



HANSON CENTER for Technical Communication

Teaching Engineers to Express Their Expertise

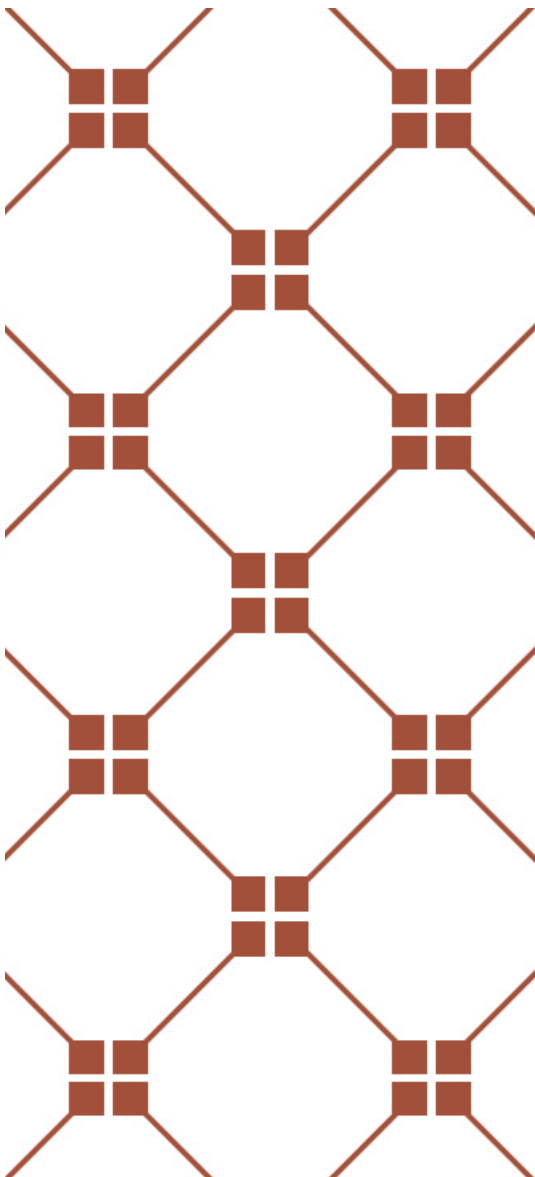
SUCCESSFUL WRITING HABITS

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WORKSHOP DESCRIPTION:

In this workshop, we will discuss challenges faced by students writing at the graduate level, and we will learn various ways to energize and organize your writing. Discover techniques to give your project momentum and motivate writing during this phase of your graduate work.



GENERATING

Journal, read, brainstorm

STARTING YOUR THESIS:

How do you **start** writing?

WRITING MAKES THINKING HAPPEN

*“How can I know
what I mean until
I see what I say?”*

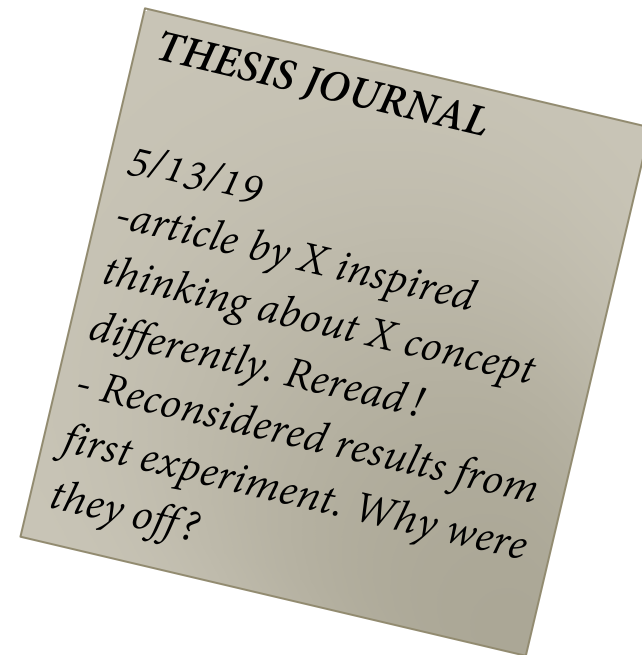
—E.M. Forster

- ❖ Writing process:
 - ❖ Drafts
 - ❖ Feedback
 - ❖ Revision
- ❖ There are no shortcuts writing a thesis.

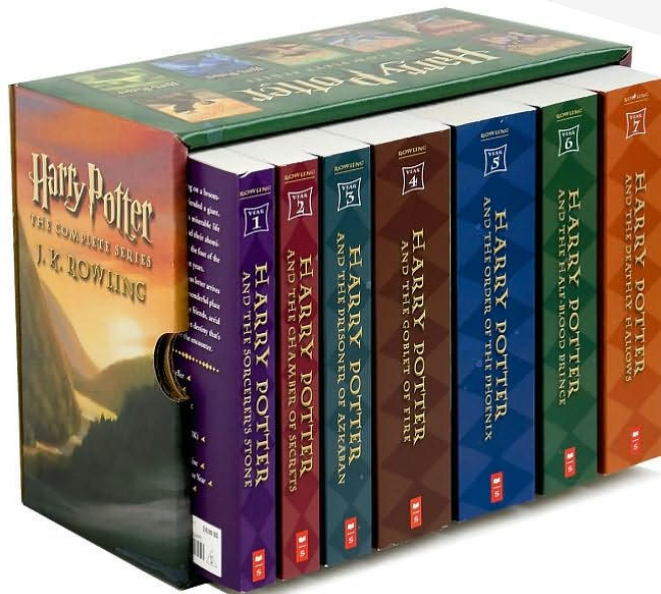
WRITE DAILY

Keep an informal journal with daily entries.

- ❖ Entries become a collection of starting points.
- ❖ Re-reading your own thoughts can help with brainstorming.
- ❖ Daily writing—no matter the quality—makes you five to ten times more productive (Socolofsky, 2004, 13).

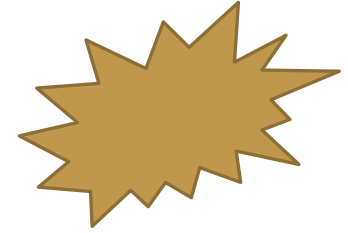


READ OTHER WRITING

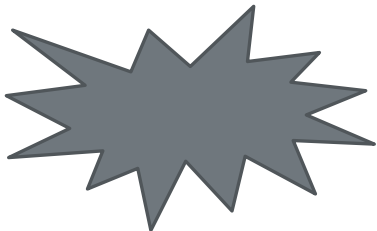


- ❖ Read previous theses and dissertations from your department or area of research. (Start with the library's collection [here](#).)
- ❖ Read your advisor's publications.
- ❖ Read recent conference proceedings and journal articles from your field.
- ❖ Read outside of your field: news articles, book and movie reviews, and even novels expand your thinking even as you work on a thesis or dissertation.

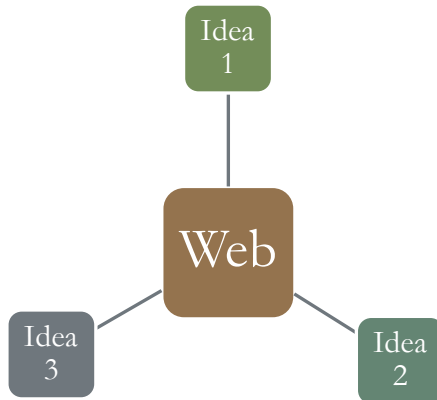
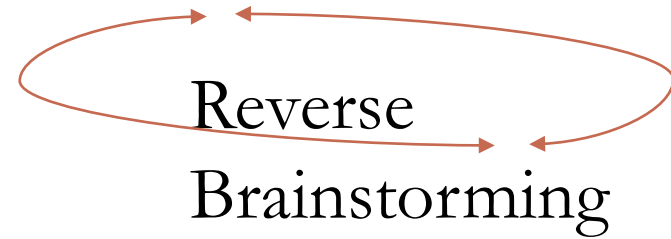
BRAINSTORM



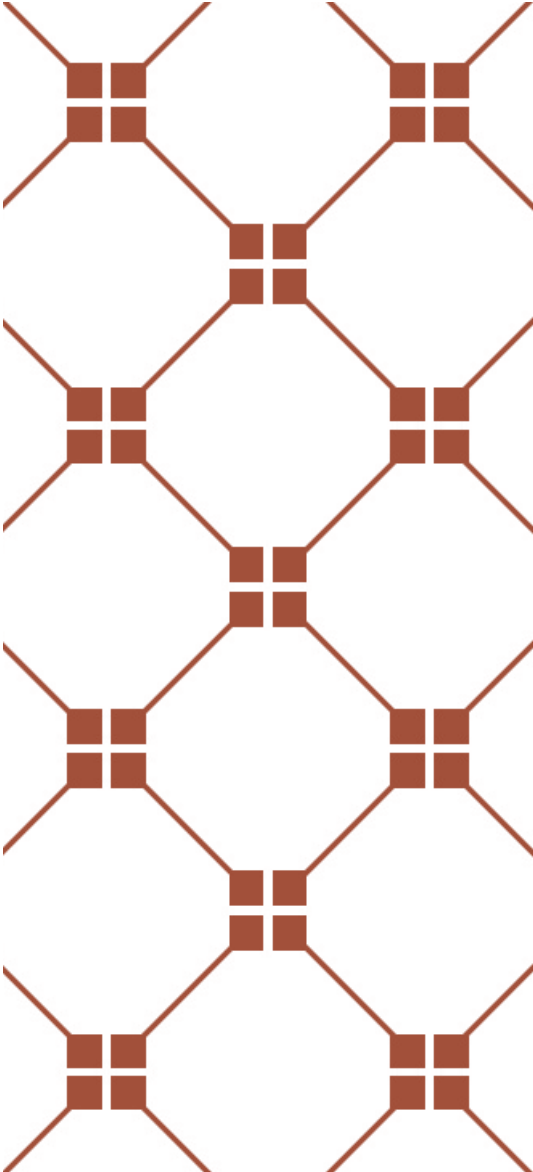
- ❖ Write down 3-5 aspects of your research that your readers would need to know.
- ❖ Can they be connected? Can you leave something out?
- ❖ What is the story of your research?



TYPES OF BRAINSTORMING



List	Subcategory 1
	Subcategory 2
	Subcategory 3



ORGANIZING

Research, outline, structure

USING RESEARCH IN WRITING

- ❖ Keep detailed research notes with identifiers (page #, paragraph #).
- ❖ Make your notes searchable.
- ❖ Highlight and color-code important concepts so that you can browse for ideas.
- ❖ Copy quotations and information directly from notes to your draft.
- ❖ After copying or paraphrasing information, cite *immediately*.

- shift public policy (32-4).
- o **** "When the country came to share a growing sense of national identity, it assumed as well a new sense of responsibility. What some suffer, all must seek to cure" (37).
- 2: Politics and the Liberal Arc
 - o Southern Democrats gained seniority easily, since no one defeated them
 - o Role of TV in political change:
 - "Television created an entirely new political commodity that soon became as important as experience, loyalty, or good ideas: visibility" (50).
 - "Americans were becoming—in a way never before possible—a national community. Their information about public affairs was no longer filtered through regional bias or local leaders.... And they all learned the same things at the same time" (53).
- 4: Free at Last
 - o

Harvey, David. *A Brief History of Neoliberalism*. Oxford: Oxford University Press, 2005. E-book. University of Iowa Libraries.

- Introduction
 - o "Neoliberalism is in that proposes that individual entrepreneurs framework characterizes free trade. The role of framework appropriate
 - Almost all states is global (3)
 - "The process 'creative destruction' (even also of divisive technological attachments)
- 1: Freedom's Just Another
 - o "The founding figure dignity and individual civilization'. In so do and seductive ideals
 - o Iraq War gauged on
 - The sanction Convention—

an occupied country and not sell them off" (6).

- "Though Bremer's rules may have been illegal when imposed by an occupying power, they would become legal if confirmed by a 'sovereign' government. The interim government, appointed by the US, that took over at the end of June 2004 was declared 'sovereign'. But it only had the power to confirm existing laws" (7).

- "The assumption that individual freedoms are guaranteed by freedom of the market and of trade is a cardinal feature of neoliberal thinking, and it has long dominated the US stance towards the rest of the world" (7).

- o "The first experiment with neoliberal state formation...occurred in Chile after Pinochet's coup on the 'little September 11th' of 1973" (7).

- "Chicago boys"—under tutelage of Milton Friedman—assembled to reconstruct Chile's economy (8)

- "Not for the first time, a brutal experiment carried out in the periphery became a model for the formulation of policies in the centre (much as experimentation with the flat tax in Iraq has been proposed under Bremer's decrees)." (9)
- Can blame the U.S. for its imperialist reach, but not for Thatcher's turn, or China's, or the reforms in other countries. What is the cause, then? (9)

- o "embedded liberalism" was the state control over the economy, and began to break down in 60s-70s, so that reform was needed (11-2)

- Neoliberalism, while seemingly obvious now, wasn't the obvious solution. "The uneven geographical development of neoliberalism, its frequently partial and lop-sided application from one state and social formation to another, testifies to the tentativeness of neoliberal solutions and the complex ways in which political forces, historical traditions, and existing institutional arrangements all shaped why and how the process of neoliberalization actually occurred" (13).

- o After neoliberal practices took hold, wealth of the top 1% soared exponentially in the U.S. thanks partially to estate tax cuts and others (16-7)

- "We can, therefore, interpret neoliberalization either as a utopian project to realize a theoretical design for the reorganization of international capitalism or as a political project to re-establish the conditions for capital accumulation and to restore the power of economic elites. In what follows I shall argue that the second of these objectives has in practice dominated" (19)

- The theoretical utopianism of neoliberal argument has, I conclude, primarily worked as a system of justification and legitimation for whatever needed to be done to achieve this goal. The evidence suggests, moreover, that when neoliberal principles clash with the need to restore or sustain elite power, then the principles are either abandoned or become so twisted as to be unrecognizable." (19)

- o 1979: "dramatic consolidation" of neoliberalism as global public policy (22)
 - Paul Volcker, president of the Federal Reserve under Carter, drafted

In-notes
reference

Color-coded
highlighting

THESIS STRUCTURE

1. **Introduction:** provides background and context for the objectives of your research and/or experiments. Proposes hypotheses and/or provides an outline of following sections.
2. **Literature Review:** offers a brief review of current knowledge and describes any gap in current knowledge that your research aims to fill.
3. **Methods:** details step-by-step records of how you achieved your results.
4. **Results and Discussion:** asserts and discusses the significance of your data.
5. **Conclusion:** clarifies and analyzes whether objectives were achieved, and where future research might lead.
6. **Abstract:** Condenses your thesis (appears first but is written last).

THESIS STRUCTURE CONTINUED



Source: [University of New South Wales Sydney](#)

OUTLINE

- ❖ Keep a working outline with each part of the structure as a heading.
- ❖ Note what belongs where: a piece of data, a quotation from your research, the results of a test, etc.
- ❖ Ideas, data, and quotations can be moved easily

Literature Review

- Article by X
- Article by Y

Methods

- Description of experiment
- Method of data aggregation

Results / Discussion

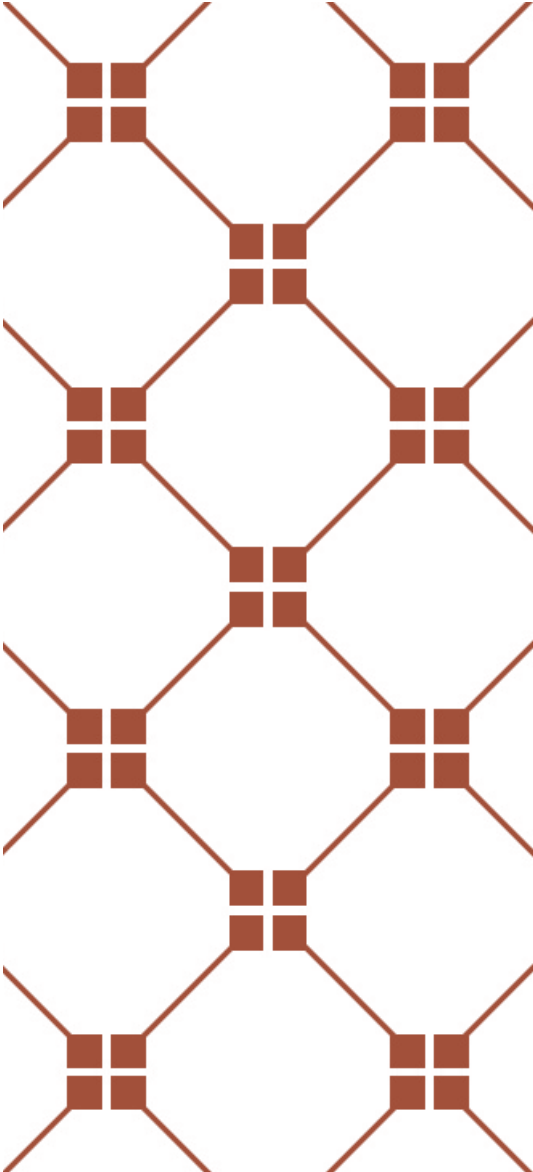
- Quotation from article X
- Data point 1
- Data point 2 (draw relationship)

STAGES IN THE INTRODUCTION:

1. State the general topic and give background
2. Provide a review of the literature related to the topic
3. Define the terms and scope of the topic
4. Outline the current situation
5. Evaluate the current situation and identify the gap
6. Identify the importance of the proposed research
7. State the research problem/questions
8. State the research aims and/or objectives
9. State the hypotheses
10. Outline the order of information
11. Outline the methodology

EXAMPLE: STAGES OF THE INTRODUCTION

Stage	Sample Sentence Extracts
1. Give background about topic	P-type layers are commonly used in solar cells as they offer a wide range of applications such as a back surface field.
4. Outline current methods	Currently in the PV industry aluminum-silicon alloying using screen-printed aluminum and belt furnace firing is the prevalent method of forming p-type layers.
5. Evaluate current methods	The use of aluminum as p-type dopant has two major disadvantages...
6. Identify importance of proposed research	Given the limitations associated with using AI to form p-type diffusion, boron as a dopant for diffused layers is therefore more suitable for high-efficiency silicon solar cells.
8. State research aims	The goal of this thesis is to evaluate boron nitride (BN) as a potential replacement for liquid-source diffusion presently being used for p-type diffusions in the high-efficiency buried contact solar cells under development.
10. Outline order of information	This thesis is divided into five chapters: ...Chapter 2 discusses in more detail... Chapter 3 outlines the experimental work carried out...



REVISING

Align, clarify, edit

SYNCHRONIZE

- ❖ Make sure that your thesis aligns with your advisor's view of your work.
 - ❖ If it doesn't, what is the contradiction? Is this something that can be addressed through research or analysis?
- ❖ Avoid misrepresenting or over-stating your achievements.

CLARIFY

❖ Clarify your word choices:

❖ Avoid the words **some**,
about, **approximately**,
almost.

❖ Use the active voice (“**The experiment revealed that...**”) instead of passive voice (“**It was revealed that...**”).

❖ Choose verbs deliberately
(see figure, **right**).

Instead of these words/phrases:	Substitute:
<i>Did, made, saw, etc.</i> (<i>weak verbs</i>)	Collected, reported, determined, created (strong verbs)
<i>Results were found</i>	Results were observed, measured, obtained, calculated
<i>A study/ experiment was done</i>	A study/experiment was conducted, performed

WRITE FOR YOUR READER

❖ Writing should be organized for your reader:

❖ Determine **who** your readers are.

❖ Determine **what** your reader needs to know.

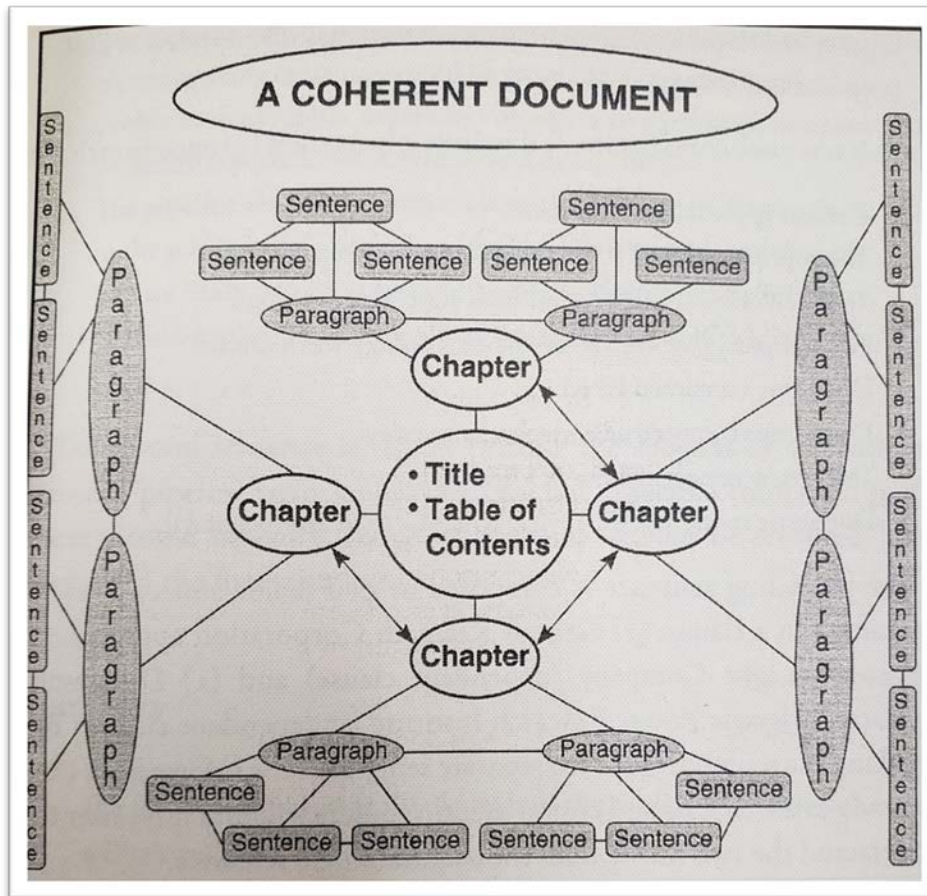
❖ Meet expectations:

❖ **Prediction:** readers predict what they'll read based on prior knowledge

❖ **Reading:** readers read a section

❖ **Alignment:** readers attempt to align what they read with their prediction

ORGANIZE YOUR WRITING



- ❖ Chunk your data to create relationships
- ❖ Repeat words and make similar word choices
- ❖ Create “topic coherence”

(Boiarsky, 2016, pp. 41-42).

Figure: *A Coherent Document map*. (Boiarsky, 2016, p. 43)

GOALS FOR THESIS

- ❖ Demonstrates control of materials:
 - ❖ precise descriptions
 - ❖ insightful analysis
- ❖ Is specific but selective:
 - ❖ Sticks to the major themes of your research
 - ❖ Does not overstate your conclusions
- ❖ Conveys a sense of the future:
 - ❖ indicates what is unique about your research
 - ❖ establishes your research as a starting point from which you or others will continue

SUMMARY

- ❖ Writing a successful thesis is a process that improves through drafts, feedback, and revision. The process of writing:
 - ❖ Eliminates extraneous details.
 - ❖ Demonstrates your powers of organization and analysis.
 - ❖ Fosters self-confidence in further writing.

RESOURCES FOR WRITING

- ❖ University of Leicester: [Develop your writing](#)
- ❖ University of Leicester: [Writing your dissertation](#)
- ❖ University of New South Wales, Sydney: [Writing in Engineering and Science](#)
- ❖ Priya Narasimhan, Carnegie Mellon: [How to Write a Good \(no, Great\) PhD Dissertation](#)

QUESTIONS?

Ask anything!

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