)

▸ Discuss problems with results

Step 3

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Results—4 components (cont.)

▸ Discuss possible implications of results

Step 4

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Discussion/Conclusion

- Intro = starts out broad, then focuses on specific study and hypothesis

Opposite of Intro

- Method
- Results

- Discussion/Conclusion = starts narrow; summarize results; becomes broader as you discuss implications and limitations of your research

Discussion/Conclusion—4 components

▸ Revisit previous sections
- Summarize general or key results

Step 1

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Discussion/Conclusion—4 components (cont.)

‣ Mapping
  ▪ What is the relationship to existing research?

Step 2

Discussion/Conclusion—4 components (cont.)

▸ Achievement/Contribution
  - Refining the implications
  - What does this mean??

Step 3

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Discussion/Conclusion—4 components (cont.)

▸ Limitations

▸ Current and Future Work

▸ Applications

Step 4

Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

Last, but not least…

Don't forget your citations and references!

Citations vs. References

Citation	Reference
▸ **Citations are located in the body of your text.** ▸ A *citation* occurs when you use a specific source **in your work** and then list the source in the reference section.	▸ References are located at the end of a report and contain the complete citation information.

Citations & References (cont.)

- According to the Canadian Lung Association (2008), most people who quit smoking use a combination of methods.

- Canadian Lung Association. (2008). *How to quit*. Retrieved May 26, 2008, from http://www.lung.ca/protect-protegez/tobacco-tabagisme/quitting-cesser/how-comment_e.php

Citation

Reference

Citations & References (cont.)

▸ **Know what to cite**
- Keep track of original sources
- Be careful of "cut and paste" online research
- Beware of "common knowledge"
- When in doubt, you must cite

▸ **Know how to cite**
- Provide enough information in order to find the original source
- Use your own words and ideas
- If you repeat another's exact words, you must use quotation marks and cite the source
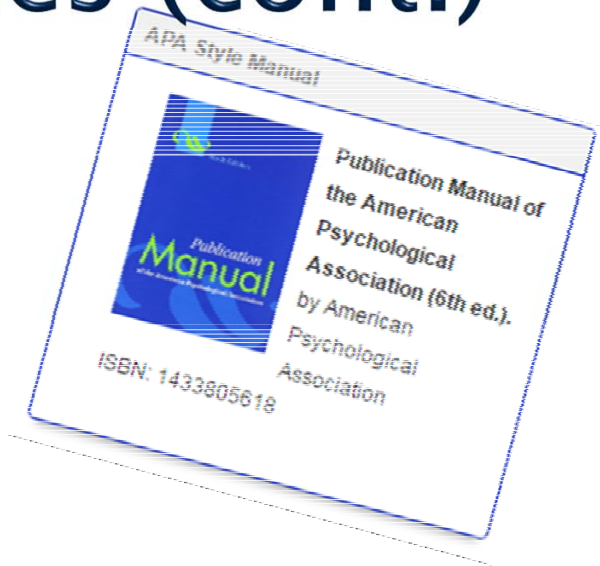- Avoid using others' work with minor cosmetic changes

Citations & References (cont.)

- Style
  - This is determined by your professor, or if publishing, determined by the journal and publisher. Each discipline tends to use one of two styles. CHECK!
    - Common: APA, MLA, Chicago

Citations & References (cont.)

- Format
  - Consult the Style Manual (newest edition)
 - Purdue Online Writing Lab https://owl.english.purdue.edu
  - UTEP Library Website

Citations & References (cont.)

▸ FAQ: What is the difference between a Bibliography vs. Reference page vs. Works Cited?

- Depends on the style. (See previous bullet.)
  - Reference pages contain a **complete list** of all sources you have cited. Bibliographies **contain all sources** you have used, whether they are directly cited or not.

The Writing Process:
How do I start?
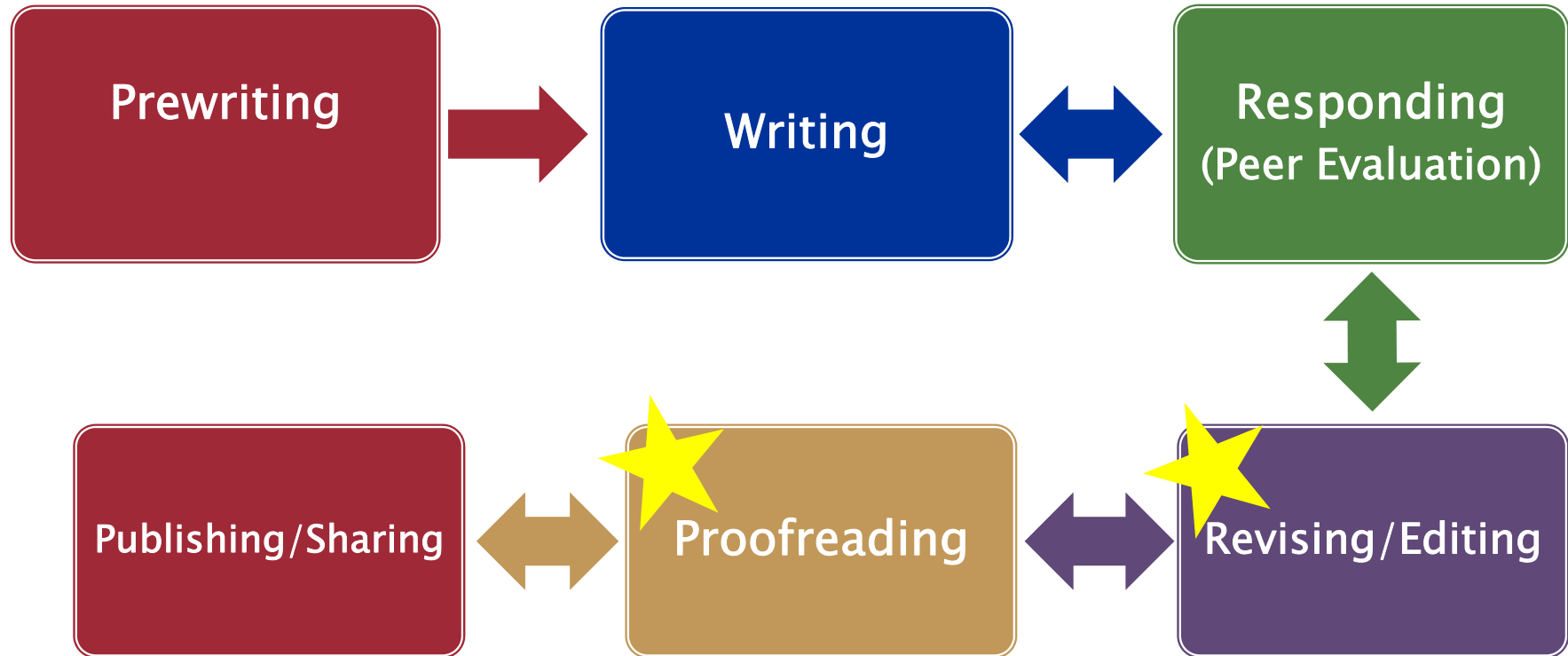
Prewriting — Strategize

▸ Brainstorming

▸ Freewriting

▸ Outlining

▸ Identify your audience

▸ "The Journalists' questions"
  ▪ Who, What, When, Where, Why, How

Writing

▸ Voice

▸ Word choice

▸ Grammar

▸ Content

▸ Organization

Scientific Writing Language

▸ Sentences
  ▪ Complete, grammatically correct
  ▪ Short, clear

▸ Words
  ▪ Use technical terms correctly
    • absorb vs. adsorb
    • complement vs. compliment
    • affect vs. effect
    • where vs. were

Scientific Writing Language (cont.)

- Tenses
  - Present — Known facts and hypotheses
  - Past — Experiments you have conducted
  - Past — Results of an experiment

- Use Active Voice
  - Passive: "It has been discovered that…"
  - Active: "We discovered that…"

Scientific Writing Language (cont.)

▸ Style
- Use formal language
  - examine vs. look into
  - increased vs. got bigger
  - decreased vs. got smaller

- Avoid contractions and possessive of things
  - hasn't vs. has not
  - the water molecule's shell
    vs.
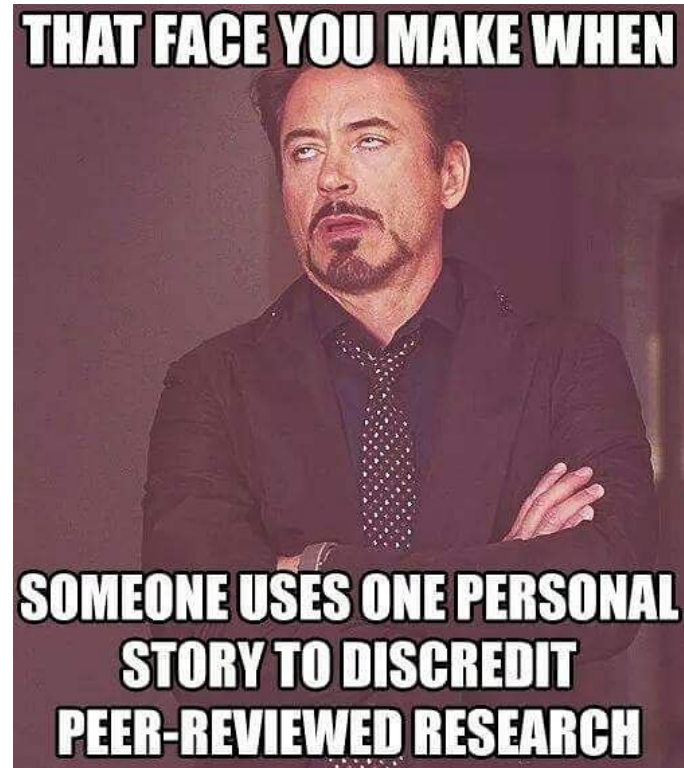   the shell of the water molecule

Revising/Editing

▸ Clarify
▸ Reorganize/Check the flow
▸ Refine

▸ Read out loud ⭐
▸ Print out hardcopy ⭐
▸ Distance yourself (look at it the next day)
  ▪ Don't procrastinate!!!

Put your pride aside. Revise, revise, revise!

Responding

▶ Evaluation
  ▪ Self
  ▪ Peer
  ▪ Advisor
  ▪ Mentor
  ▪ Tutor

Repeat this step prior to submission to a journal!

Proofreading

- Proofread
  - Spelling (spell check)
  - Grammar
    - https://www.grammarly.com/
  - Style/format
  - Punctuation

- Read out loud
- Print out hardcopy
- Distance yourself (look at it the next day)
- Use checklists
  - Create checklist of previous mistakes
    - Focus on each potential mistake separately (e.g., check all spelling first, then punctuation, etc.)
    - Requirements of paper/style

Publishing/Sharing

▸ Journal submission

▸ Presenting at a conference or symposium
- BUILD Symposium on September 30th

Questions?

Writing Resources

Writing Resources

▸ BUILD Science Writer

- April Vise
  - Office Hours (located in BUILD office):
    Monday 3–5 p.m.
    Wed. 9 a.m.–12 p.m.
    Fri. 2–4 p.m.

  - To Request Writing Support
    - Fill out a Tutoring Request Form on BUILD website
      http://buildingscholars.utep.edu/

    AND THEN
    - Email me directly: alvise@utep.edu
      - Explain question & include any guidelines given to you by your professor/instructor

Writing Resources (cont.)

▸ BUILD Writing Circles—10 a.m. in SCALE–UP

Fall	Spring
October 15	February 4
November 19	April 1

▸ Purdue Online Writing Lab
  - Website: https://owl.english.purdue.edu/owl/

▸ UTEP Library
  - University Writing Center, Room 227
  - Website: http://uwc.utep.edu/

Acknowledgements/Credits

- UTEP Graduate School Workshops
  - Enhancing Writing Skills
  - How to Get Published in Scientific & Engineering Journals

- Books
  - Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

- Websites
  - http://writing.ku.edu/prewriting-strategies#questions
  - http://www.eng.monash.edu.au/current-students/download/improving-scientific-writing-style.pdf