

# RESEARCH IN COLOR: A HANDS-ON ROADMAP TO LITERATURE REVIEWS IN THE SOCIAL SCIENCES



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Research in Color:  
A hands-on roadmap to literature reviews in  
the social sciences

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## Licensing

*A detailed breakdown of this resource's licensing can be found in [Back Matter/Detailed Licensing](#).*

## Preface

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### The Creation of this Open Educational Resource (OER)

This workbook was made possible by grants awarded to the Consortium of Academic and Research Libraries in Illinois from the United States Department of Education and the Illinois State Library/Illinois Secretary of State.

## CHAPTER OVERVIEW

### 1: Introduction

[1.1: How to Use This Workbook](#)

[1.2: About Me](#)

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## 1.1: How to Use This Workbook

### The Process of Research

*"...we don't know what we're going to find, we don't know what we're gonna solve...discover, but we're going to get in the water."*  
(graduate student participant, as cited in [Droog et al. 2024, p. 834](#)).

I was staring at a mind-numbingly large number of printed articles, strewn over my desk, with even more PDF files on my monitor. I was trying to get back to a manuscript that I'd set aside for several months to focus on my job. Now, confronted with all these sources, my eyes blurred. I couldn't remember which articles I'd printed nor which I'd read. And although I was sure there was some reason I'd chosen these articles, now I couldn't see how they related.

My anxiety rose, viscerally, in my body, as a pillar of heat coursing upwards from my churning belly, through my racing heart, shortening my breath and dizzying my head. The more I looked at all these sources, the more my vision blurred.

As an academic librarian, I'd been mentoring graduate students for years on their research. I'd confidently shown them how to use keywords in databases to find scholarly citations. I'd empathized when they cried real tears in my office about their sense of overwhelm during their dissertations. But here I was, realizing I had no idea what to do with the articles I'd found. I had no idea how to stay organized in a process with starts and stops, as work and life got in the way.

This workbook is what I wish I'd had - a road map to walk with you through your literature review by demystifying the process and journeying alongside you.

### My Promise to You

#### **My promise to you:**

This workbook will save you time and improve your emotional reactions to your research by providing stepping stones through the literature review process. It'll help you go down fewer rabbit holes, know what steps to take, and who can give you more support and direction.

Whether you're working on a class assignment, your dissertation, or planning a research project, this workbook provides the practical steps to doing a literature review using the metaphor of stepping stones along a path. The process often feels daunting and can bring forth an array of emotions. Given how complicated research is, this is to be expected, and you're not alone in feeling overwhelmed.

This book is meant to be used as you go through the process of your literature review, rather than being read ahead of time. Even if you already have a specific topic in mind, you'll get the most out of the book if you work your way through the book from the beginning: the process is as important as the end result. Not only will this process ultimately save you time in the long run and strengthen your literature review, but it will also decrease your stress.

### Create an Interactive Workbook

I highly recommend that you use this workbook in a tangible way. Make it yours and interact with the exercises, rather than just reading. You can do this however works for you. For example:

- Print PDFs of the chapters and store them in a binder that you can write in and add pages as needed
- Download PDFs of the chapters and use a tablet's stylus to draw & write directly in the PDFs. Or download to a computer and type into the PDFs. There are a few times I'll suggest you draw or doodle, so you could do that on your computer, or draw it on paper and then take a photo to upload to the folder where you're saving the PDFs.

### What to Expect

This workbook is divided into five major units, plus this intro & the conclusion: Unit 2: Check-In and Road Map, Unit 3: Develop your Topic, Unit 4: Find Citations, Unit 5: Find Patterns, and Unit 6: Dive Deeper. Within each unit are chapters that each focus on a particular step of the process; a concrete example is used throughout to break the process of research into specific steps, with explanations of why each step is important and how it leads to your literature review. Thus, you can see how I move from the

beginning of the process to the end with the same example. At each step, you'll complete an activity based on your topic. Throughout, I'll point out times to check in with yourself, your road map, and with others to create a support system. Therefore, there is more space for you to engage with your topic and with the literature, rather than lots of words from me.

The workbook is meant to be used **as you go through the process of doing your literature review.**

Therefore, as we go through the workbook, I'll provide time lines for how long you should consider budgeting for each stage, depending on whether you're working on a course assignment, dissertation, or publication. Overall, the research will take a **minimum of several weeks or a couple months** for a course assignment, or several months for a dissertation.

In unit 2, we focus on you. Why are you writing a literature review? What are your values and background? How does who you are relate to research? This creates a strong foundation of internal support that you can come back to when the research becomes overwhelming. We'll also briefly touch on the basics of what a literature review is and create a road map for your research.

In unit 3, we'll develop your topic. This is where I'll help you find sources for the literature review and showcase how those sources also help you refine your topic and adjust your searches for better results. Therefore, to help you through this puzzling iterative process, we'll explore your interests to lead towards a topic. I'll show you how and why to do simple, broad scoping searches. In chapter 5, we'll refine your topic using your broad search results and some specific framing questions.

In unit 4, we'll use your initial topic interests to start finding some citations. I'll go through how to perform advanced, efficient, and effective searches. We'll conclude this unit by considering how to evaluate the citations you're finding in your searches.

In unit 5, I provide metaphors and activities to dive deeply into what a literature is and the purpose of writing one. With that understanding, we'll break down the best steps to scan and read your sources within the context of your topic. You'll learn how to take notes in a way that helps you see patterns in the literature you've found. This will help you start to synthesize.

In unit 6, we'll go through advanced techniques for finding specific types of sources. By this point, you'll have the majority of your sources and be able to articulate the flow of the conversation of research on your topic.

In unit 7, we conclude with a reflection about the journey through the steps you've just taken and what's next for you to start writing your literature review.

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## 1.2: About Me

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### About me

As we journey through your literature review together, you might want to first know a bit about me, since my background shapes how I engage with research.

I am the third daughter of parents who earned their MAs in philosophy and then moved into different careers (engineering and teaching science). I learned early the value of education for the sake of learning. Growing up Catholic in an Orthodox Jewish neighborhood in Chicago, instilled in me the values of community over individualism as well as the need for belonging within diversity.

I earned my M.S. in Library & Information Science from the University of Illinois, Champaign-Urbana. As a White person, I experienced the cultural norms of academia as natural which made my path easier during my studies. I'm indebted to the faculty and students of color at Adler University who pushed me to learn more about these norms and do inner anti-racism work. It is from those dialogues and additional readings which taught me to value relationships and connection, which actually made more intrinsic sense to me, given my childhood values of community and belonging. Being a queer person has helped me to think less in terms of linear and binary results in research. My outward identities impact how students of all backgrounds interact with and learn from me.

For over a decade, I worked with graduate students in psychology and other mental health professions at Adler University and currently work with both undergrads & grad students across social sciences, education, business, and technology at National Louis University. My research has been on how graduate students experience research.

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## CHAPTER OVERVIEW

### 2: Check-In and Road Map

In this unit, you'll prepare for the research journey by reflecting on yourself (your emotions, motivation, and positionality) and reviewing the purpose of literature reviews. This unit provides activities to consider your timeline in order to start charting your own road map.

[2.1: Learning Objectives](#)

[2.2: Create your Notebook](#)

[2.3: What Is Research to You?](#)

[2.4: Emotions and Research](#)

[2.5: Positionality and Research](#)

[2.6: Your Motivation](#)

[2.7: Define Literature Reviews](#)

[2.8: Chart Your Road Map \(Lit Review Steps\)](#)

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## 2.1: Learning Objectives

### Learning Objectives

- Ground yourself within your research project, considering your emotions, positionality, and motivation
- Visualize a road map of your tasks & deadlines, obstacles, and support system
- Create a binder or folder to keep yourself organized throughout the research process
- Define literature reviews and explain their importance to the research process

### Stepping Stones: The Journey

The focus of this unit is checking in with yourself to fully prepare yourself for this journey. When starting a work out, we might prepare ourselves by starting with some light stretches and activation. The activation shifts our minds away from our daily lives and into the workout. It also primes our bodies, so we're fully prepared for the more intense workout that's coming. If we were to jump into a workout without a warmup, we'd be more prone to injury and might not get as much out of the workout. Just as the warmup gets you ready to workout, checking in now helps you take your first step on the path.

**If you don't take the time to check in prior to the research journey, the process might become entangled mid-project and take up more time and energy to fix later.**

### Time Needed for This Unit

You'll need **1-5 hours** for this unit.

The length of time you need on this unit will depend on a few factors:

- How you create the tangible workbook alongside this e-book
  - Consider whether you will want to purchase a 3-ring binder
  - Consider whether you will need to learn a new application or if you'll use something familiar to you
- How creative you want to be with your answers
- How much time you have for the literature review (which often depends on whether this is for a course assignment, dissertation, or publication)

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## 2.2: Create your Notebook

### Research Is Iterative

*"So...we have the internet vortex of data. And then you do your first search, and you have general data. And then after looking that over and solidifying what you want, and then it goes through more filters and then you wind up with just the distilled data, but, when you get here, that doesn't exactly mean that you are done because from here, it can also mean that you have to go back because you found more information in the data and you have to re-refine or gather more information from it. It's cyclical, but it can go off into rabbit holes. But, it doesn't, that's not always a bad thing."*

(Graduate student participant cited in [Droog, et al. p. 832](#))

Research is often full of rabbit holes, taking you on unexpected twists & turns, rather than remaining on a linear path. These rabbit holes can be exciting and lead to great discoveries, but they can also make the research feel chaotic and overwhelming. Therefore, though you'll start by following me on this path, you might need to step off, return to a previous step, or repeat a step many times as you further explore and refine your topic. I'll help you find ways to jump back after you take a detour from the path.

### Steps & Options for Creating Your Notebook:

The iterative nature of research inherently makes it feel confusing, especially if you can't see a path.

I highly recommend you **create a notebook** to stay organized.

Creating a notebook will allow you to stay organized throughout your research process. Therefore, throughout this workbook, you'll find many activity prompts to draw or write. If you already have the notebook, you'll be able to start using it right away so all your notes regarding the research process will be in one place.

1. Select whether you want to work with paper or electronically.
  - Paper:
    - Consider using a physical binder so you can store printed pages, add blank pages, and maybe store a few colored post-its in the pocket. You could also clip a few different colored pens and highlighters to the top of the binder.
    - Print a PDF of this workbook, three-hole punch it, and store it in the binder, along with several blank pages for notes.
  - Electronic:
    - Create a folder online where you can save and edit PDFs as well as save documents with your notes.
    - Download a PDF of this workbook and use a PDF editor in a tablet so you write in it with a stylus or use an application on your computer.
  - Combination
    - You could have a physical notebook to take notes, but engage electronically with this workbook and the sources you find.
2. To start, jot down the following in your notebook:
  - Today's date
  - What you did - you started your notebook!
  - Something you did well this session - You started this book! That deserves to be celebrated. Perhaps you're particularly excited by what or where you chose to create your notebook.
  - A concrete baby step for the next time you work on the research - that you'll complete the next section of this workbook.

I'll continue to recommend that you take notes on every step of the research process. It'll help you stay focused, engaged, and motivated.

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## 2.3: What Is Research to You?

### Creativity

Throughout this workbook, I'll suggest ways for you to engage with your research in more playful ways. Even if you think you're not a creative person or you don't think of your discipline as creative, we are all creative, in different ways. For example, I struggle with drawing and can manage only stick figures, but I create lesson plans when I teach, which is a form of creativity. Research itself is creative, since you are generating your topic and creating new syntheses between sources in the literature, related to your interests. Tapping into that sense of play can help you think differently about your research, in helpful ways.

Research has shown that drawing taps into different ways to access memory and emotions (Bryans & Mavin, 2006; Doucette & Hoffman; 2019, Weaver et al.; 2023). As I mentioned, my drawings are barely recognizable to others. Luckily, the point is not to create exceptional art, but rather to engage in playfulness, just for yourself. The *process* of drawing is more important than the end result.

### What Is Research to You?

So, as you embark on this journey, take a few minutes to pause and think about the concept of research. Take some time to do the activity below.

#### ? Activity: Draw! 2.3.1

Draw what "Research" means to you. You can draw your experiences or your thoughts about research. Whatever comes up when you think of "research". You can do this in your notebook if you started one.

**Draw:**



### Playfulness

Throughout this workbook, I'll continue to suggest times for you to reflect. You don't need permission - you can always just write your response. But, you might try playing a little with how you reflect. For example, you could:

- **Use color to represent emotions:**
  - For some people, specific colors already represent emotions - red for anger or passion, for example.
  - But even if you don't think of colors as emotions, you could assign your favorite color to the feeling of excitement, for example.
- **Play with symbols:**
  - A symbol can be very simple, like an exclamation mark to show an idea, or a doodle of a lightbulb
  - A heart or star could represent excitement
- **Add Ratings:**
  - Use a star rating to show how you feel, coloring in 1-5 stars
  - Use smiley faces
- **Add Images/GIFs:**
  - Find an image online to depict your mood

### ? Reflect: playfulness 2.3.1

Take a few minutes to play around with what options you might like to use for your journal. You can always use a combination or change your mind later.

In the next section, we'll reflect on your drawing.

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## 2.4: Emotions and Research

*"It's just a huge [sigh] collection of emotions."* (Graduate student participant, as cited in [Droog et al., 2024](#), p. 837)

### Notice Emotions

Research involves not only skills and concepts (cognitive), but also emotions or affect ([Jakobovits & Nahl-Jakobovits, 1987](#); [Kuhlthau, 1988](#); [Schroeder & Cahoy, 2010](#)). We often translate the need to be scientific into trying to be emotionally unimpacted by the research. However, while the scientific method is important, we are still human.

- If we ignore our emotions, we run the risk of believing our thoughts to be unbiased facts, rather than more accurately seeing how our emotions might be impacting our research.
- Additionally, our emotions can guide us. If we're aware of how anxious or overwhelmed we feel at a particular step, we can consider what that emotion might be telling us.
  - For example, if we're overwhelmed by not finding any sources, it can be a great time to meet with a librarian who can make this step simpler.
  - Likewise, if we pay attention to when the research excites us, this can help fuel us through the overwhelming steps. Recognizing our excitement can also point to how we want to focus our research.

I'll help you keep track of how your emotions shift throughout your research journey.

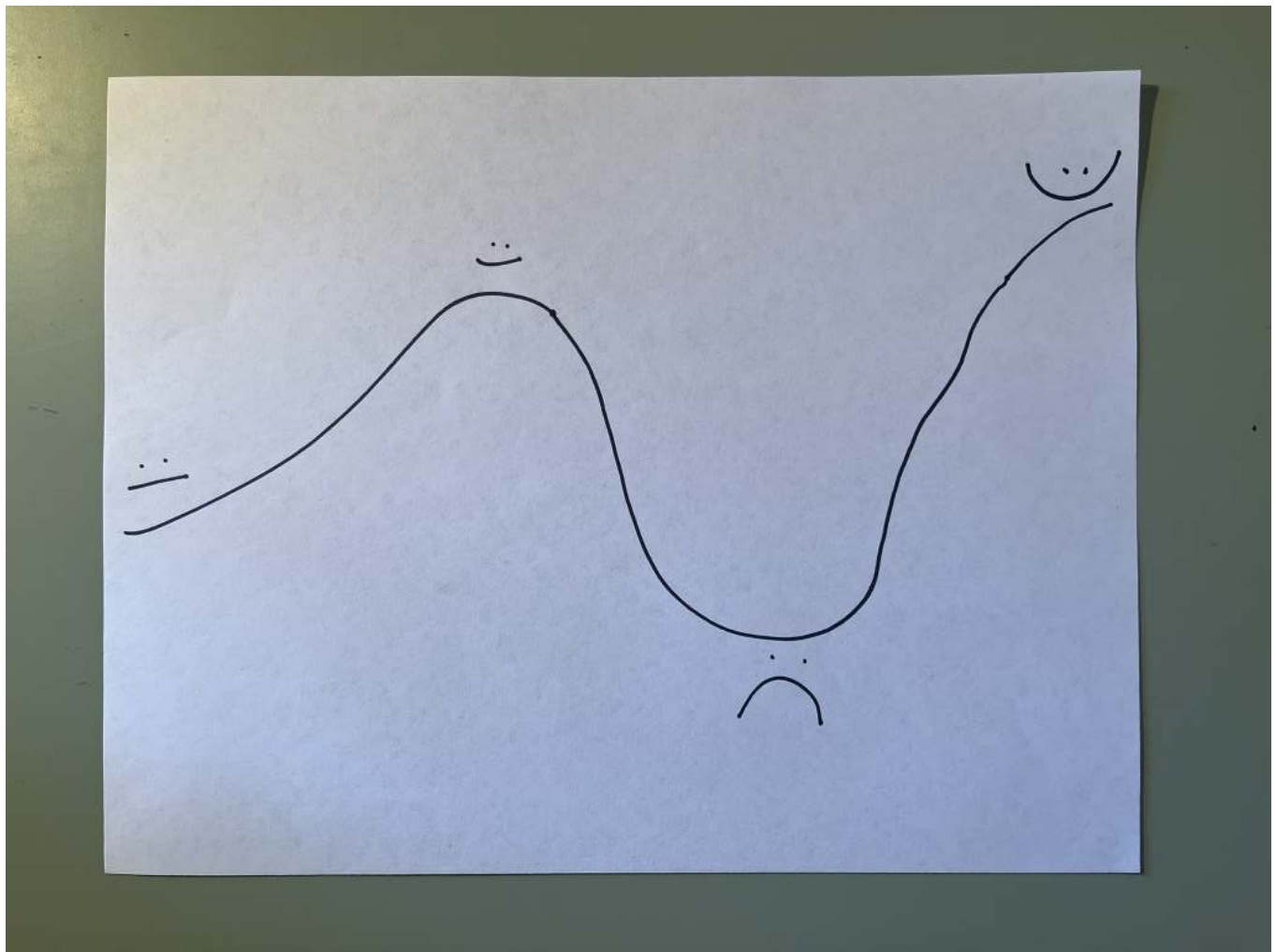
Let's pause and notice your current emotional state in relation to research.

#### ? Activity: Emotions 2.4.1

**Stop** - Be sure you **drew the concept of research** in the previous section before doing this activity.

Look at your drawing on the previous page. What emotions do you experience when you think about research?

The activity of drawing research and using it to consider your emotions was first presented to me at a conference ([Droog, 2020](#)). The presenter led us through the activity you just did. I drew a wavy line with frowning faces at the low points and happy faces at the high points, depicting what I'd seen students experience during their research, ranging from anxiety to excitement during different points in the process.



### ? Activity: Emotions - Diving deeper 2.4.1

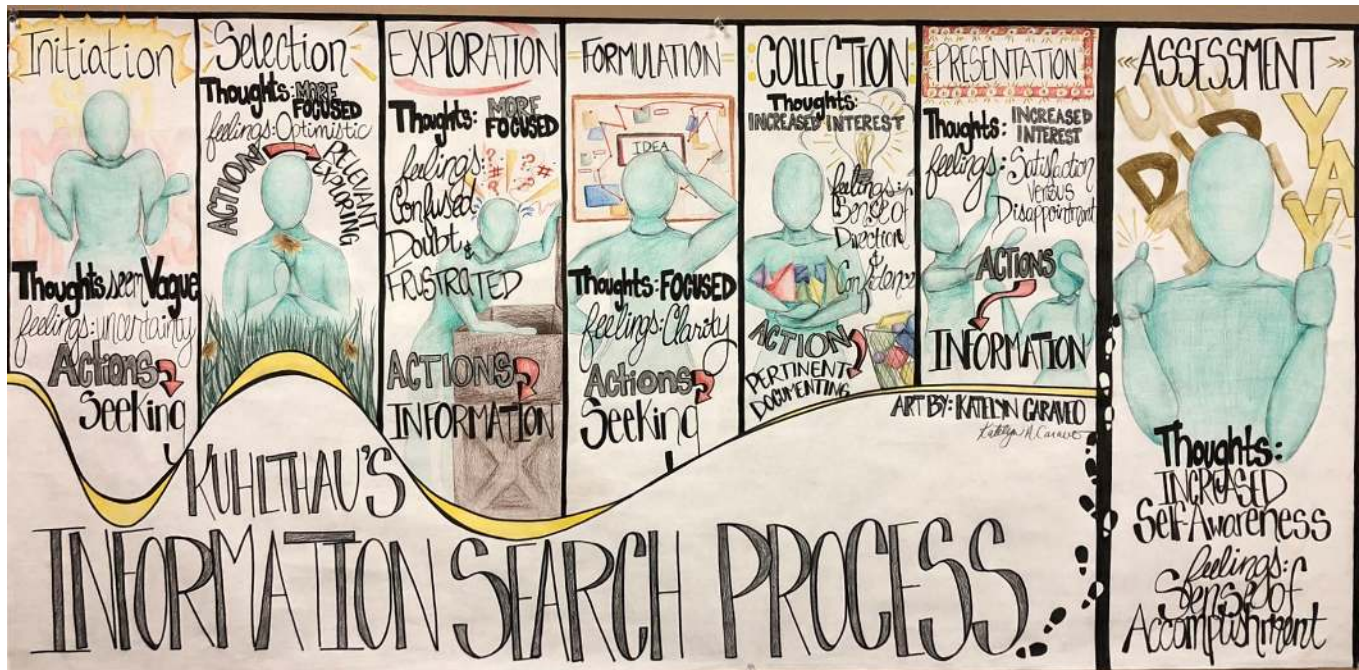
For each emotion you listed in the previous activity, consider what causes that emotion. Click below for a blank chart you can use.

**Click here for a chart**

Add texts here. Do not delete this text first.

| Emotion             | Cause                                               |
|---------------------|-----------------------------------------------------|
| Example: overwhelm  | too many sources                                    |
| Example: excitement | thinking about the population my research will help |
|                     |                                                     |
|                     |                                                     |
|                     |                                                     |

## Emotions Along the Path



Caraveo, K. (2019). Kuhlthau's information search process [Photo of physical poster], based on suggestions from Frances Brady. CC BY

(A full verbal explanation of the above graphic is in [Appendix: ADA accommodation.](#))

Kuhlthau's pivotal research shows that high schoolers and undergraduates experience a range of emotions at different steps in the research process (Kuhlthau, 1988). I worked with a graduate student in art therapy to visually depict these changing emotions along the research path. Note the yellow ribbon flowing up and down and peaks and valleys. This validates the full range of emotions we experience as we research.

My own research about graduate students' experiences of research shows that this model does not fit for graduate students. Their emotions tend not to follow such a linear path. So don't worry about whether your emotions match this. There's no right or wrong way to feel about your research, and likely you'll feel a bit differently depending on the project.

In the next section, we'll continue to focus on you as an individual.

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## 2.5: Positionality and Research

Positionality is how you, your background, and your experiences relate to your research. Your identity, background, and biases all impact each step of the research process -from selecting a topic to evaluating resources, to discussing your sources (Creswell & Creswell, 2017; James & Vinnicombe, 2002; Maxwell, 2013). The positionality of authors of the studies you read also impacts their research (ACRL, 2016).

Research is, therefore, holistic, involving your entire self, and interacts across time and space with others in a collaborative way.

Let's pause so you have time to reflect on yourself as a researcher.

### ? Activity: Who is a researcher? 2.5.1

Now review your drawing again. Did you draw a representation of a person? Is that person you? When you think about a researcher, do you imagine yourself? You're about to embark on writing a literature review, so you are a researcher!

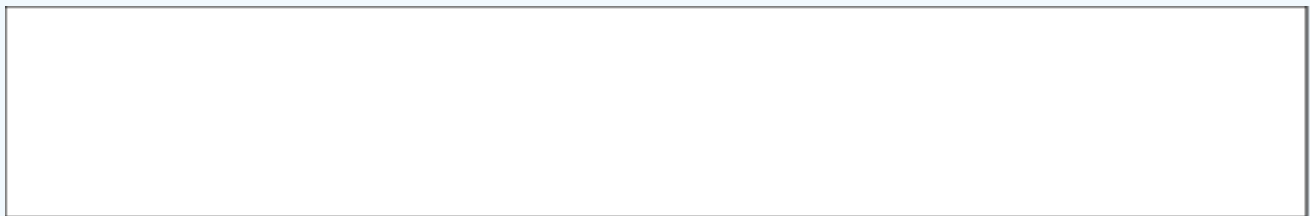
Do you see yourself as a researcher? What attributes do researchers have?



When I first did this activity during Droog's conference presentation, I had not yet published. At that time, my experience of research came only from literature reviews and guiding students to find sources. My drawing represented my students' emotions, not my own. At that time, I did not at all think of myself as a researcher.

### ? Activity: Identity 2.5.1

In your drawing, do you see any aspects of your worldview or identity reflected? How might that impact how you see research?



It is critical that we understand our positionality & how it impacts our research.

- If we don't see ourselves as researchers, we create two problems:
  - We might be biased towards accepting studies only by authors who fit a mental description of what a researcher is to us.
  - We might create cognitive roadblocks to feeling confident that we can successfully learn to navigate each step.
- Our positionality impacts which topics we choose to study, which influences the field.
- Who is heard & who feels silenced influences what is studied and the quality of care for marginalized groups of people (Milner 2007).

### ? Activity: Positionality 2.5.1

What identities do you hold? How might those impact your research? I'll come back to this throughout the workbook.



Reflecting on my own drawing later, I realized it showed me how my worldview impacts my view of research. At the time of Droog's conference presentation, I had drawn a linear line, representing an emotional journey with highs and lows. However, research like life, is not linear, but circuitous and iterative. My instinct to depict research in this straightforward way came partly from my limited drawing skills, but also from a Western perspective. I had already been telling students in classes that research is not linear, but my drawing helped me realize how deeply rooted my expectations of linearity were. My cultural framework was not wrong, but it helped me consider how my positionality impacts my conception of research, which would therefore impact my ability to teach students whose experiences would be different from mine.

Understanding your positionality helps you see how your identity and experiences shape your approach to research. The next step is to reflect on your motivations - what drives you to engage with your research and complete the project.

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## 2.6: Your Motivation

*"[there's a person at the bottom [of a brick wall], and they're not entirely sure. They had this idea of where they want to go, but they're not entirely sure how to get there, so he's sitting there at this like wall kind of stuck...Umm, and so they have this idea of where they're supposed to go, but they can't even quite see all of what the final product could be anyway. Umm, because, despite everything you're still chasing almost like a moving target...Um, a lot of that comes from like, my experience of just being like, I'm stuck and I don't quite know where I'm going. But that's, that's like really what research is to me." (Graduate student participant as cited in [Droog et al., 2024, p. 833](#)).*

Over the years, many graduate students have asked me to provide templates and checkboxes for their literature reviews because they feel they're facing a brick wall or chasing a moving target. Unfortunately, research rarely involves a clear, linear process with concrete steps and obvious outcomes. This is precisely because the path is forged by you, the researcher. This can feel overwhelming, but considering your personal motivation can help mitigate the anxiety ([Droog et al., 2024](#)). When I was writing my first publication, I felt overwhelmed at every step: articulating my topic, evaluating and reading all the sources I found, and figuring out how to synthesize the information. I started and stopped several times over the course of the project, so that it took me years to complete. I kept returning and eventually published the article because I could return to my motivation: getting the information to my colleagues to help improve how librarians work with graduate students.

So, before you start, let's consider your motivation for doing research. Then, if you get frustrated later, you can refer back to this "why".

### ? Activity: Current Motivation 2.6.1

Motivation – reflect on what motivates you to complete this lit review? Maybe this lit review is for a class assignment, a thesis, or dissertation. Or maybe it's for a conference presentation or a manuscript.

Feel free to write your response or draw a few doodles, if you prefer!

### ? Activity: Future Motivation 2.6.1

Now think deeper. How can researching this topic enhance why you're getting your degree? How will what you learn from this literature review impact you after you graduate? Might it impact populations you want to work with / for?

Whenever you feel stuck, remember this moving target - it's normal, and your motivation can guide you past the brick wall!

Now that you've reflected on how you connect with research, in the next chapter, we'll define what a literature review is.

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## 2.7: Define Literature Reviews

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Before we start our journey, let's consider briefly what a literature review is and why you need to write one.

### Why We Write Literature Reviews:

I'll go into this more deeply once you find some resources. Here's a quick explanation:

The point of a literature review is to determine what research has been done on a particular topic. There are some cases in which people publish a literature review without a study, to help others in the field review what has been studied. Usually, however, the literature review demonstrates why a study (or intervention or program, etc.) should exist.

Therefore, the literature review is not simply a summary of individual articles, but rather a synthesis and critique of different studies and theories and the greater literature base. It is also not a position paper in which only studies supporting your perspective are included, but rather includes all scholarly perspectives on your topic.

This is just a quick overview; [we'll explore these concepts in more depth later in the workbook in Unit 5.](#)

### Key Functions of Literature Reviews:

#### Literature reviews:

- examine the *literature* on your topic
- synthesize different studies & theories
- find gaps
- demonstrate why your study (intervention or program, etc.) should exist

#### Literature reviews DO NOT:

- Literature reviews DO NOT define the topic, but instead show what previous *studies* have done on the topic
- Literature reviews DO NOT simply summarize each article, but instead demonstrate a conversation or synthesis of patterns across articles
- Literature reviews DO NOT promote your ideas or assumptions, but instead include ALL scholarly perspectives on your topic

Look at the list above. Which aspects of a literature review seem familiar to you? Which seem new or challenging to you?

Now that you have a general idea of where you're heading, let's plan the start of your journey.

---

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## 2.8: Chart Your Road Map (Lit Review Steps)

As we discussed, one of the most overwhelming aspects to research is feeling like there's no road map and needing to find a path without receiving enough direction. So here are some guideposts to help you create your own road map.

### Your Step-by-Step Literature Review Road Map:

Below are the basic steps to doing a literature review. This workbook's chapters correspond to these steps. Notice that you'll still be adjusting your topic, even after finding sources! We'll talk a lot about that throughout the workbook, but developing your topic is a large component of doing the literature review.

1. [Develop your topic](#)
  1. [Brainstorm and visualize as a Venn diagram](#)
  2. [Quick search for citations](#)
  3. [Revise your topic based on the search](#)
2. [Find sources](#)
  1. [Evaluate your citations](#)
  2. [Refine your topic](#)
3. [Find patterns](#)
  1. [Scan sources](#)
  2. [Read your sources](#)
  3. [Take notes and identify patterns](#)
4. [Dive deeper](#)
  1. [Refine your topic](#)
  2. [Revisit the literature](#)
  3. [Join the Conversation](#)
5. Write
  1. Outline
  2. Write

#### ? Activity: Deadlines 2.8.1

If your faculty has given you any specific tasks, list all of them below. If not, list each of the steps from the brief outline above. List the final deadline you have from your faculty for when the literature review is due. If you do not have specific deadlines for each step, leave those dates blank for now until you have a better sense of how long to expect each task to take you.

Click "Table" below.

**Table**

| Deadline for tasks |          |
|--------------------|----------|
| Task               | Deadline |
|                    |          |
|                    |          |
|                    |          |
|                    |          |

### ? Activity: Roadblocks 2.8.1

Next, consider any external stops, roadblocks, or scenery that might distract or delay you along the way (holidays, vacations, other major assignments for other classes, family, etc.). Is anyone journeying with you? Who are your supports at school, home, etc.

I encourage you to create a visual to remember your journey. This could be a collage vision board, or perhaps entering all the upcoming deadlines & distractions into a calendar. Or you might draw a visualization of this research, perhaps as a journey, or however you're envisioning it, complete with the roadblocks, pit stops, but also your supports along with you or joining you along the way. If you're using a tablet or computer, you might consider using Canva, Pinterest, Milanote, Notion, Google Slides or PPT.

1. Consider first your distraction - are they time based? Can you chart out when they'll stop you?
2. Distractions are inevitable to every journey. They can actually be helpful in helping you clear your mind. Consider how much time to allot yourself for each so you can use the stops to rejuvenate and clear your mind. And then mark on your calendar when you'll want to pick the research back up after the break from it. Whenever you come back, keep your motivation at the top of your mind.
3. Write down your supports - consider friends, family, and all the supports at school (faculty, staff, librarians).

### Identify Your Research Support System:

Along the way, I'll point out good times to check in with your faculty, your librarians, etc. and provide prompts for the conversation. Think of how these people might be journeying with you. These supports will be crucial for your research experience (Droog, et al., 2024).

Before moving on to Unit 2, one piece of advice is that at the end of each session where you work on your research, jot quick notes about what you did, and give yourself a next step. If you don't know what the next step is, then your next step is to schedule a meeting with your professor and/or a librarian!

In addition to people in your life, how can you support yourself? Self-care is often just a meaningless buzz word, especially when it's seen as a luxury you can't afford when you don't have time for adequate sleep and are inhaling food on the go. Rather than thinking of indulgent activities, such as taking long baths or eating indulgent sweets, it might help to consider what you can do to help yourself stay in the process.

### Consider your time:

You can't create extra time, and imagining someday you'll have more time once x or y are finished is probably a fantasy.

Instead, take a minute now to consider what works best for you to manage your time.

- What time of day are you naturally more alert or creative? Morning, afternoon, evening?
- What pitfalls do you run into when working on long projects?
  - Are there ways you can manage the pitfalls or cope around them?
  - Perhaps carving out short blocks daily, or maybe a long session weekly, works for you.
- How will you hold yourself accountable?
  - Study partner?
  - Setting deadlines for certain steps, or by prioritizing the blocks you set aside for research?
  - Setting dates to check in with your faculty or a friend?

This workbook is not about time management, but if learning more about it interests you, consider spending some time exploring videos online, blogs, or books on this subject to get ideas.

### Consider your space:

The physical space you use for research might matter to you.

- Are there certain places (your home, a coffee shop, a library, etc.) that work better for you to focus on research?

- Can you do anything to increase your ability to work in these spaces? (Headphones? Noise cancelling apps?)

#### Consider how you focus:

- Meditation: Studies show that meditation can help increase focus. You could consider a short meditation session every time you start working on research, to help you switch gears from anything else in your life to focusing on your research.
- Pomodoro: Some people find it helpful to use the Pomodoro method of working for 25 minutes, taking a 5-minute break, and then working for another 25 minutes. Or even just taking occasional stretch/meditation breaks to continue to stay in the flow.
- Quality sleep: Perhaps you know you need quality sleep to focus well.
- Prioritizing a healthy diet promotes brain activity for you.
- Minimize distractions. If your phone distracts you, can you add a Research focus to your phone that does not allow alerts other than emergencies? Or perhaps you could even turn off your phone and leave it in a separate room, so you're not tempted to look at it. You could download Hank Green's Bean Friend app to minimize phone use.

#### Celebrate small wins:

Don't wait until you finish the full project to celebrate. Find ways to congratulate yourself for small victories. I like to make a tiny fist bump in the air when I check a small item off my list. For bigger steps, I throw myself a dance party in my kitchen by putting my favorite happy jams on a playlist.

Jot down a few notes about when, where, and how you'll do this work.

## Next steps:

Now that you've considered how your background impacts your research and you've grounded yourself with your motivation and support system, we can move to the first step in any research project: refining your topic. While the next unit is titled Develop Your Topic, you'll actually continue to refine your topic throughout the next two units.

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## CHAPTER OVERVIEW

### 3: Develop Your Topic

In this unit, you'll start developing a topic by brainstorming broad interests and then start to refine it by visualizing its components in a Venn Diagram, conducting exploratory searches, and considering the 5 Key Questions (Who, What, Why, Where, When).

[3.1: Learning Objectives](#)

[3.2: Consider Your Interests](#)

[3.3: Visualize Your Topic- Venn Diagram](#)

[3.4: Explore Searches](#)

[3.5: Refine Your Topic with 5 Q's](#)

[3.6: Add Concept Circles to Venn Diagram](#)

[3.7: Brainstorm More Terms](#)

[3.8: Check-In](#)

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## 3.1: Learning Objectives

### Learning Objectives

- Visualize your topic as a Venn diagram
- Brainstorm to refine your ideas

### Time Needed for This Unit

You will need **1-2 hours** to read this unit and complete the activities.

This unit has several steps to help you start considering the topic you'll use for your literature review. This unit will likely not take too much time, depending on how fast you read and whether you already have a gauge of your topic. This is a relatively quick unit because it serves as a springboard for deeper work ahead. Since research is iterative, you'll return to refine and adjust your topic throughout the literature review process.

### Getting Started

Before we dive into the literature and sources, the first step is to think about **your interests**. Research is most engaging and meaningful when it connects with something that matters to you, whether it's a personal curiosity, a professional goal, or a population you hope to serve.

You might already have an idea for your topic. If so, that's great! [You can skip ahead to visualizing it.](#)

If you're unsure how to select a topic, let's start with a brainstorming exercise to explore possibilities and see where your interests might take you.

### Why This Matters

Taking the time to visualize and develop your topic before rushing to find sources will help you find better sources.

1. Separating your thoughts into facets helps you see how the pieces of your topic are distinct, but connected.
2. Considering different angles clarifies what belongs in your topic and what doesn't.
3. Taking time now to sit with your topic gives you confidence later in selecting which sources are relevant.

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## 3.2: Consider Your Interests

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### Consider Your Interests

Do you already have a topic in mind? If so, you can skip this page. We'll work on refining it throughout the workbook.

If you don't yet have any ideas, let's start brainstorming.

#### ? Activity: Brainstorm your interests 3.2.1

In your journal (either on paper or you can use an application such as [Lucidchart](#), [Miro](#), [Mindmup](#), [Canva](#), etc.), create a mindmap using the following prompts. For each answer, just jot down a word or phrase within a circle or bubble.

- What are your interests? These can be within your field or your personal life
- What excites you about your field?
- Are there unresolved questions in your coursework that have stuck in your head?
- What populations or areas do you want to work with after you graduate?
- What frustrates you about your field that you wish you could change?
- Are there emerging trends in your field that intrigue you?

Now, look at your answers. Are any of them connected? For example, if you're interested in graphic novels and also in working with people experiencing memory loss, you could draw a line between those bubbles.

Don't worry about creating a research question or determining if the topic is feasible yet. Right now we're just brainstorming ideas. Throughout this workbook, we'll take the ideas and start to narrow and refine them into a researchable topic.

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### 3.3: Visualize Your Topic- Venn Diagram

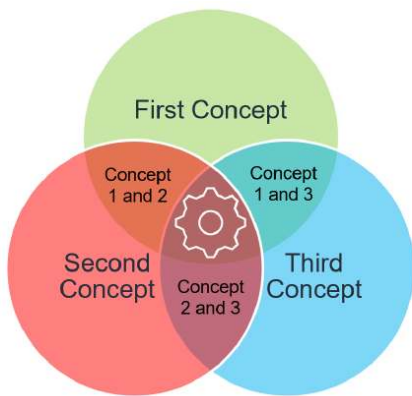
#### Translate Your Interests into a Venn Diagram

The mind map is a great tool for brainstorming, but not always the best for helping us find sources.

The Venn diagram is a **translation tool** from our messy brains to the research databases.

Each circle represents one concept. When circles overlap, that shows connections between concepts - but you don't need to label the overlaps.

The gear icon in the very center of the diagram represents your topic. There might not be many (or any!) studies on your topic, and that's actually going to be helpful!



#### Note

A topic eventually needs at least **three facets** - like a stool needs three legs to stand. But you don't have to know all three yet. You might only have two circles (or maybe you have more than a dozen). We'll refine later.

#### Put it into Practice

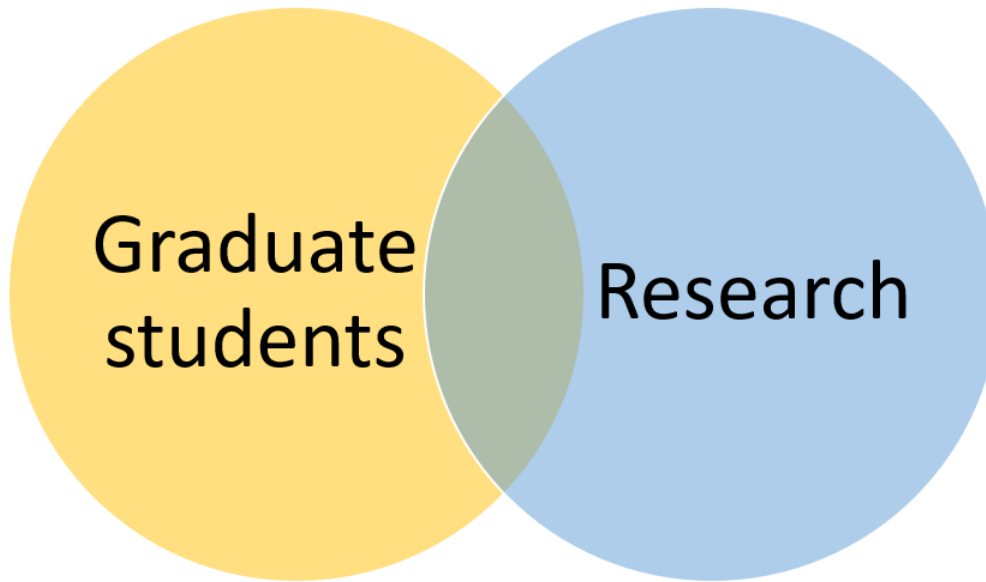
Now let's put the theory into practice.

##### ✓ Example: Venn diagram 3.3.1

Here's a sample topic from my own research that I'll use throughout this workbook.

I was interested in **how graduate students do research**.

This phrase only has two facets: graduate students + research:



That's a start, but with only two facets, we don't yet know how they relate.

### ? Activity: Venn diagram 3.3.1

Now it's your turn!

- **Draw 3 circles** in your journal either on paper or a tool online (such as MS Word or Google Docs).
- **Choose a term** from your mind map that excites you the most.
  - Enter that term into one circle.
  - Can you break that into smaller parts? *For example, if you're interested in Black women, you'd have two circles: one for Black people and one for women.*
- **Add a second term** from your mind map
  - Enter that term into a second circle
- **Repeat** for as many terms as you want to add.
- **Leave the intersections blank.** Don't label how the circles connect. Each concept or facet of your topic should have its own circle.

**Remember:** this is just a start! Don't stress about whether this is a perfect idea or how to make it a topic.

### Build Supports:

At this point, you're just doing some quick brainstorming. Now probably isn't a time that you need to check in with your faculty or a librarian. There'll be plenty of opportunities for that in later steps. For now, if you want, you can check in with friends about your interests, more as a casual discussion, just to generate thoughts.

### Next Steps:

Keep your Venn diagram handy - we'll keep referring back to it. Your next step will be to use your search results to help refine the topic, so don't stress about the topic just yet!

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## 3.4: Explore Searches

### Quick scan in Google Scholar to refine topic

At this step, use your searches to help you **refine your interests**. Since your topic is not fully solidified, you're not yet looking for sources for your literature review. Instead, scanning to see:

- Terms that come up in the literature
- What excites you
- What doesn't interest you
- What's missing that you expected to see

This is a **scoping step** - you're exploring, not committing.

### Why Google Scholar?

You can use Google Scholar or a library database. For this step, I find [Google Scholar](#) simplest because:

- It's easy to use
- It searches across articles, books, theses, and dissertations, like a database

It's not great for narrowing effectively, but we're not trying to narrow our search results, just refine our topic.

However, if you're more comfortable with a library database, you can do this step in a database instead.

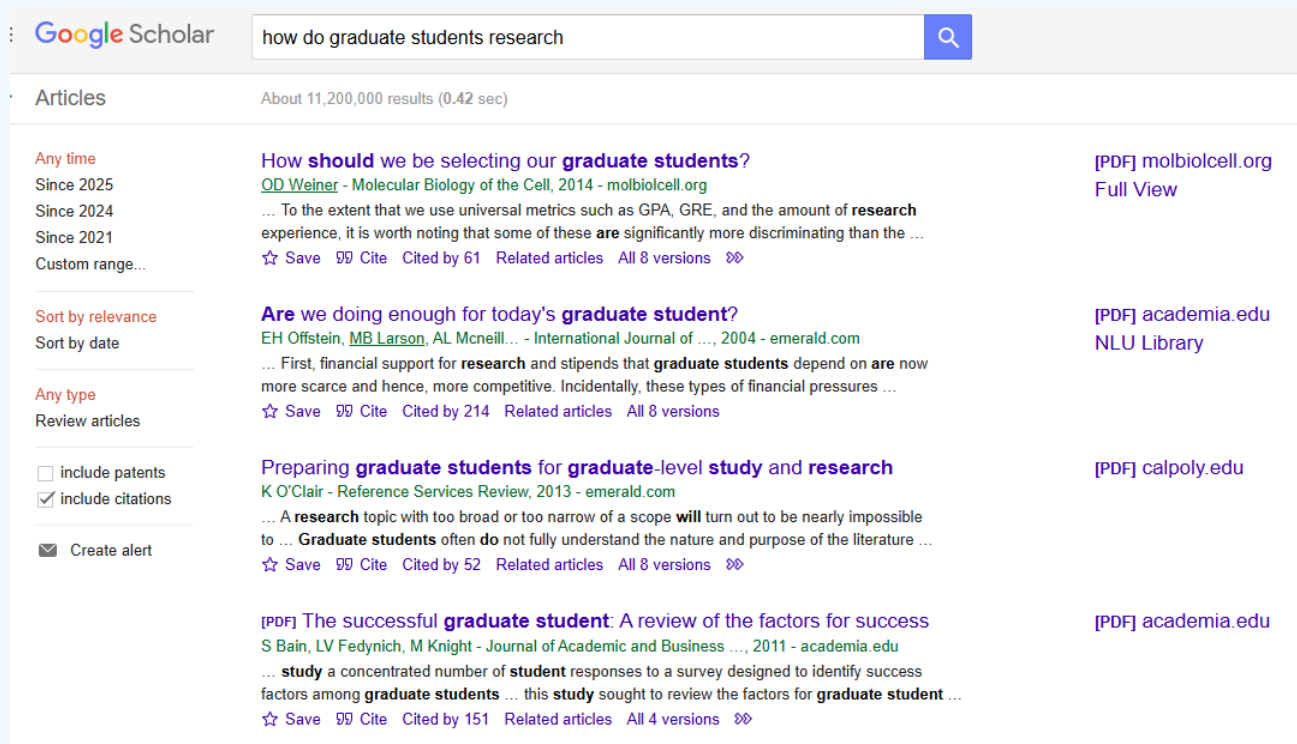
### Put it in practice:

Let's put that in practice.

#### ✓ Example: Explore searches 3.4.1

My sample topic is *How do graduate students research?*

Searching this in Google Scholar in 2025 gave me these results:



The screenshot shows a Google Scholar search interface. The search bar contains the text "how do graduate students research" and a magnifying glass icon. Below the search bar, it indicates "Articles" and "About 11,200,000 results (0.42 sec)". On the left side, there are filters for "Any time" (with sub-options: Since 2025, Since 2024, Since 2021, Custom range...), "Sort by relevance" (with sub-option: Sort by date), "Any type" (with sub-option: Review articles), and checkboxes for "include patents" (unchecked) and "include citations" (checked). There is also a "Create alert" button. The main results area displays four search results, each with a title, author, source, and a brief abstract. The first result is "How should we be selecting our graduate students?" by QD Weiner, from Molecular Biology of the Cell, 2014, published by molbiolcell.org. The second result is "Are we doing enough for today's graduate student?" by EH Offstein, MB Larson, and AL Mcneill, from the International Journal of ..., 2004, published by academia.edu NLU Library. The third result is "Preparing graduate students for graduate-level study and research" by K O'Clair, from Reference Services Review, 2013, published by calpoly.edu. The fourth result is "The successful graduate student: A review of the factors for success" by S Bain, LV Fedynich, and M Knight, from the Journal of Academic and Business ..., 2011, published by academia.edu. Each result includes a "Save" button, a "Cite" button, the number of citations, a "Related articles" link, and a link to "All 8 versions" or "All 4 versions".

(The above screenshot has a list of 4 citations and depicts part of the titles, authors, journals, dates, and a snippet of the abstract. These are written as bullet points in the [Appendix: ADA Accommodations](#).)

Right away I can see some additional terms emerge and start to assess if any of them are interesting to me, such as: selecting, GPA, financial support, preparing, success.

From a quick scan, I notice:

- **My interests:** I am not interested in selecting grad students, nor in test scores
- **New terms:**
  - From 'financial cost', I think cost, tuition
  - From 'preparing', I think 'training'
- **Related interests:**
  - From 'financial cost', I might think 'barriers', and then think about other barriers, such as child care, transportation, working full time
- **What do I not see that I'd expected to see?**
  - I don't see anything about the experience of students, nor about their emotions.

I could do a few more specific searches in Google Scholar, adding more terms and playing around with the first page or two of results.

Then I'll take a few quick notes:

| Search terms used                 | Number of results | What are you seeing that you do NOT want? | What aren't you seeing that you DO want? | Any new circles to add to my Venn diagram? |
|-----------------------------------|-------------------|-------------------------------------------|------------------------------------------|--------------------------------------------|
| how do graduate students research | 11,200,000        | selecting test scores                     | emotions                                 | emotions                                   |

### ? Activity: Explore searches 3.4.1

Try it yourself!

1. Use the terms from your Venn diagram in the last activity and type them into Google Scholar (or a database).
2. Scan only the first ~20 titles.
3. Fill out the table below as you go.

#### Table

You can use this table or create a simple one in MS Word or Google Docs, or just jot it down on paper.

| Search terms used | Number of results | What are you seeing that you do NOT want? | What aren't you seeing that you DO want? | Any new circles to add to my Venn diagram? |
|-------------------|-------------------|-------------------------------------------|------------------------------------------|--------------------------------------------|
|                   |                   |                                           |                                          |                                            |
|                   |                   |                                           |                                          |                                            |
|                   |                   |                                           |                                          |                                            |

### 📌 Check-in - Positionality

Consider the titles in the results.

- How do they resonate (or not) with your identity?
- Which populations are addressed (or not)?

- What are the results focused on?
- What or who is missing that you expect to see in the results?

#### Check in - Emotions

As you glance through the results

- What emotions arise?
- Are you excited by anything you're finding? Surprised? Frustrated?

Your emotions are valuable clues for where to focus next.

Again, consider using smiley faces or 1-5 stars or a color to depict your current emotions.

#### Reflection and next steps 3.4.1

Jot down:

- A couple phrases about what you're finding
- Your reactions to that.

In the next chapter we'll use those notes to **refine your topic** further.

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## 3.5: Refine Your Topic with 5 Q's

### Asking Questions: 5 Q's

At this point, you've explored your interests through brainstorming, Venn diagrams, and quick scanning in Google Scholar. Now, let's take the next step by asking some clarifying questions. This will help you see how your terms relate to each other, and to reflect on what you mean by them.

A simple way to do this is by asking five guiding questions: **Who, What, Where, When, and Why**. You might find some questions spark immediate answers, while others might not be relevant or interesting to you. That's perfectly fine. You don't need complete answers yet - we'll keep refining your topic over the next several sections.

You don't need all the answers yet!

### Put it into practice:

Let's put that into practice.

#### ✓ Example: 5 Q's 3.5.1

The table below provides clarifying questions to work through these paths and also showcases the types of questions I might generate when working through our treatment of trauma topic.

#### 5 Q's table

5 Q's Table

| Clarifying Questions |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Example - Potential concepts based on my grad students + research                                                                                                |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Who?                 | <ul style="list-style-type: none"> <li>Consider who is the subject of your literature review?</li> <li>Are you interested in specific demographics (age, gender, sexual orientation, ethnicity, language, socioeconomic background)?</li> <li>If you're interested in a system of different groups of people, who is the main subject? Meaning, if you're interested in schools, are you focused on the students, parents, teachers, or administrators?</li> </ul> | <ul style="list-style-type: none"> <li>Discipline-specific</li> <li>Doctoral students</li> <li>BIPOC students</li> <li>Returning adults with children</li> </ul> |
| What?                | <ul style="list-style-type: none"> <li>Think here about concepts/sub-concepts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>Libraries</li> <li>Emotions/affect</li> <li>Cognitive</li> <li>Identity</li> </ul>                                        |
| Where?               | <ul style="list-style-type: none"> <li>Country (US, international) matters particularly if laws or policies are involved</li> <li>Consider rural/urban/suburban</li> <li>If you're looking at hospitals, in-patient or out-patient?</li> <li>If schools, private or public?</li> </ul>                                                                                                                                                                             | <ul style="list-style-type: none"> <li>US and Canada</li> </ul>                                                                                                  |
| When?                | <ul style="list-style-type: none"> <li>Are you focused on the here &amp; now or past experiences?</li> <li>Immediate vs long-term impact?</li> </ul>                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Start of graduate school</li> <li>During dissertation</li> <li>After graduation</li> </ul>                                |
| Why?                 | <ul style="list-style-type: none"> <li>Why does this matter to your field of study?</li> </ul>                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>How can librarians support graduate students?</li> <li>Teaching strategies</li> </ul>                                     |

Notice that I'm not locking myself into a specific direction, but starting to consider different paths.

### ? Activity: 5 Q's 3.5.1

Now, your turn. Ask yourself the basic **Who, What, Where, When, Why** questions on your topic.

For now, just see what comes to mind - no need for full answers or definite decisions yet.

#### 5 Q's table

Blank table for you to use

5 Q's Table

|        | My Topic |
|--------|----------|
| Who?   |          |
| What?  |          |
| Where? |          |
| When?  |          |
| Why?   |          |

### Build supports: Brainstorm with others

This is a great time to talk through your ideas with someone else because their reactions and questions might spark new ideas and connections for you.

You might:

- **Chat with a friend or family member** - Classmates can help, but people outside your field often asks clarifying questions you wouldn't hear within your field. Rather than jumping to answer, sit with their questions - they can help you refine your thinking.
- **Meet with a librarian** - Let them know that you're not necessarily looking for articles yet - you just want to consider where your topic can go.
- **Try a generative AI tool (like ChatGPT)** - Treat it like a conversation partner, *not* a source of facts.

### A note on AI:

- *How it works:* AI tools predict word patterns; they're not actually *thinking*.
- *Strengths:* They're great at generating questions, rephrasing ideas, or surfacing perspectives you might not have considered
- *Limitations:* Responses can be incomplete, biased, or generic. They often require very specific prompts and many back-and-forth to be useful.
- *Ethical considerations:*
  - **Copyright:** Training data used authors' works without permission and without citing it
  - **Environmental impact:** Running AI requires a vast quantity of water & energy
  - **Learning:** Overuse of AI can result in you thinking or learning less
- *Selecting tools:* For brainstorming, ChatGPT tends to be the most effective, although others (like Claude) also work well.
  - It depends on what you want to use it for
  - In my experience, for brainstorming topics, ChatGPT is the best tool, although others have success with Claude as well.

### ✓ Example: Brainstorming with ChatGPT 3.5.1

Here's what a short conversation with AI can look like, using my example interest of graduate students, affect (emotions), libraries, and research:

**Me:** I'm interested in developing a research topic on graduate students, emotions, libraries, and research. Can you suggest some possible angles to explore?

**ChatGPT:** Sure! Here are a few directions:

- How graduate students manage research anxiety in the library setting
- The role of libraries in supporting students' emotional well-being during research
- Connections between confidence in research skills and library use
- Stress or burnout related to information overload in library databases

**Me:** I like the idea of research anxiety. What kinds of emotions besides anxiety might come up in this context?

**ChatGPT:**

Other emotions might include:

- **Frustration** (difficulty finding sources)
- **Confidence** (when research goes well)
- **Overwhelm** (too many resources to sort through)
- **Curiosity or excitement** (discovering new ideas)

**Me:** I'm curious about confidence. How could I narrow that further?

**ChatGPT:**

You might look at:

- Differences in confidence between new and advanced graduate students
- The impact of research instruction on students' confidence
- How confidence interacts with students' identity (e.g., first-generation, international, BIPOC)

Takeaway: Notice that ChatGPT started broad, and after I kept asking questions, it helped generate more nuanced ideas. Use it as a springboard, not an endpoint.

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### 3.6: Add Concept Circles to Venn Diagram

Now that you've explored your topic with the 5Qs, you can start layering those ideas into your Venn diagram. Your goal at this stage is to *add more circles* to represent different facets of your potential topic.

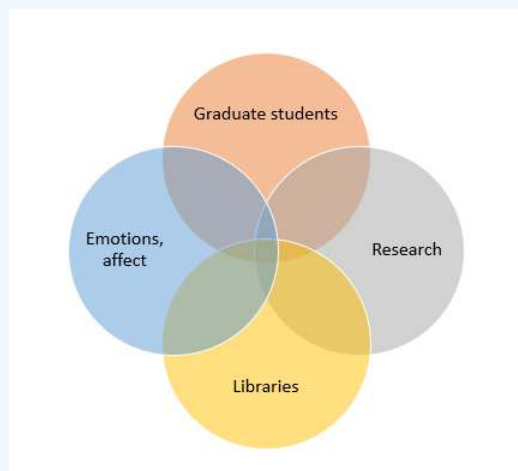
#### ✓ Example: Add circles 3.6.1

In applying the 5Qs to my example interest of *graduate students* and *research*, I became interested about:

- **Why** - how this relates to libraries
- **What** - how graduate students relate to research emotionally
- **Who/where** - I don't feel ready to narrow these yet

So I might add two more circles to my Venn diagram: *libraries* and *emotions*. In the same circle with 'emotions', I can include 'affect', as a related term.

Notice that I don't need to label the intersections between circles - I'm not trying to invent phrases for emotions + libraries. The very center where they all overlap is *the core of my interest*.



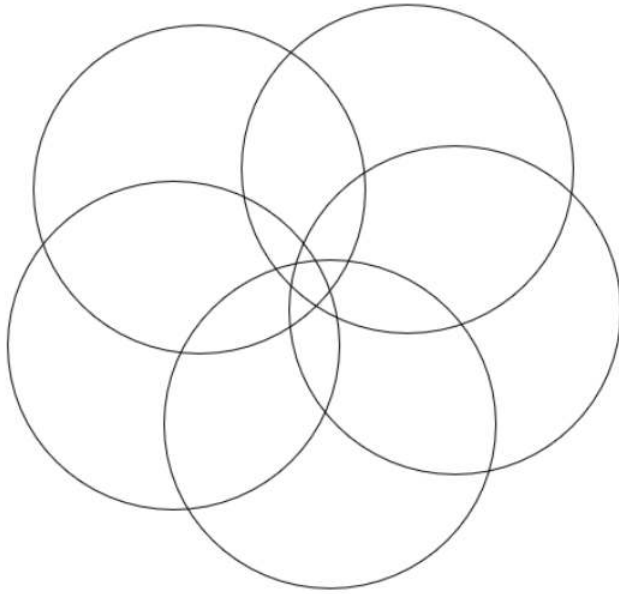
#### ? Activity: Add circles 3.6.1

Using [your answers to the 5Qs](#), try adding more circles to your Venn diagram. Keep terms as separate as possible, just as you did initially.

- Synonyms should go in the same circle
- Related but distinct terms should each have their own circle.

You can use the blank Venn diagram below, sketch one in your notebook, or try an online tool.

**Blank Venn diagram**



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## 3.7: Brainstorm More Terms

### Consider Broader Concepts:

Now that you've added more facets to your topic, we'll do one last quick step before finding sources: thinking about *broader concepts* for each circle.

This step isn't meant to change your topic. Instead, it helps you be flexible in case you can't find enough published research on your specific terms. You'll also see if some facets might be too broad and need a little narrowing.

#### Why this matters:

Your exact topic may not be widely covered in the literature yet (especially if you're going to do original research). Having broader terms in mind gives you backup options so your searches can still yield relevant results.

#### ✓ Example: Brainstorm 3.7.1

- Graduate students - less literature than on undergrads. Broader concept: *undergrads*
- Emotions - Might want to see what the literature says on cognition as well
- Libraries - Broad concept: *research projects*

Brainstorm additional terms

| Focused concept   | Broader or related concept |
|-------------------|----------------------------|
| Graduate students | Undergrads                 |
| Emotions          | Cognition                  |
| Libraries         | Research projects          |

#### ? Activity: Brainstorm 3.7.1

1. List the facets from [your Venn Diagram](#).
2. For each facet, consider broader or related concepts you could use if a search for your first term doesn't provide any results
3. Use the blank table below, create one in your journal, or a Google Docs table.

#### Blank table

Brainstorm additional terms

| Focused Concept/Facet | Broader Concept/Facet |
|-----------------------|-----------------------|
|                       |                       |
|                       |                       |
|                       |                       |
|                       |                       |
|                       |                       |

#### Next steps:

When writing your literature review, you can include sources on these broader facets, and then contrast them with your narrowed focus. For example:

- I might find more studies on undergrads. I can use these, but also highlight studies showing differences between undergrads and graduate students.

- This helps make the case that more research is needed on my specific population or angle.

We'll come back to this later.

#### ? Activity: Venn diagram 3.7.1

- Add your broader concepts into your Venn diagram.
- Most topics can be visualized with only 3-4 bubbles. However, some will get more complex, especially for dissertations, and might need 5-6.
- If you only have 1-2 circles, it is not yet a topic.
- If you have 18 bubbles, your topic is a bit of a mess, as that would be unwieldy for a single topic. That just means that you'll need to continue to refine your topic. You'll refine it as you review the literature in the next chapter.

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## 3.8: Check-In

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### Reflect:

Pause and think about what you've done so far. In this unit, you've

- Brainstormed your interests
- Scoped Google Scholar for ideas on topics related to your interests
- Refined your interests through asking the 5Qs: Who, What, Where, When, Why
- Added broader and narrower terms for each facet

At this point, **your topic is still developing**. That's expected! This unit was about generating some ideas, not finalizing them. In the next unit, we'll find citations to help you *refine* your focus further.

### What have you learned?

Which ideas from this unit are sticking with you?

What key points do you want to remember?

Record any points you'd like to remember. Consider creating a doodle icon or finding an image or GIF online to remind yourself instead of words.

### Emotions:

How are you feeling about your research project at this moment?

Write, draw, or find an image/gif online to describe your current state of mind about your research.

Add your emotions to your journal.

### Positionality:

Look back to the [chapter on positionality](#) and connect it with what you've done so far with your topic:

1. How does your positionality shape the interests you selected during your brainstorming?
2. How does your identity affect how you answered the 5Qs?
3. What assumptions or biases might you have regarding elements of your topic?

## Supports: Meet with Your Faculty

*If this is for a class assignment:*

- Check-in with your instructor to verify that your topic is viable for their assignment.
- Remember that office hours or scheduled appointments can be a good way to have this conversation.

*If this is for a dissertation/thesis:*

- Some advisors might prefer that you refine your topic further before meeting.
- If they have not already told you, ask what their expectations are for when and how you bring them topic ideas.

### Next Steps:

In the next unit you'll find sources in order to further refine your topic. Even if your topic feels solid, the literature you find will shift your interests into new directions. That's a normal - and useful - part of the research process.

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## CHAPTER OVERVIEW

### 4: Find Citations

This unit will help you find 5-10 sources, but you'll circle back to this step later as you continue to refine your topic and find more relevant sources.

- [4.1: Learning Objectives](#)
- [4.2: Meet with a Librarian](#)
- [4.3: Select Where to Search](#)
- [4.4: Translate Your Words to Database Terms](#)
- [4.5: Combine Terms](#)
- [4.6: Expand and Narrow Search Results](#)
- [4.7: Evaluate Citations](#)
- [4.8: Save Early and Often](#)
- [4.9: Iterative Process](#)
- [4.10: Check-In](#)

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## 4.1: Learning Objectives

### Caution

#### Don't skip this unit!

Even if you're already confident with finding citations, working through this unit may give you new techniques & strategies in addition to what you're already doing well.

#### Think of this unit as a scavenger hunt.

Each source you collect is a clue - some might lead nowhere, while others will be immensely helpful. In this unit, you'll learn how to find these sources and decide which are worth pursuing. In the next Unit, you'll uncover connections and notice gaps in the research.

### Learning Objectives

By the end of this unit, you will be able to:

- Use keywords and subject headings in a database to find citations on your topic
- Combine search terms effectively to find results
- Refine your searches to expand or narrow results
- Save searches within a database
- Create an account in a citation management tool and save your citations

### Time Needed for This Unit

Expect to spend **5-10 hours** on this unit.

This unit will take considerably more time than the previous two units for several reasons:

- The readings are more detailed
- You'll apply new skills, not just brainstorm ideas
- I strongly encourage you to meet with your librarian (about an hour).

Your actual time will depend on several factors:

- How skilled and confident you already are at effectively using library databases to find relevant sources
- How refined your topic is at this stage
- How much literature exists on various facets of your research
- How many useful database filters (limits) exist within relevant databases on your area of research

### Why This Matters

Finding sources involves an **iterative process**.

- Your first round of searching continues to refine your topic.
- Refining your topic leads to finding patterns in the literature
- Each adjustment points you toward additional searches on a narrower topic

How many iterations of this cycle you need depends on the depth of your research (a short paper may need only one or two rounds, while a dissertation will require many).

Building confidence in efficient search techniques ensures you:

- Select the most relevant sources for your paper
- Determine when you have enough sources

- Identify what's missing in the literature

Don't think of these rounds as errors or "starting over", but as **focusing your lens**.

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## 4.2: Meet with a Librarian

I had a meeting with [a librarian] and it just really, really helped kind of organize this is how you do it...It's almost like the structure became visible to me and it never was visible, before." (Graduate student participant as cited in [Droog et al. 2024](#), p. 837)

### Supports: Meet with a Librarian!

Making a research appointment with a librarian **before** doing this unit will show you how to use your university library's specific resources. Then, as you complete the activities, you won't have to stop and figure out which tools your institution provides, or what your login information is.

### Why make a research appointment?

Making an appointment to meet one-on-one with a librarian can:

- Increase your confidence in effectively navigating your university library's resources.
- Help you brainstorm your topic
- Launch you into expert searches in the databases specific to your topic.

### How to make a research appointment?

1. Visit your library's website. If you can't find it, try Googling your university's name + library.
2. Look for links that might be titled: Research Appointment or a Library Consultation.
3. If you can't find a way to schedule the appointment, find a way to chat, email, or even just stop by a library in person and ask how to schedule one.

*Tip:* Usually you'll need an appointment. If you just walk up to the desk, the best librarian for your area of study might not be available. Or if you just ask for help on chat, it's possible you'll chat with a helpful student worker, but not with someone trained to teach in-depth research techniques.

### When should you meet?

Now is a great time to meet with a librarian! You can bring your Venn diagram to the appointment.

If you prefer to learn on your own or you already have a good foundation for using your library's resources, you could first work through this unit about searching on your own. Then, after you finish this unit, you could make an appointment with a librarian to ask more specific questions. Or to just ensure you're not missing anything, such as a keyword you didn't consider, or a database you hadn't known existed.

### ? Activity: Meet with a librarian 4.2.1

Here are questions you might ask your librarian. Be sure to write any notes here from your meeting with them. Some key things to note:

- **Which database(s) will be best for your topic?**

- **Search terms – what terms did you try with a librarian?**

- Write them down here or in your journal– even if you saved your searches in a database. You might want to use those same terms elsewhere.

- **How will you save your citations?**

- Which citation management tool? (e.g. RefWorks, Zotero, Mendeley, etc)
- Write down the tool name, how to access it, and your username/password here:

- **How can you access full text?**

- From a database?
- From Google Scholar?
- From a citation?
- How do you request full text through Interlibrary Loan?

- Do you need an extra login to **save your search history in the database(s)**?
  - If so, write down your username/login here:

✓ **Reflection 4.2.1**

After the appointment, be sure to jot a few notes into your notebook:

- What did you learn?

- What did you do well?

- What is the next micro step you'll do?

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## 4.3: Select Where to Search

### ? Consider: Search tools 4.3.1

Where do you typically search for citations for research papers or class assignments? Do you use one tool or multiple tools?

#### Possible Answers

There's no "right" answer, since the question is what you use. However, some possibilities might be:

- Google Scholar
- EBSCO
- Specific databases
- ChatGPT or other GenAI tools

### Search Tools

There are three main categories of tools that can help you find sources. Below is a brief explanation of each of these larger categories:

#### Web Search Engines

The most familiar example of a search engine is **Google**, but several others work similarly (e.g. Bing). These are powerful tools, particularly for finding websites, not scholarly sources. Websites might be useful for your research if you're looking for any of the following:

- Statistics related to your topic
- Organizations involved in your area (e.g. professional organization's website)
- Media - both social media & traditional news) - to get a sense of voices outside academia on this topic

**Google Scholar** is another example of a search engine. While it provides scholarly citations, it still is pulling from the open web, like Google. In addition to finding citations, Google Scholar can help find Case Studies. While this is useful if you want to find a specific legal case study. However, using Google to find broader government or legal information is often simpler. [We'll cover this a bit further in Unit 6.](#)

#### Library Tools

These include any of the tools libraries provide, including:

#### Library Databases

Key traits of library databases:

- **Discipline-specific** - many databases focus on particular areas of study, such as Education or Psychology & Counseling. Some cover a wide range of fields.
- **Curated citations** - Experts in the database's discipline decide which journals are included in the database.
- **Organized** - Indexers categorize each citation. This allows us to narrow using filters; to search by author, title, or subject terms. You can think of these as "tags", but they are applied by people who work for the database, not by the authors.

Many databases include citations for peer reviewed journal articles. Databases might also books, videos, trade journals, magazines, and more. While many databases include the full text of the citations, not all do. Your library will likely have a way for you to link to the full text or to request the full text through Interlibrary Loan.

Some libraries allow you to search across multiple databases. This will expand your results, but removes some of the useful filters specific to each database. So while this can be useful to a quick, broad search, if you want more refinement, I recommend selecting a few that are relevant to your topic and searching them separately. For example, in a psychological database, APA PsycInfo, you can filter by age of participants or by methodology type.

## Library Catalog and Library Discovery Tools

The library catalog shows you what a library owns. However, more common now is to have a discovery tool which combines the traditional catalog with the ability to find citations your library might not own, but can request for you through Interlibrary Loan. Since this is a very broad search, it's usually best to find books on a topic, or to find the full text of a specific citation.

## Generative Artificial Intelligence (GenAI)

As of mid-2025, some examples include **Elicit**, **Research Rabbit** and **Scite**. Other AI tools, such as ChatGPT are better used to edit writing, rather than find citations. Some library tools do include an AI element or the ability to turn on an AI search, while others do not. Given the rapidity with which GenAI is learning and new tools are being created, if you are interested in using AI tools for your research, I recommend you check with your librarian who will have more up-to-date information than this workbook. At this time, while GenAI has some exciting uses, I have not found it useful in finding citations for the following reasons:

- Many AI tools "hallucinate" or create citations which do not exist
- AI tools often do not have access to articles which are not available on the open web, so these tools cannot recommend some resources your library can access
- They often lack filters available in library databases.

## Distinctions between Search Engines & Library Databases:

Search Engines vs Library Databases

|              | Search Engines<br>(e.g. Google Scholar)     | Databases<br>(e.g. APA PsycInfo)        |
|--------------|---------------------------------------------|-----------------------------------------|
| Structure    | Algorithms                                  | Experts organize content                |
| Search terms | Keywords, only                              | Indexed fields (author, subjects, etc.) |
| Reliability  | May include predatory journals <sup>1</sup> | Limited to vetted journals & sources    |
| Filters      | Limited filters                             | Extensive, discipline-specific filters  |

## Select Tools

### ✓ Reflect 4.3.1

Consider which tools will be most useful based on your topic. If you're not sure, check with your librarian!

Now, choose **one database** to start. You'll use it to find sources throughout the rest of this unit.

<sup>1</sup>: For more information about predatory journals, see this [tutorial from Princeton University Library](#).

## 4.4: Translate Your Words to Database Terms

### Keywords

Finding relevant sources/citations is an act of translation. You need to translate what's in your head to a computer. In Google Scholar or databases, you can start with the words from your Venn diagram. These terms are **keywords** and using them is like doing Ctrl+F to find any resource that has those exact letters in the title, abstract, or even the full text. Using keywords means you'll need to think of synonyms and spelling variations. From our example, synonyms might include:

Keywords

| My initial term   | Synonym(s)                                              |
|-------------------|---------------------------------------------------------|
| Graduate students | Doctoral students, master's students, graduate programs |
| Emotions          | Affect                                                  |

### Subject Headings

However, thinking of all the synonyms that an author might have used is quite difficult. Databases, unlike Google Scholar, have experts who categorize resources to make them easier to find, rather than relying on algorithms. All resources in databases are filed by their subject. You can think of this like a "tag", except only experts apply these, not authors nor users. These are sometimes called **subject headings** or **subject descriptors**. You can use the database's **thesaurus** to find (and include) related terms. For example, if you search for the subject heading *therapy* in APA PsycInfo, you'll find dozens of narrower terms (in this case, specific types of therapy) which you can include in your search.

### Compare

The following table compares keywords and subject headings.

Keywords vs Subject Headings

|                                         | Keywords                                                                            | Subject Headings                                                                |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>What?</b>                            | Specific words                                                                      | Topics/subjects                                                                 |
| <b>Who creates?</b>                     | You (natural language)                                                              | Experts (controlled vocabulary)                                                 |
| <b>Homonyms automatically included?</b> | No                                                                                  | Yes - All variations covered<br>Connects to related, narrower, broader subjects |
| <b>When to use?</b>                     | Starting place<br>Topic is new<br>Topic is specific (e.g. location or organization) | Topic has established academic research on it<br>Highly relevant results        |

One of the best ways to see how keywords or subject headings impact your search differently is to try them both and note how they impact your search differently. Often it's best to use a combination of both.

### Activity: Keywords & subject headings

Try searching in a database for a keyword from your Venn diagram.

- Your keyword:

- How many results do you get?

Next, use the database's thesaurus to find a subject heading representing your keyword.

- Corresponding subject heading:

- What narrower & related terms are in the thesaurus?

- Would you be interested in articles on any of the narrower and/or related terms instead of your initial term? If so, grab all that interest you.
- Now how many results do you get?

Keyword searching might retrieve more results since it will find articles that just use the word once but aren't about that subject. However, keyword searching will miss results that use a slightly different word, such as a synonym or narrower term. Subject headings help retrieve more relevant results. And the thesaurus can help you find related terms that can improve your search results.

Keywords vs Subject Headings for your first quick scan

| Keyword from your Venn diagram | Number of results in keyword search | Subject headings (include narrower & related terms)                                                               | Number of results for subject search       | Which seems more useful? |
|--------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------|
| Ex: therapy                    | Ex: 495481                          | Ex: Treatment<br>Ex: cross cultural<br>treatment;<br>psychotherapy; trauma<br>treatment; trauma-<br>informed care | Ex: treatment + narrower<br>terms - 146419 | Ex: Subject heading      |
|                                |                                     |                                                                                                                   |                                            |                          |
|                                |                                     |                                                                                                                   |                                            |                          |
|                                |                                     |                                                                                                                   |                                            |                          |
|                                |                                     |                                                                                                                   |                                            |                          |
|                                |                                     |                                                                                                                   |                                            |                          |

In our example, the subject heading seemed more useful because it helped us find additional, helpful terms, and because it found fewer results (but hopefully more topical results) than the keyword search. That will not always be the case, as it depends on your topic, the database, and the terms.

In this section, we've just been adding one term at a time so we're not yet ready to review the results in any depth.

In the next section, we'll combine terms.

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## 4.5: Combine Terms

### Combine Terms

Look back at your Venn diagram. Let's use that as a translation device. So far, you've added the circles as separate searches. Each search will stay in your search history during the time you're using the database, but where that is depends on which database you're using. Once you find your search history, you'll need to know how to combine your terms.

To combine terms, you'll need to be able to answer how the terms relate:

- Would you be ok seeing articles that use **either** one **or** the other term? In my example, I'd be ok finding results on **either** emotion **or** affect. I'd be interested in results on **either** graduate students **or** doctoral students.
- Do you want to see how the terms relate to each other? In my example I want to find sources about **both** emotions **and** graduate students.

Here's a chart of whether to combine terms with AND or with OR:

Combine terms

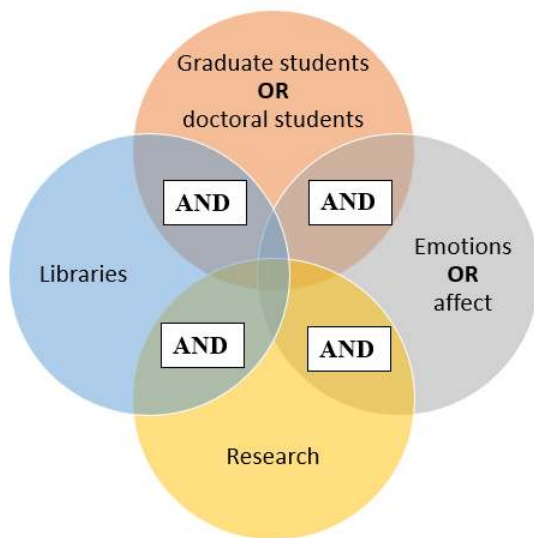
| How do your terms relate to each other? | Combining word to use |
|-----------------------------------------|-----------------------|
| Synonyms or related terms               | Use OR                |
| Different concepts                      | Use AND               |
| Exclude terms                           | Use NOT (rarely used) |

**Not:** Usually, there's no need to connect using NOT. You *can* use this to connect a term that you do not want to get in your results. However, this is tricky. Sometimes, a relevant article might mention a term you're not interested in, but other aspects of the article *would* be interesting.<sup>1</sup>

### Venn diagram

For a visualization of when to use And or Or, we'll use our Venn diagram.

Remember that I'd mentioned not to label the intersection between circles. This intersection is just the AND combining the terms. We use OR between terms within the same circle.



### ✓ Example: Combining terms 4.5.1

When I was considering keywords, I thought of graduate students **OR** doctoral students.

Now, when I want to combine this concept with emotions, I can combine the following sets:

- (Graduate students **OR** doctoral students) **AND**
- (Emotions **OR** affect)

### ? Activity: Combining terms 4.5.1

In the last activity, you searched for one of your concepts as a keyword and again as a subject. Select whether the keyword or subject worked better for your search. Or, combine the two into one search, if you think they're both useful. Do the same thing with a concept from another circle in your Venn diagram. Then combine the two searches together.

Don't start reading through the citations yet. First note:

**How many results do you have?**

Add the number here:

## Next Steps

In the next section, we'll discuss how many results is too many, and how to narrow effectively to find relevant sources. So don't look through your results yet! Read the next section first.

**Note:** The few times I've seen "not" be a useful connector tend to be when a researcher is utilizing a term differently from the dominant culture. For example, a student was doing their dissertation on sadism & masochism from the original usage when the terms first became used in psychological literature in the 1940s. Today's studies on these terms relate to sexuality. We created a large set with terms related to sexuality and combined it with sadism using **not**. However, the number of times I've used it has been quite rare.

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## 4.6: Expand and Narrow Search Results

### Refine your results:

At this stage, you should narrow the number of results to a low enough number that you can reasonably review all the citations and **librarians** can help you refine your searches for your topic!

You should narrow the number of results to a low enough number that you can reasonably review all the citations. You do not have to read the full text of all of them, just the citations and abstracts to evaluate which seem worth reading. A good range would be anywhere from 50-150 to get a scope of the literature. If you're seeing fewer (as our example above had only 30 results), that's still a great start. You'll want to review those citations. Then consider how you might expand to learn more about how the field has covered these topics.

### Expand results:

If you have very few or even zero results, how can you expand?

If you combined all of your Venn diagram's circles together, you'll likely retrieve zero results. Remember, the combination of all the circles is *your* topic, and part of the reason to do a literature review is to show why it's relevant to study your topic. If you find many "perfect" articles on your exact topic, that means your topic is already heavily researched. Therefore, finding few sources can potentially indicate this topic has not been well studied.

Here are a few different ways you might be able to expand results:

- Search for only two of your Venn diagram circles, rather than 3 or more.
- Include more synonyms and related terms to one or both of your search sets.
- Try a different database. Perhaps the one you started in isn't the best for your topic.
- Look outside your discipline for articles in other fields. Keep in mind that if very little has been written on your topic, you might want or even need to include studies from other disciplines.
  - **Example:** I published a case study about upper level graduate students ("peer teachers") teaching information literacy sessions for me. Very few librarians had published about doing this, but many in the medical field had, so I used their case studies in my literature review. The medical discipline's articles helped me show the benefits of having peer teachers.
- Expand your criteria beyond your exact interest.
  - **Example:** In the same case study above about peer teachers, I also included articles within my discipline about student workers and "peer tutors". Neither were what my study was about, but these strengthened my case that:
    - My field wanted student workers to take more responsibility, but
    - My field was not yet publishing about my particular topic.

### Narrow results:

Sometimes combining two search sets will retrieve too many results.

- If you have thousands or more results:
  - Add a third term from your Venn diagram; **or**
  - Consider if there's a narrower way to phrase one of the searches. If you're searching for BIPOC, could you narrow to Black Americans? Or if you're searching for Therapy, could you choose a particular treatment?
- If you have a few hundred results, try adding limits.

### Limits or Filters:

You're likely already familiar with adding some limits while you're searching. Depending on the database, you'll have different limits available to you, but here are a few common ones.

Filters found in many library databases

| Filter         | Helpful Tips                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Peer-reviewed  | <p>Most research databases have a filter called ‘peer reviewed’ or similar that accurately identifies peer-reviewed works. Peer-reviewed means that someone other than the author reviewed and provided feedback on that work before publication. Being peer-reviewed elevates the work as it has been deemed valuable to share with the field by experts.</p> <p>You usually want most of your citations to be peer-reviewed. However, scholarly books, edited book chapters, dissertations, and theses are not peer-reviewed. You might want or need to cite a book or chapter, especially for background information.</p> <p>If you’re working on a dissertation, you’ll want to review others’ dissertations to: 1) ensure you aren’t replicating someone else’s work inadvertently; 2) explore their citations since dissertations have long literature reviews which might be useful for you to read; and 3) get a sense of how others have formatted their literature reviews (keeping in mind that just because they did it, does not mean it was done well or in a way your committee prefers).</p> |
| Year published | <p>Check with your faculty on the year range you should start with for your field and your topic. For many fields, it’s best to start by limiting to the last 5-7 years, but this depends on discipline and topic. Later, we’ll discuss exceptions to recent works, but for now it’s usually best to start recent.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Location       | <p>Here is a chance to consider positionality. Does the location of the study matter? It depends. If your topic involves a particular region (perhaps a sociological study of a certain group of people), then location is critical.</p> <p>Unfortunately, this location limit in most databases comes from the lead author’s institution. This can be problematic. For example, imagine a study about immigration in Central America. Perhaps the first author is Venezuelan, but currently works at a university in Germany. The location for that study would be Germany. This makes it difficult to effectively use the location limits to find studies about particular regions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Full Text      | <p>While you might automatically want to use this limit, I caution you against it, especially for dissertation. Even if your library does not have full text of a particular source, they can likely get it for you through interlibrary loan. Check with your librarians on how to do this. You definitely do not want to miss important sources simply because there was no immediate access to full text.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Methodology    | <p>While there are times you’ll want to narrow by a type of methodology, be careful. At this stage in your searching, you’re looking for the context of what research has been done on your topic. Even if you already know that you want to do a qualitative study, you still need to cite all sources, even those which are quantitative.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

### ? Activity: Refine your searches 4.6.1

Play around a bit with these suggestions. For now, just note how many sources you're finding with different combinations of terms and applying various filters.

## Next Steps

In the next section, we'll cover how to evaluate the results you're finding, without wasting your time reading all of them.

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## 4.7: Evaluate Citations

### Why you're searching for sources

In the previous section, you found citations. Sometimes this feels overwhelming because although you want to find sources, you're now inundated with citations and aren't sure which are worth taking the time to read. In this chapter, I'll discuss what to notice about citations at this stage in your literature review process.

First, take a few minutes to consider how you evaluate sources.

To evaluate whether a source is worth reading, you need to first know why you're searching for sources. At this point, you're primarily searching to refine your topic. Therefore, the question is not really whether you'll use the source in your final literature review. Rather, it is whether the source will help you on your quest toward finalizing your topic.

#### Note

You're searching now **to refine your topic**, not for the perfect article.

Rather you're gathering **context of what has been done and where the gaps exist**, which will help you further refine your topic and eventually generate your literature review. At this point, you might have only a very rough idea of your topic. Even if you have a more detailed topic, it might shift as you find more sources.

### What to look for in citations

As you scroll through the results list you just did in the previous section, **look primarily just at the titles**. A good title should provide enough information about whether you might later want to glance through more of the resource.

#### Things to note in the titles:

- Does the source seem to cover at least 2 of your Venn diagram circles? It doesn't need to cover more than 2, necessarily. In our example, I could read sources on just best practices for therapy treating trauma, in general. I don't need to include every source if the type of trauma covered by the article seems quite different from intergenerational trauma. But if the type of trauma looks related, perhaps the source could be interesting, such as "racial trauma" or even broader "emotional trauma", and therapy.
- Do the titles provoke any emotions in you? Perhaps you think some sound exciting, or some frustrate you. Pay attention to your reactions.
- Are there things the articles are covering which you hadn't considered, but which now seem interesting? Add more circles to your Venn diagram.
- Are there other terms the articles used which you hadn't considered? Write down those terms for future searching.
- Does something you actively do not want to study keep popping up? Sometimes I still need to include that in the literature review if there's not anything on our topic of interest. This can show a gap.

#### How to read the abstract:

If the title is unclear, only then should you bother with the abstract at this point. If the title is clear enough, don't read the abstract yet, just move on to the next citation.

- The first sentence of the abstract is usually just a general statement - generally not helpful.
- Unless you're particularly interested in methodology at this stage, skip the middle portion too.
- Start about two-thirds of the way down the abstract and scan for words like "*In conclusion*", "*Therefore*", "*Study found*", "*Results*". These sentences will explain what the study found, which helps you know whether the article is interesting for your topic.

#### Other things to note in the citation at this stage:

- Journal title: Most databases will also display the journal title in this initial list. Glance at that to get a sense of which discipline is publishing in this area (many literature reviews will include sources outside the researcher's discipline. For example, my topic might be covered by psychology, education, library science, which are all useful fields for my topic. However, it might

also be covered by fields completely outside my area (e.g. medical or engineering). These might still be relevant, but I want to be aware that their focus might be slightly different from what I expected.

- Author(s): Just get a sense of who is publishing. Don't belabor reading their names at this step.
- Subject headings the database applied to that source. If any subject headings look interesting and you haven't used it yet, write it down. We'll return to it later.

## In Practice

Let's put the theory into practice to make it more concrete.

### Example: Evaluate citations

Using the example topic, I searched: "graduate students" and (emotions or affect or perceptions) and "research process"). Below are the first four results with a few bullet points on how I quickly consider each one in light of my interests.

#### Citation #1

Note: for accessibility in reading the below screenshot, please see the [ADA accommodations appendix](#).



Peer reviewed | Academic Journal

**The insecurity of doing *research* and the 'so what question' in political science: how to develop more compelling *research* problems by facing anxiety.**

By: Gustafsson, Karl; Hagström, Linus • In: European Political Science, Dec2024 • Academic Search Complete

*Research* problems are crucial in the sense that they provide new *research* with purpose and justification. So why, despite the abundance of guidance available from an extensive methods literature, do *graduate students* often struggle to ... [Show more](#)

Subjects: [Political science](#); [Graduate students](#); [Anxiety](#); [Emotions](#); +1 more

#### Citation #1: Reactions

- **Initial, quick thoughts about the article:**
  - Peer reviewed article
  - Mentions an emotion - "anxiety", "insecurity". Do I want to narrow my focus to just anxiety?
  - Mentions a specific aspect to research: "develop a research problem" - I might consider whether I'd want to narrow my topic to just the stage of developing a topic
  - Field is political science. Do I care what field?
  - Journal is European - since my topic does not cover laws or regulations, this would still be interesting to me
  - Date (2024) is recent.
- **How this impacts my topic:**
  - Consider specifying a discipline? No, I think I want to stay broad
  - Consider narrowing to just anxiety? No, I think I want to stay broad

#### Decision - should I save this article?

- Yes, I'll save this article and will read it.
- Even if I don't specify in the exact ways this source does, it might still provide a sense of what research has been done on my topic

#### Citation #2

Note: for accessibility in reading the below screenshot, please see the [ADA accommodations appendix](#).



## "To be honest, it's complicated': training postgraduate *students* to work with *emotions* in qualitative *research*.

By: Ferrie, Jo; Greenwood, Sharon • In: Teaching in Higher Education, Jan2025 • Academic Search Complete

*Emotion* is an integral part of the knowledge production *process*, yet is rarely acknowledged within *research* methods teaching or textbooks. As educators, preparing *students* for fieldwork is essential, and should go beyond skill-le...

Subjects: *Graduate education*; Trigger warnings; Teaching methods; *Graduate students*; +2 more

### Citation #2: Reactions

- **Initial, quick thoughts about the article:**
  - Peer reviewed article
  - Mentions emotions in general - I'm interested to learn which ones
  - Population is postgraduate students. My topic is graduate students. If I'm unfamiliar with the new term, I can Google it and realize this is a synonym, so I might add the synonym to my searches: (postgraduate or "graduate students")
  - Journal is about teaching, which I realize excites me. Do I want to add "teaching" to my Venn diagram and then add it to my searches? I see under subjects there's a subject heading in this database for Teaching Methods, so I'll note that.
  - Date (2025) is very recent.
- **How this impacts my topic:**
  - I will add "teaching or teaching methods" as a circle in my Venn diagram
- **Decision - should I save this article?**
  - Yes, I'll save this article and will read it. It looks very interesting.

### Citation #3

Note: for accessibility in reading the below screenshot, please see the [ADA accommodations appendix](#).



## GENERATIVE ARTIFICIAL INTELLIGENCE TOOLS TO AUGMENT TEACHING SCIENTIFIC *RESEARCH* IN POSTGRADUATE STUDIES.

By: Segooa, M. A.; Modiba, F. S.; Motjoloane, I. • In: South African Journal of Higher Education, Mar2025 • Education Source

Scientific *research* is the cornerstone of postgraduate studies. However, various challenges hinder the progression and success of postgraduate *students*, which also *affects* throughput, *students* experiencing challenges in formulati...

Subjects: *Graduate students*; Artificial intelligence; Writing processes; Generative artificial intelligence; +2 more

### Citation #3: Reactions

- **Initial, quick thoughts about the article:**
  - Peer reviewed article
  - This article is not about emotions. Instead, I found it because the abstract uses the word "affects", but they aren't using it as a synonym of emotion, but rather as the verb of *effect*. So this is not as interesting to me.
  - Even though the article itself is not interesting, I'm now intrigued by the mention of Generative Artificial Intelligence.
  - Date (2025) is very recent.
- **How this impacts my topic:**
  - I might add AI as a circle

### Decision - should I save this article?

- No, this article is not relevant, even if I add AI as a circle

## Citation #4

Note: for accessibility in reading the below screenshot, please see the [ADA accommodations appendix](#).

✓ Peer reviewed | Academic Journal



### Challenges library and information science (LIS) postgraduate *students* encounter in *research* topic selection.

By: Elia, Emmanuel F; Ndenje-Sichalwe, Esther • In: IFLA Journal, Jun2025 • Library & Information Science Source

This study examines *research* topic selection among LIS postgraduate *students* in Tanzania. A quantitative approach was used to collect the data, and purposive sampling was used to recruit a total of 105 respondents. Key findings showed i... [Show more](#)

Subjects: [Library school \*students\*](#); [Quantitative \*research\*](#); [Tanzania](#); [Administration of Education Programs](#); [+5 more](#)

## Citation #4: Reactions

### • Initial, quick thoughts about the article:

- Peer reviewed article
- Mentions "challenges" and "topic selection". I'll note these and write them down.
- Population is library students, which is not a discipline I want to study. However, I might consider grabbing this article and reading it *only if* I don't find enough on other disciplines.
- Date (2025) is recent.

### • How this impacts my topic:

- I'll add "challenges" and "topic selection" to my Venn diagram

### • Decision - should I save this article?

- Yes, but I'll wait to read it. If I find more relevant sources, I will not read this one.

## General reactions

None of the first four sources are books or book chapters, which makes it easier for me. But if I do find citations of book chapters, I might want to consider them, depending on how well the book overall fits into my topic.

Many of the citations are quite recent. Several of the sources gave me more ideas on how to narrow my topic, which I wrote down to consider for later (we'll come back to how to use these in [4.9 Iterative Process](#)).

## Your turn: Evaluate citations

Now that you have a sense of how I'd consider the results in a database search on my topic, you can evaluate your results in terms of your topic.

### ? Activity: Evaluate citations 4.7.1

Scroll through your database results list from the search you constructed in the previous section, considering the bullet points above.

Remember to just read the article and journal titles at this step, and only glance at the abstract if the title is not clear enough. If any look interesting, select them as you scroll. Most databases allow you to check boxes or add the citations to a folder and then keep scrolling until you have read the titles of all the results you found. Saving sources now does not commit you to reading them later.

**As you evaluate the citations, write down any new terms you're finding or add them as circles in your Venn diagram.**

## Next Steps

The next section will discuss why and how to save your citations and searches so be sure to read that prior to leaving your database searches!

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## 4.8: Save Early and Often

Now that you have an idea of which citations you'll want to save, you'll need to save both your **search history** and your **citations**.

### Saving Searches

- If you haven't already, check with your library for the best way to save your searches.
- Many databases allow you to create a personal account to save searches and get alerts on new citations added to the database that meet your search criteria. This would still be under your institution's account, so you can think of it like a "profile".
- If you use Google Scholar, keep a list of what you've tried.

### Saving Citations

Use a **citation management tool** to save and organize your citations. They can also create your bibliography or works cited page in correct format (APA, MLA, etc.) and do in-text citations.

Don't rely on saving links, creating bookmarks - the links might break. And don't just save PDFs - you won't have the citation information easily stored. If you're not sure of the best tool, check with your library to see what they recommend.

A few popular options:

- RefWorks (if your library subscribes to this, you can use it to find the full text)
- Zotero
- Mendeley
- EndNote

**Tip:** Always save more citations than you think you need. It's easier to ignore an extra article than to realize later you need it but can't find it.

### In Practice

#### ? Activity: Select a citation management tool 4.8.1

If you didn't already do this, check with a librarian on setting up a citation management tool.

- Play around with the tool to feel comfortable with:
  - Exporting and importing citations (most databases have an easy button to click for this).
  - Creating folders
    - Consider naming them: *To Read*, *Finished Reading*, and *Not Relevant*
    - You can share your folder with a group partner or with your advisor
  - Creating a bibliography
  - Finding full text (does the tool do this, or can you upload the PDF?)
  - Using add-ons and other features (e.g. auto-generating in-text citation tool in Word or Google Docs)
- Save the citations from the previous section.

#### ? Activity: Save your search history 4.8.1

Save your search history if you're working in a database (Google Scholar does not allow for saving searches). You'll want to revisit and refine searches later without starting from scratch.

**Note:** This is not a step for you to read full text. We'll cover reading and taking notes in Unit 5.

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## 4.9: Iterative Process

there's a lot of this idea of like, continuously moving forward even if moving forward seems like a step backwards in some cases (Graduate student participant as cited in [Droog et al. 2024](#), p. 840)

### Research is an iterative process!

Our experience of Google's ability to instantly provide information sets us up to expect the same immediacy from the research process.

But, conducting a literature review is an evolving process – as you explore, find, and distill the information in your topic area, you're growing your knowledge and expertise and becoming familiar with the similarities, differences, gaps, and trends in your research area. This process will reveal your initial assumptions about your topic and impact your ultimate focus or research question.

Rather than approaching your search as a linear process, think of it as an iterative, circular process that represents your ever-evolving understanding of the literature.

### Conduct more searches

At this point, you have combined two facets of your topic in one database, evaluated the citations, and considered how they impacted your topic.

Now it's time to try a few more searches.

- Are there any circles from your Venn diagram you haven't tried yet?
- Are there any new terms you saw in the citations which you could use as a similar term or synonym?
- Are there any new facets you'd like to add?

### Put it in practice:

#### ✓ Example: Iterative searches 4.9.1

When I evaluated my searches in section 4.7: [Evaluate Citations](#), I found new ways I wanted to refine and narrow my topic. Since I'd like to narrow my topic, I don't want to look at full text yet, but would rather try another search or two, using some narrowed search terms.

For example, I could save a few sources and then do another search for:

- ("graduate students" or postgraduates) and "topic selection" and (emotions or perceptions)

Or, I might decide that perhaps the more critical term is "affect", not "graduate students" and could change my search to just:

- "student affect"

This broad search might not result in articles for my topic, but can provide better terminology to use.

#### ? Activity: More searches 4.9.1

1. Add another term from your Venn diagram (or from something you found earlier).
2. Combine it with one other search term.
3. Evaluate the citations.
4. Note new terms you see in the titles.
5. Save possibly relevant sources.
6. Repeat by combining the same term with a *different* term.
7. Evaluate, note new terms, and save again.
8. If you aren't finding anything relevant, try a different database.

### When to stop searching:

A common question is: *When do I have enough sources? How can I know I can stop searching?*

Unfortunately, there's no simple answer. But for this point in your research, aim for **5-10 sources**. That's enough to scan and evaluate the sources themselves before trying additional searches.

#### Note

You're not finished searching forever, just for this step!

You'll return to searching once you learn more from reviewing the sources you found.

For now, moving forward is more useful than doing exhaustive searches.

### Next Steps

Once you have 5-10 sources that seem relevant, stop searching *for now*. In the next unit, you'll learn how to start scanning and engaging with your sources.

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## 4.10: Check-In

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### Reflect:

Time to check in again! Before moving to the next section where we'll read the sources you found, stop for a minute and take a breath. We've discussed strategies to find relevant citations in databases. You've potentially met with a librarian and completed at least one search to find a few citations.

**At this point, you're still developing your topic!** Considering what you found in the databases, did you find any new terms you want to use? Did anything give you an idea for further refining your topic?

### What have you learned?

Now that you've found a few citations, but have not yet started reading them, how are you feeling about this research project at this moment? Write, draw, or find an image/GIFonline to describe your current state of mind about your research. You can add it below or in your journal.



### Emotions:

How are you feeling about your topic? About the research process? About the citations you found?

Again, continue with using your doodles, icons, or GIFs if that's been fun or useful for you.



### Supports: Meet with a librarian

If you haven't done so already during this unit, be sure to make an appointment to meet with a librarian. They can help guide you through specific steps in the particular databases at your university's library.

### Positionality: Just ask!

Did anything about your positionality hinder you from making an appointment?

- Perhaps the time slots available were only during the day and that doesn't allow for your work or child care schedule.
- Or perhaps the appointments were only via Zoom and you know you learn better in person.

Is there a way to ask for what you need? Librarians actively want to help you succeed at research so if there's something we can do make that possible for you, we want to know!

### Next Steps:

In the next unit, we'll start reviewing and evaluating the 5-10 sources you found. This doesn't mean you're done searching! Instead, reviewing these sources will give you a more focused direction and guide what else you need to find. This is a continuation of the iterative process - funneling your research towards your literature review.

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## CHAPTER OVERVIEW

### 5: Find Patterns

In this unit, we'll cover what literature reviews are and why we do them, in depth. Based on that understanding, you'll learn to gather the context prior to reading sources. Then, you'll read the sources you collected and take effective notes. You'll start to consider patterns between the sources you found.

[5.1: Learning Objectives](#)

[5.2: Defining Literature Reviews, Reprise](#)

[5.3: Scan Your Sources](#)

[5.4: Read Your Sources](#)

[5.5: Take Notes](#)

[5.6: Connect Patterns across Sources](#)

[5.7: Check-In](#)

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## 5.1: Learning Objectives

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Now that you've collected a few sources on your topic, we'll actively explore them. In this unit, you'll:

- See how the articles connect to your topic and to each other, which is ultimately what you'll write in your literature review.
- Determine what's missing so you'll have a next step in searching for more literature.

Think of this step like a puzzle or a mystery you're trying to solve.

### Learning Objectives

- Explain what literature reviews are, why they are important, and how they fit within the research process.
- Identify patterns across your sources

### Time Needed for This Unit

I recommend budgeting roughly **10 hours** for this unit.

While you might need a little longer/shorter, you'll need time to read each section and review the examples. You'll also need time to read each of the sources you found, take notes, and consider patterns. This unit will be longer for those who read slower or for whom the topic and terminology are less familiar. For those accustomed to the language of academic articles and the best ways to read journal articles, the unit will be faster.

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## 5.2: Defining Literature Reviews, Reprise

### Why do a literature review?

Doing a literature review allows you to find what has been done on your topic and where future research is needed. This ensures your study will add to the field. It also helps you develop your theoretical orientation and methodology. Dr. Elizabeth Yardley goes into more depth in the 9-minute video below.

Degree Doctor. (2024 Jun 12). *What is a literature review in a dissertation?* [Video] YouTube. <https://www.youtube.com/watch?v=SMZOVfMxJxs>

### So what is a literature review?

Literature reviews synthesize:

- What **researchers** have studied & published on your topic
- The context or background of **research** on your topic

In contrast to papers you might have done previously, literature reviews are about synthesis, not just reporting:

- NOT explaining a concept by simply providing information, but rather focuses on **studies**
- NOT a pro/con or position paper, so you need to cite studies **even if you disagree**
- NOT summarizing each study in separate paragraphs like a book report

You've probably heard faculty say the literature review will show a gap. This is true, but perhaps overstated. There is likely very little or nothing written on your specific topic. If you find dozens of articles on your topic, then it is either not narrow enough or has already been covered. But once you fully narrow your topic, you'll find that published works discuss *adjacent* topics, but never the *exact* topic you're interested in researching.<sup>1</sup>

However, the concept of gap makes it seem as though you need to reinvent the wheel or something equally monumental. Instead, a better metaphor is that you're continuing the path that others have started, or that you are adding one more rung to a ladder. In other words, you're *adding* to the field by *building* on what others have done before you.

### Metaphors of literature reviews

Sometimes the easiest way to understand a complex concept is to compare it to a concrete item. Below are a few metaphors. Take what's useful to you and ignore what just muddies the water. After the metaphors, we'll get into practice and review some published literature reviews together.

#### A House:

Think of your particular discipline as a town. In this town are many houses, each with different structures. Your general area of interest might be a particular house which is already built and is functional. However, you notice that the house could use an extra window for the living room. Your literature review would describe what has already been built. Perhaps there's no window in the living room – you would mention that. Or perhaps there is a window, but it leaks and lets in a draft. So your study would benefit the field by updating the window.

#### A conversation:

Think of all the articles and books around your topic as a conversation between the various authors, happening slowly over time and space. The literature review condenses the time and space by following the conversational thread. Then, just as in a normal conversation, you would jump in when you notice something related to that conversation has been left unsaid. What can you add to that conversation?

#### A forest:

Perhaps you've done an annotated bibliography before. It's a list of relevant sources with the citation, and then a short blurb about how these sources relate to a particular topic. This is NOT a literature review.

Instead, think of the annotated bibliography as like a catalog of trees. Each article is another tree. So you'd have a list of all the trees each representing a citation of an article

- *Here's a maple. It's 10 feet tall with a complex root structure. It has ample branches...*
- *Here's another maple. It's 12 feet tall with the same root structure. Its branches are shorter.*
- *Here's a third maple...*
- *Another maple...*
- *Here's a birch. The birch is 15 feet tall with a white trunk...*

Each example could be a paragraph or two, but the point is that the catalog of trees (annotated bibliography) is just a list of separate items.

The literature review instead is like recounting the state of the forest:

This forest is predominantly maples. Most tend to range in height from 10 to 20 feet, although there are a few outliers. They have a similar complex root structure. Their branch structures share similar characteristics, but do have a few variations.

Included in this forest are a few birch trees. One birch in particular is notable for ....whereas another birch...

However, there is a noted absence of evergreens, which are needed in this forest because....Therefore, this study proposes to introduce evergreens to this forest.

In other words, you will synthesize the results from multiple studies, including noting outlier studies. You are setting the landscape, the context, of what already exists, and what does not. This demonstrates the need for your study.

## Reading Examples

You read literature reviews every time you read articles, whether for class or for this research. However, they're not always labeled with a heading "literature review". They're always **towards the front of the article, prior to the Methods** section. They are sometimes in the same heading with the introduction, but the literature review is distinct from the intro.

### Introduction vs Literature Review

While both might cite sources:

- **The introduction** provides background to the topic in the form of an overview and significance of the problem, perhaps citing statistics.
- **The literature review** goes into more depth about what studies show.

Literature review sections of scholarly articles usually start with some variation of the following:

- Prior studies show...
- Past research demonstrates...
- Current literature discusses...

## In Practice

Now that you have a theoretical and metaphorical sense of what literature reviews are, let's explore them in reality.

### Activity 1: Reading literature reviews 5.2.1

My example topic was graduate students, emotions, and research. Eventually, these interests led me to co-author a study on how graduate students experience the research process, using a visual methodology. Before we could start the study, we reviewed the literature to see what others had done before us.

Read just the first two paragraphs of the study (it's freely available through the link below) and answer the following questions:

Droog, A. A., Weaver, K. D., & Brady, F. (2024). Along for the journey: Graduate student perceptions of research. *College & Research Libraries*, 85(6), 826. <https://crl.acrl.org/index.php/crl/article/view/25719/34379>

1. The first paragraph is the Introduction. What phrases in the paragraph show you that it is an intro, rather than a literature review?
2. The second paragraph starts the literature review. What phrases are clues that the literature review started?
3. Based just on the second paragraph, what are characteristics of literature on this topic?

Once you've answered the questions for yourself, click "Answers" below for my responses.

#### Answers

1. It explains the background and importance of this topic. We see that through phrases like “increasingly a demographic of interest” and “burgeoning interest in the field”. It mentions the literature has limits, but doesn’t go into detail. And it explains what gap the study purports to fill.
2. You can tell the start of the literature review through the following phrases: "Studies...have focused..."; "Existing studies...have emphasized"; "Several theories...have primarily focused on..."; and "Existing studies..."
3. A few characteristics:
  1. Studies focused on finding sources, not the full research process
  2. Theoretical works have focused on high schoolers & undergrads
  3. Humanities & education students have been studied more than other areas

#### ? Activity 2: Reading literature reviews on your topic 5.2.1

1. Find an article.
2. Read from the beginning until the method section.
3. Answer: According to the author(s), *how can you characterize prior research?* **Remember:** the article covers the lit review when they start sentences with “Prior research” or “Current research” or “research on this topic”.

#### Next Steps:

Now that you have a clearer understanding of what literature reviews are, let's talk about how to read and evaluate the sources you found, within the context of each other.

<sup>1</sup>Note: There is a replication crisis in the social sciences. Researchers have been pushed to publish novel studies that have never been done before. This means that most studies have only been done once by one investigator or group of investigators. In the past decade, there have been stronger outcries for researchers to attempt to replicate previous studies to ensure that the same conclusion is drawn across multiple studies. Despite this push, academia still rewards those who publish original research higher than those who replicate studies. Hiring, rank & promotion, and tenure committees rank original studies higher, which entices faculty not to do replication studies. Generally your dissertation must be an original study, as the dissertation or thesis is a pedagogical tool.

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## 5.3: Scan Your Sources

### Gathering context:

When I was working on my first publication, I just read articles as I found them. At first, this was exciting - I was interested in learning more about my topic. As I continued, however, I'd lost track of what my own question was because I'd been too immersed in each article, individually. By becoming interested in each author's point, rather than connecting them to each other, I quickly lost sight of what I was trying to accomplish. Feeling overwhelmed, work and life got busier, and I set down the research for several months. When I tried to return to it, I not only did not know how to proceed, but my highlights in the articles meant nothing to me. I'd completely forgotten what I read, and felt I had to start completely from scratch.

Given that the literature review will be a synthesis of the sources you cite, you'll want to **read each article within the context of the rest of the literature**. The more you read, the easier this becomes. So how can we make it easier to read those first few articles, when you don't yet have a good context?

Ideally, we could read all the sources simultaneously. Since we're human, we need to approximate that process, which can be done by scanning the group of articles you found, rather than reading each article one at a time.

You'll glance quickly through all the sources you found in the previous unit, spending no more than 1-2 minutes per article. I'm not suggesting that you speed read, as I'm a fairly slow reader myself. Instead, I just want you to get a very quick sense of the abstract, and maybe the conclusion. This should go quickly, but don't stress about squeezing in as much as possible.

### Anatomy of scholarly articles

If reading scholarly articles is new to you or you'd like a refresher, click on the link below for an interactive guide to the structure of an article. It's important to understand how articles are structured so you can scan and then read them more effectively.

NC State University Libraries (N.D.) *Anatomy of a Scholarly Article*. NSCU Libraries.  
<https://www.lib.ncsu.edu/tutorials/scholarly-articles>

#### ? Activity: Quick scan 5.3.1

Using the resources you found in the previous unit, be sure you have the full text. If you're working electronically, open all the PDFs. If you're printing, wait until you have all of them in print.

Start with 1 article and scan for **1-2 minutes**. Depending on how quickly you read, you might glance through:

- Title/abstract - if the 2 minutes are up, stop!
- Introduction
- Conclusion
- Methods (cursory)

Look for context of how the article relates to your interests and to the other sources you found. Things you might notice:

- Source types
- Purpose/focus of the source
- Populations
- Methods
- Patterns

If you have a stack of 10 articles, this should be done in 15-20 minutes, or less.

**Do NOT get caught up in reading.** Set a timer if it helps you stick to the two minute guideline. You're not reading, but just getting context for the resource in relationship to other sources, in terms of your topic.

## Can't I just have AI do this for me?

As you're probably aware, many tools can summarize patterns across sources. You simply upload all your PDFs and depending on the particular tool, it can summarize a particular source, or even note connections between sources. Why do the work yourself when AI can do it for you?

Well, I can't fully answer that for you. Many researchers are choosing to have AI help them in this part of the research, as well as other areas. Some things to keep in mind as you make your decision about how much to do yourself and how much to have generative AI do it for you in this step:

- **Motivation & meaning:** Go back to the chapter on motivation. Why are you in this program? Why are you doing this research? Will doing this yourself get you further towards your goals? One of the reasons to do a literature review is to learn what the conversation has been in your area of interest. Human cognition takes time to consider patterns in a deep, meaningful way and we learn through repetition. If AI simply spits out a pattern, we haven't gained as much as when we find the pattern ourselves. We haven't internalized that learning, so it's less meaningful to us ([Perell 2025](#)).
- **Your interests, developing your topic:** AI also might not note the patterns *you* care about, that only *you* would notice. Real learning inherently changes you. Deep reading, deep thinking, deep learning all change you. At minimum, in the case of this research project, this step will help determine how you move forward. How will you perceive the articles you read, based on those patterns? Might your topic shift a little? Or at least your search techniques? Hopefully you're working on a topic you're personally invested in - let yourself become excited by the sources.
- **Intelligence:** AI is not actually intelligent. It is simply following patterns. It is not all-knowing so it can miss things and make mistakes.
- **Time savings** - this step will go faster with AI. However, keep in mind that even on your own, it shouldn't take more than 15-20 minutes, tops. And unless AI does the full lit review for you, it could actually cost you time in the long run when you're trying to write the paper, but haven't really internalized the context of these articles for yourself.

However, one way these AI tools could be beneficial would be as a check. You could do the step yourself, and then feed the articles into AI, and see if AI comes up with the same patterns you did or if there's any additional ones. Remember - its patterns might not be as salient as yours.

## In Practice:

Now it's finally time to take a quick look at your sources.

### ? Activity 1: Scan examples 5.3.1

Let's do an example together. In Unit 4.7, I found a few sources, and then considered doing another search for "student affect". Below are a few citations I found, all of which are open access so you should be able to access them.

My reading speed allowed me to glance through each of their titles, abstracts, research questions. I then looked very quickly at their methodologies, just to see if I could glimpse words that might tell me if the study involved a survey or interview, etc. For those I had enough time, I then read the first few sentences of their conclusion at the very end.

1. Akyürek, E., & Afacan, Ö. (2018). Problems encountered during the scientific research process in graduate education: The Institute of Educational Sciences. *Higher Education Studies*, 8(2), 47-57. <https://files.eric.ed.gov/fulltext/EJ1175347.pdf>
2. Buchanan, T. M., Brown, A., Chirco, P., Klein, D., & Purgason, A. M. (2022). Messaging matters: The impact of advising micromessages on student affect and behavior across diverse university campuses. *The Journal of the National Academic Advising Association*, 42(2), 45-61. <https://files.eric.ed.gov/fulltext/EJ1360989.pdf>
3. Cahoy, E.S. & Shroeder, R. (2012). Embedding affective learning outcomes in library instruction. *Communications in Information Literacy*, 6(1), 73-90. <https://doi.org/10.15760/comminfolit.2012.6.1.119>  
<https://pdxscholar.library.pdx.edu/comminfolit/vol6/iss1/7/>
4. Ross, K., Dennis, B., Zhao, P., & Li, P. (2017). Exploring Graduate Students' Understanding of Research: Links between Identity and Research Conceptions. *International Journal of Teaching and Learning in Higher Education*, 29(1), 73-86. <https://files.eric.ed.gov/fulltext/EJ1135818.pdf>

Time yourself and read through at least the title/abstract. If you have time, review the method quickly & start of the conclusion of these four sources. Remember to spend only 1-2 minutes on each article.

### What are your initial reactions to connections between these sources?

Jot down your initial thoughts below. Don't use full sentences. Just some really quick thoughts.

Then click "My Responses" below to read my initial reactions.

#### My Responses

- **Population** - Two focused on grad students. The other two didn't specify in my quick scan, but seemed likely to be undergrads.
- **Location**: Three studies had authors based in the US; one in Turkey
- **Patterns**:
  - Outcome - improve academic advising; improve courses on scientific research; improve library instruction
  - Identity/diversity/non-traditional students
- **Types of source**: All four were research studies.
- **Methods**: One had a survey with a Likert scale. One used critical action research. The other two I did not have time in my quick scan to fully understand.
- **Dates**: 1 is from 2022, but others are fairly dated.

Did you notice similar context to what I did? What else did you see that I didn't? There are so many ways to examine connections between sources so don't worry if what you noticed is different from what I noticed. My responses are only to give you some ideas of how to consider reviewing your own sources in the following activity.

### ? Activity 2: Scan your sources 5.3.1

Now it's your turn. Follow this same scanning process with 5-10 sources you've collected so far on your topic. Scan each source for two minutes and jot down some notes about what you notice.

Then, consider what order you'd like to read the articles. There's no wrong way - it depends on your preferences and the sources you have at hand. Some ways I've done this:

- **Chronological order** (or sometimes I prefer reverse chronological order)
- **Population** - Start with those covering my target population, and move gradually broader
- **Method** - Start with theoretical sources and move to specific studies
- **Discipline** - Start with those in my field and move to ones in related disciplines
- **Simple to difficult** - Start with what looks easiest or most interesting

#### 📌 Note

As you find more sources in future iterations, you won't need to reiterate this scanning step. You only need it to get the first gist of the context of the topic. Now you already have that context and can simply read additional sources that you find.

### Next steps:

We'll finally start reading the articles in the next step!

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## 5.4: Read Your Sources

### How to read journal articles

In the last section, you scanned your articles, which is like getting a birds-eye view of the source. Click the link below to watch Prof. David Stuckler's 10-minute video on how to read journal articles. He'll take you from the birds eye view and drill down to what he calls "the street map view".

- Stuckler, D. (2022 March 2). *How to read research papers effectively* [video] YouTube. <https://www.youtube.com/watch?v=WVv2jWXW0K4>

### How to critically analyze journal articles

To determine if you want to cite an article in your literature review, you need to not only understand it, but also evaluate it. These are both steps in critically analyzing journal articles. When you write about the articles, you'll additionally need to describe them. Critically, for a literature review, you'll need to synthesize your sources.

"...you look at the article and you go, okay, I am not skilled enough to determine the validity of this yet, or, I don't have a sense of the field and to know who was in the field...I've started to kind of pick up on...how many times it's been cited...But it still feels like I'm having trouble determining validity versus, you know, public acceptance." (Graduate student participant as cited in [Droog et al. 2024](#), p. 843)

Click the link below to watch Dr. Elizabeth Yardley's 10-minute video to learn to describe, interpret, evaluate, and synthesize articles:

- Degree Doctor. (2023 May 31). *Literature review critical analysis - 4 steps to do it well*. [Video] YouTube. <https://www.youtube.com/watch?v=IJr4QNlogXE>

But remember that you're not going to write a book report. Instead, you'll incorporate the article as part of the context for your study. The above video covers this particularly well, starting at [8:21]

#### While you're reading your sources, keep the following in mind:

- The patterns you noted in the previous chapter
- How does this article connect to the other articles?
- How does it connect to your interest?

**Learn by listening:** If you prefer to learn by listening, rather than reading visually, many tools will read the article to you. The downside is you have to then read the article from start to finish, which is good for reading a novel, but not as useful for reading articles. Some tools are advanced enough to let you jump around based on the heading or section, so be sure to use those tools if you choose to listen.

#### Note

I recommend taking notes *after* you finish reading. If it helps you focus to write a little on the PDFs as you read, that's fine. I often write a little in the margins, underline, etc. But I encourage you to wait to take separate notes. Again, this doesn't mean you double your time. Instead, you spend the same amount of time, just in a different order. And it will *save* you time when you're writing because your notes will be better.

#### In Practice:

Finally! It's time to read your sources.

### ? Activity: Read! 5.4.1

Read all of the 5-10 sources you've collected. Do not yet take notes on any one source. We'll do that in the next chapter.

### Next Steps:

Next, we'll talk about note taking strategies specific to help you later when you're writing the literature review.

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## 5.5: Take Notes

### Note Taking

I've been most successful in my research when I read and take notes on separate days. Waiting overnight keeps from regurgitating what I read - instead, ideas simmer in the background of my mind, and I'm more likely to write patterns rather than just copying words. But when you do it is up to you - do what fits into your schedule.

To make your notes help you focus on synthesizing, and to help you when you're writing later, I recommend organizing your notes in the following template:

 **Note-Taking Template**

**Article Citation:**  
**Title -**

- **Title -**
- **Author(s) -**
- **Date -**
- **Source -**

Patterns & notes

| Pattern | Notes (include page numbers!!) |
|---------|--------------------------------|
|         |                                |
|         |                                |
|         |                                |

**Reflection:**

**Next Steps:**

### Explanation

#### Article citation

It's not important for this to be correctly formatted here. You'll use a citation management tool to generate your citations for your paper, later. Just jot down:

- Title
- Author(s)
- Date

#### Pattern

At first, don't worry too much about finding the "right" patterns. We'll talk more about this in the next section. Just notice what stands out.

Patterns might include:

- **Source type:** What types of sources are represented? Research studies, reviews, theoretical pieces, commentaries?
- **Method:** If research studies, what methodologies have been used? Think primary versus secondary; quantitative, qualitative, or mixed methods

- **Population:** Who has been studied? Consider ages, demographic characteristics, etc., particularly as it relates to your interest.
- **Location:** Where were studies conducted? Urban v suburban v rural, state-focused, US-focused, globally-focused
- **When** were studies published? Has this been studied recently? Or was it studied previously and there is a lull in the research?
- What **themes/topics** are discussed? Aka what research questions did studies seek to answer?
- **Definitions:** Are there terms that the research could define differently? If the term is in the DSM-5, a definition isn't useful in the literature review. Instead, perhaps you're researching how faith impacts college students resiliency in their first year. Do the sources you found define faith? If so, how? If not, that's worth noting, too.
- What's **missing** that you expect to see?

## Notes

Every note you take should, ideally, correspond to a **pattern**. Perhaps you're noting something about the methodology or population. You could note those simply as "method" or as you get further along and know what you've been finding, perhaps you note "survey". Then the notes might be how useful the survey was. For population, you might note "population" as the pattern, or you might use your interest as the pattern.

Watch Scribbr's YouTube video about how to identify themes.

Scribbr. (2020 April 23). Identify themes and gaps in literature - with REAL examples. [video] YouTube (3:24)

<https://www.youtube.com/watch?v=hMGdwIhiwzU>

Try to paraphrase as much as you can, but if a quote is particularly salient, copy it in full. But be sure to add the page numbers!

## Reflection

This should be short. It's just a quite note to yourself about how useful the source was. If it's not useful, why not? And also, if it doesn't seem useful, hopefully you didn't write too many notes!

## Next steps

You don't have to complete this. But if you find a new term, you could write it down to later use it in a database to find more sources. Or perhaps the article gave you a new direction to shift your topic. Or the article made you question something and you want to check with your faculty member about it, or maybe to ask a friend or parent about something it connects for you. Maybe you want to remember to find the full text of some of the article's citations.

The point of the next steps is to remember what you'll want to do *after* you finish this step. And this step is to read *all* of the 5-10 sources. Using the metaphor of stepping stones, we're on one stone right now. If you start leaping off to another stone, things could get unwieldy and you'll land in the water. Stay focused just on this step for now, and put any ideas into the next steps.

I type my notes, but you can print out the template and hand write instead. When I type, my notes are never more than a page and a half, but usually much less than a page. If it gets any longer, it won't help you when you need to synthesize to write your paper later.

### ? Example: Note Taking 5.5.1

Continuing my example topic of *graduate students + research + affect*, here are the notes I took for a helpful source:

*Note* - I purposefully type each element myself, rather than copying and pasting a full citation from a citation generator. This forces me to think about the authors, the source, and the year. Later, when I'm writing, I use a citation management tool (e.g. Zotero) to generate the final citations in APA or whatever the journal requires).

#### Citation

- **Author:** Cahoy & Schroeder
- **Year:** 2012
- **Title:** embedding affective learning outcomes in library instruction
- **Source:** Communications in Information Literacy

Notes

| Pattern              | Notes                                                                                                                                            |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Definition           | Affective domain “a person’s attitudes, emotions, interests, motivation, self-efficacy, and values” (quote from Schroeder & Cahoy, 2008, p. 129) |
| Prior research scant | Still more research on cognitive than affective                                                                                                  |
| Motivation           | Affect involves more than emotions - includes motivation!                                                                                        |
| Population           | Seems to be undergrads - does not specify to grad students                                                                                       |

### Reflection

Very helpful, esp lit review in finding more articles. Also, very helpful survey of librarians teaching/assessing affective components. Helpful to start getting a definition of the various components of affective, including more than emotions.

### Next Steps

- Find Shroeder & Cahoy original source, and also their 2010 article.
- Find Mellon articles: 86 & 88
- Try using terms “affective domain”, motivation, values, self-efficacy

### In Practice

#### ? Activity: Take notes 5.5.1

1. Replicate the template above in MS Word or Google Docs. Save it as a template.
2. If you prefer handwriting notes, print several copies of the template for yourself. Otherwise, copy the template into a new file.
3. Complete the template for each of the sources you've already scanned and read.

### Next Steps:

Now that you have some idea of a few of the sources written on your topic, in the next section, we'll discuss how to deepen your understanding of how these sources connect to each other & to your topic.

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## 5.6: Connect Patterns across Sources

"But when you go to graduate school, you realize that there's so many unknowns, and there's no definite answer... and they [the committee] would ask you questions about research that...it's not well established or not well known or it's a knowledge gap and then you're trying to address this, and you're not quite sure, because you have not read all of the literature [sweeping gesture with hands out and around] that exists, right?" (Graduate student participant as cited in [Droog et al. 2024](#), p. 838)

### Techniques for finding connections:

In the last couple sections, we tried to get a sense of how the articles connect to each other, but we still were looking at them individually. Now that you've read and taken notes on all 5-10 sources, let's think deeper about those patterns. Some questions to consider (even though you might not have answers yet):

- Did you start to find new patterns as you read the sources?
- Which sources cover which of the patterns?
- How do your sources connect to each other?
- What can you tell me, just from what you've done so far, about the context of research on your topic?

To answer these questions and to help you prepare to eventually write the literature review, there are a myriad of techniques you can use. Below are just a few examples.

### Matrix model:

The matrix model ([Garrard, J. 2017](#)) is highly effective at:

- Organizing your citations
- Providing a quick visual in which areas you need more sources
- Simplifying your writing process later

### How to set it up:

1. Open Google Sheets or Excel (don't worry - you don't have to be good with spreadsheets nor create any elaborate formulas).
2. Create a simple spreadsheet with **each row = one source**.
3. Use the first few columns for citation details.
  - Title
  - Author(s)
  - Date
4. Add additional columns for the **patterns** you want to track (e.g. methodology, population, location)

### Filling it in:

- Record the basic citation info for every source even for those that turn out not to be useful.
- In the pattern columns, enter Yes/No or short notes (e.g., "survey", "interviews", "teens", "U.S.") so you can sort them later

#### ✓ Example: Matrix model 5.6.1

Matrix of citations

| Title     | Author(s)                          | Date | Pattern 1 (e.g. methodology) | Pattern 2 (e.g. population) | Pattern 3 (e.g. covered one Venn circle) |
|-----------|------------------------------------|------|------------------------------|-----------------------------|------------------------------------------|
| Source #1 | Author #1a, Author #1b             | date | survey                       | elderly                     | yes                                      |
| Source #2 | Author #2a, Author #2b, Author #2c | date | case study                   | teens                       | no                                       |
| Source #3 | Author #3                          | date | theory                       | N/A                         | yes                                      |
| Source #4 | Author #4                          | date | survey                       | teens                       | yes                                      |

Once you've entered all the sources so far, you can sort by columns. Therefore, you can see at a glance all the sources which cover a particular pattern or which use a particular methodology. If you're not familiar with how to sort, I recommend doing a quick Google search for "how to sort in Microsoft Excel" or "how to sort in Google Sheets" since applications change slightly with each version.

### ✓ Example: Matrix from my research 5.6.1

Below is a screenshot of my matrix. Notice the row for Cahoy & Schroeder. I provided my Notes for this source in the previous section: [5.5 Take Notes](#). In those notes, I had labeled a pattern of: *definition*. After reading other sources, I'd found other patterns. This source addressed a few of those new patterns (*reason* considering student affect is important and addressing affect in *learning objectives*) so I added "yes" for both of those columns.

For an accessible chart of the below screenshot, please go to [Appendix - ADA Accommodation](#).

| Authors               | Title                                                                                                                                                                         | Year | Definition | Attributes/components | Reason(need) & impact | population | Methodology                                                                                                       | Learning objectives | Model/taxonomy | Useful?                                     |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|-----------------------|-----------------------|------------|-------------------------------------------------------------------------------------------------------------------|---------------------|----------------|---------------------------------------------|
| Lopatovska & Arapakis | Theories, methods, and current research on emotions in library and information science, information retrieval and human-computer interaction                                  | 2010 | yes        | yes                   |                       |            | literature review                                                                                                 |                     |                | As a lit review, yes                        |
| Cahoy and Schroeder   | embedding affective learning outcomes in library instruction<br>"I am really good at it" or "I am just feeling lucky"; the effects of emotions on information problem solving | 2012 | yes        |                       | yes                   |            | survey of librarians                                                                                              | yes                 |                | yes                                         |
| Zhou                  | Affective learning & personal information management                                                                                                                          | 2013 |            |                       |                       |            | newsletter-ish                                                                                                    | yes                 |                |                                             |
| Cahoy                 | Student search behaviour in an online public access catalogue: an examination of 'searching mental models' and 'searcher self-concept'                                        | 2013 | yes        | yes                   |                       |            |                                                                                                                   |                     |                |                                             |
| Wilson and Given      |                                                                                                                                                                               | 2014 |            | yes                   | yes                   | Undergrads | Interviews; grounded theory                                                                                       |                     |                |                                             |
| Savolainen            | Emotions as motivators for information seeking: a conceptual analysis                                                                                                         | 2014 |            | yes (Davidson)        | yes                   |            | literature review                                                                                                 |                     | yes            | Provides table based on lit review findings |
| Savolainen            | Approaching the affective factors of information seeking: the viewpoint of the information search process model                                                               | 2015 |            | yes                   |                       |            |                                                                                                                   |                     |                |                                             |
| Dempsey & Jagman      | I felt like such a freshman: first-year students crossing the library threshold                                                                                               | 2015 |            |                       |                       | Undergrads | analyzed essays                                                                                                   |                     |                | yes                                         |
| Wang                  | Assessment for One-shot library instruction: a conceptual approach                                                                                                            | 2016 |            |                       |                       | undergrads | Research Readiness Focused Assessment (RRFA) tool to measure cog, bev, affect after teaching to class assignments | yes                 |                |                                             |

### ? Activity: Matrix 5.6.1

Even if you think you don't like spreadsheets, take a few minutes to enter create a simple spreadsheet and add all of your sources.

### Visualizations: Article maps

While spreadsheets excel at helping us organize and sort information, sometimes we need to consider things more visually.

Article Maps are a version of mind mapping in which we connect how the sources relate to each other. For the examples below, I'll draw on a different article I published. I already created maps for that project, so you can see what these techniques look like in

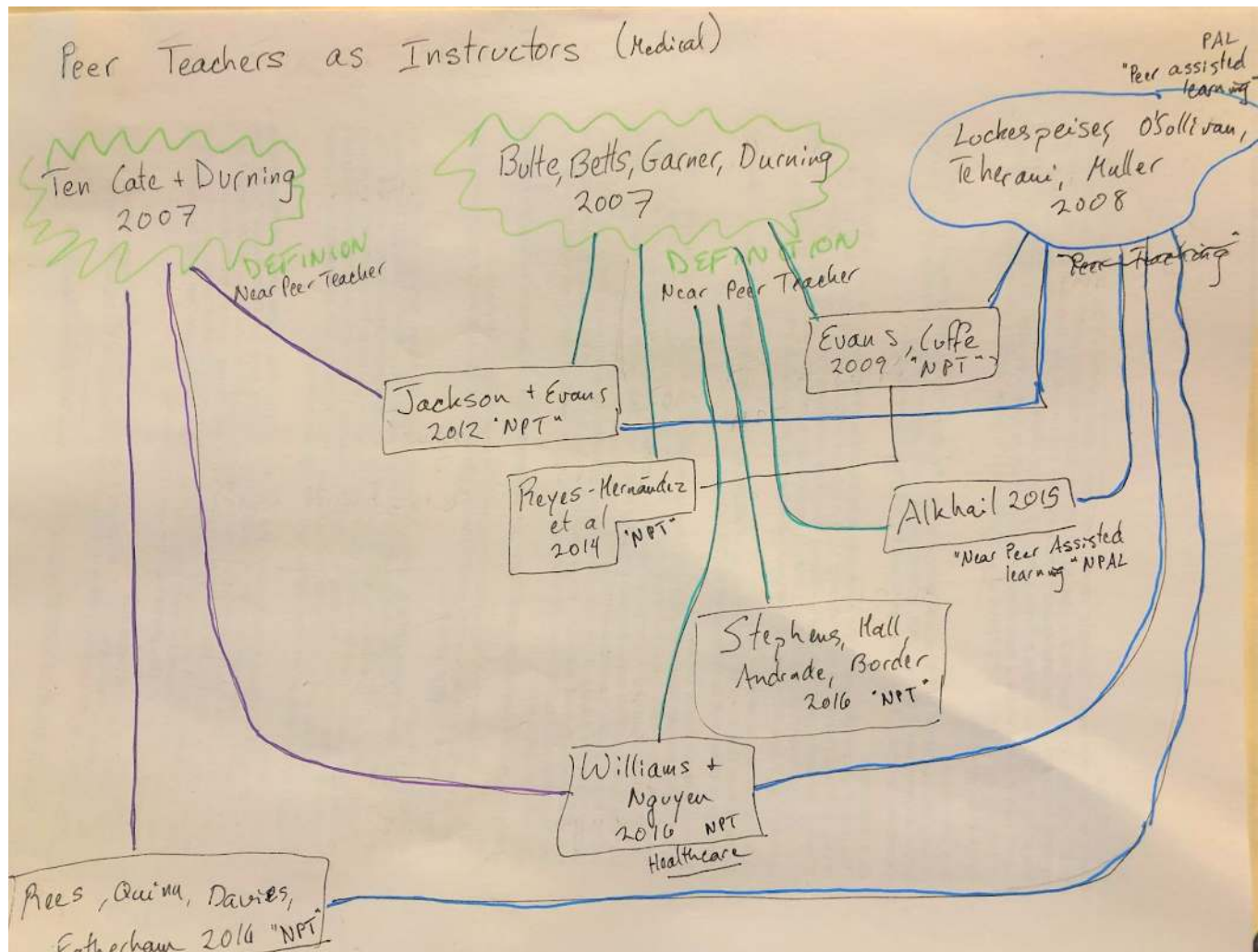
practice. Even though the topic is different from the *grad students + affect* example I've been using so far, the process of mapping connections is exactly the same, regardless of topic.

### Example 1: Who cited whom

I discovered this method when I was writing a manuscript about "peer teachers". I wanted to cite the first instance of someone using this term in the way I used the term. However, in reviewing the literature, I became confused, as it appeared some sources were citing a 2007 article, while other sources cited a separate 2007 article with a similar, but not exact, definition. Neither 2007 article cited each other and I need to figure out which article I should cite.

On a sheet of blank paper, I started with the two 2007 citations, and then drew lines to each source that cited them (I had also noticed that most articles also cited a 2008 article which did not use the term Peer Teacher, but instead the similar term Peer Assisted Learning, so I added that citation too).

For a verbal description of the below image, please see the [Appendix: ADA Accommodations](#).



### ? Activity: Article Map Example 15.6.1

After I created the map above, I realized why the two citations from 2007 were so similar, even though neither cited anyone for their definitions.

Look at the article map I created, above. Can you notice within the map what connected both articles from 2007?

Once you think about it on your own, click "Answer" below.

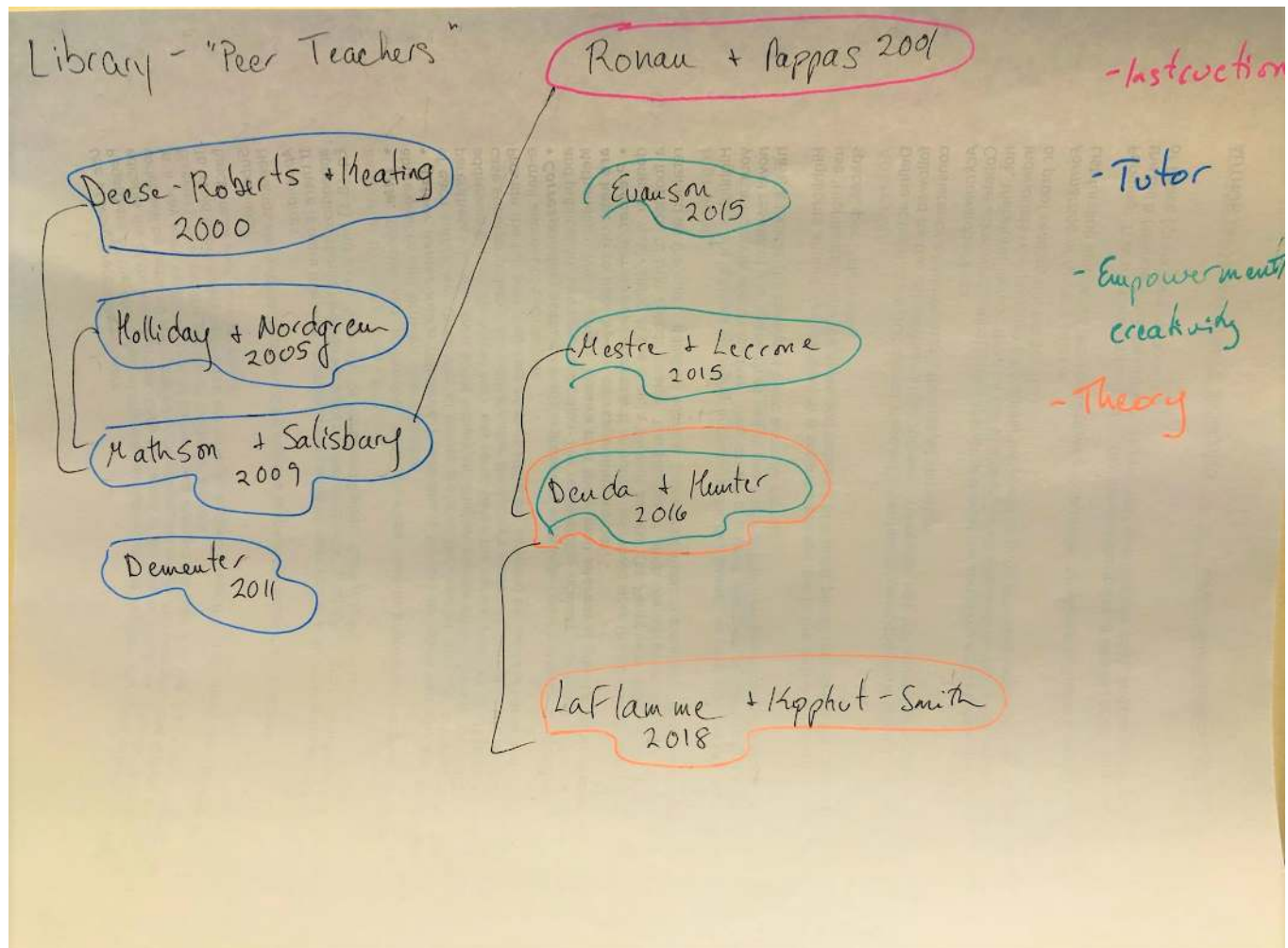
### Answer

Both 2007 articles have the same author: Durning. While the lead authors are different (Ten Cate vs Bulte, Betts, Garner), Durning is the common link. This is not surprising. Often, a faculty member might drive the research topic, but the graduate students (or other collaborators) do the majority of work. Thus, the faculty's name is listed last, but it connects the different sources.

In this case, I could choose to cite both or either of the 2007 articles as the progenitor of the definition.

### Example 2: Patterns

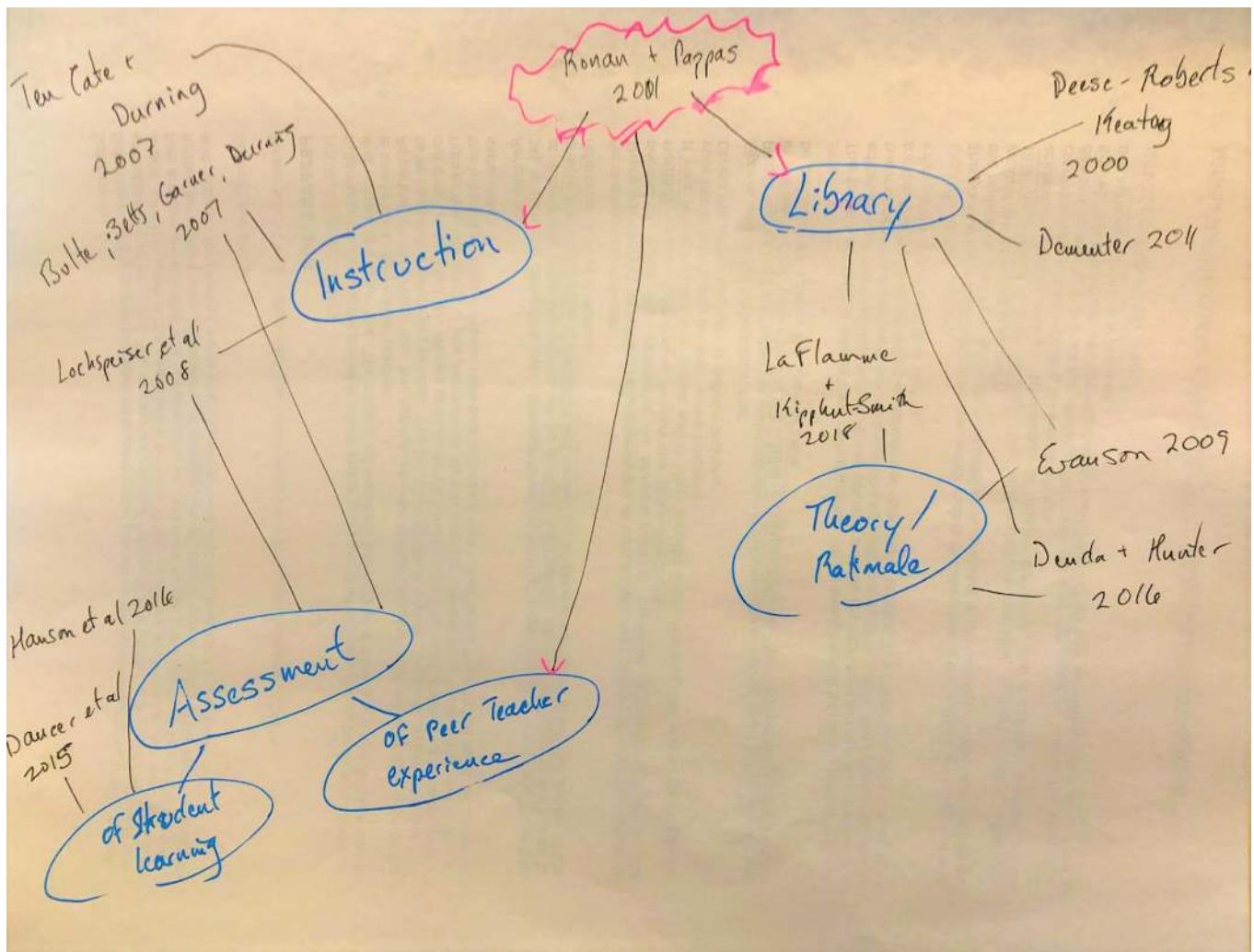
For a verbal description of the below image, please see the [Appendix: ADA Accommodations](#).



In the above map, I circled each citation with a different color, depending on which pattern(s) they covered. I drew lines between which articles cited each other.

### Example 3: Mind map

For a verbal description of the below image, please see the [Appendix: ADA Accommodations](#).



In the above map, I started with a more traditional mind map of my topic. Then I drew which citations connected to each of the facets of my topic.

### ? Activity: Article maps 5.6.1

Consider how the 5-10 sources you read, relate to each other. Then draw a map of these relationships.

Some possible options might be:

- Who cited whom? Did any of your sources cite each other?
- Chronologically
- By patterns/themes
- Mind map
- Etc.

There's no wrong way to consider how your sources relate. Depending on the sources and your topic, you might choose one or several options, either within the same map, or draw multiple maps.

Again, remember, you can do this on paper, as I did. Or you can use Canva or another tool online.

### Other techniques

If the above techniques don't help you, try one of the following instead:

## Post-it mapping

Use different colored Post-its to represent different patterns (such as theory, methodology, findings, population, context, etc.)

Write one idea per Post-it and the author + year on each Post-it.

Put them on a wall or your desk:

- Arrange them into clusters - what patterns emerge?
- Do some articles show up in multiple clusters?
- Are there some missing clusters? Areas you thought you'd see, but don't have notes for?

Tip: take a photo and then rearrange to consider multiple ways of visualizing.

## Index cards

This is the first technique I learned in junior high when I did my first research paper. It's how I took notes, rather than using the model I suggested earlier.

First, add a shorthand "code" to each source (such as A1, A2)

- At the top of the Post-it, leave space for the pattern name
- In the center of the Post-it, write one note
- At the bottom right, write the source's code (you could just write the lead author's last name + year, but the code shortens how much you have to hand write)

## Zotero

If you're using Zotero, add custom tags (like *theory: social constructivism* or *method: survey*) to each article.

- Later, click on a tag to see all articles that share it.
- Try combining tags (e.g., articles that are both *quantitative* and *focused on adolescents*).

This works like a digital color-coded Post-it system.

## Next Steps

In this step, you started piecing together sources. Your picture of the full puzzle isn't complete yet, but the outline of key patterns is forming. You're getting a sense of what's missing, both in your searches and in the literature itself. In the next unit, we'll follow these leads more closely, using the patterns you've uncovered to refine your topic and track down additional relevant sources.

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## 5.7: Check-In

### Reflect:

Another check-in point! Before moving to the next section where we'll discuss how to find more relevant sources for your literature review, and dig deeper into the sources you find, let's pause to reflect on what you've done so far. In this unit you have:

- Explored published literature reviews to understand how they characterized the research on their topics.
- Read sources you found in the previous unit
- Took notes focused on patterns
- Made connections between sources
- Considered whether your topic has shifted.

### Emotions:

How are you feeling about this research project at this moment? Write, draw, or find an image/gif online to describe your current state of mind about your research. You can add it below or in your journal.

### Supports

This is a great time to meet with other people to help you think through the puzzle or mystery that you've been working on. By sharing your detective notes, you might discover a clue you'd overlooked.

#### Meet with your faculty

Now that you're able to articulate what patterns you've seen in the literature and have potentially shifted your topic a bit, this can be a great time to check in with your faculty. If you want to change your topic dramatically, your faculty might need to approve that. Even if you're not changing topics, this is a good time to just have a check-in where you can talk with them as a sounding board. Tell them what you found, what you think is missing, just as a check-in.

#### Connect with your support network

Either in addition to meeting with your faculty or instead of, you might consider connecting with a friend or family member at this point. This works especially well if they're not in your field, but care about you and your success. Tell them how you feel about your research process and how far you've come so far. Then, ask them if they'd mind being a sounding board about some of what you've found so far. Tell them about:

- your topic,
- the patterns you've found in the research,
- what excited you,
- what surprised you,
- what disappoints you
- what you still hope you might be able to find

What questions do they have? Don't react to their questions as if you are the expert on the subject - you're not using your support network to practice giving a presentation at this point. Instead, treat their questions as ways to question yourself. If they ask for a definition, consider whether the research defines those terms or how you define it. If they ask why you're covering something and not another thing, consider the question. You don't have to have brilliant responses during the conversation. You can always say

"that's a great question - thanks for asking it! It'll give me something to chew on as I continue my research, but I don't have an answer for you now."

### Meet with your librarian

Similar to meeting with your support network, librarians are great resources for sounding boards at this stage. You can mention that you're not necessarily looking for citations right now, just wanting to think through some of the patterns you've been finding and consider how that impacts your topic.

### Yourself

Take the time for a mini-celebration! You haven't finished, but you have completed a great deal already. Acknowledge your effort and progress so far. Choose something that rejuvenates you, not just sleep or food. Here are a few ideas, but of course make it your own!

- **Listen:** Pop on a celebratory playlist or a favorite album
- **Move:** Go for a walk or dance around your kitchen
- **Imagine:** Draw yourself nearing the top of a hill, at a beautiful vista point
- **Journal:** List what you've done really well throughout these steps
- **Meditate:** Consider a visualization, body scan, or just deep, purposeful breathing
- **Stretch:** Start gently, but perhaps ease into deeper, longer stretches
- **Play:** Do something fun - toss a ball, build with Legos, or color.

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## CHAPTER OVERVIEW

### 6: Dive Deeper

Based on the sources you found, this unit will help you find more relevant sources and reflect deeply on the conversation you're reading. You'll synthesize what you're finding and feel confident in knowing when to stop searching for more sources.

[6.1: Learning Objectives](#)

[6.2: Refine Your Topic](#)

[6.3: Revisit the Literature](#)

[6.4: Advanced Source Types](#)

[6.5: Research as Conversation](#)

[6.6: When to Stop Searching](#)

[6.7: Check-In](#)

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## 6.1: Learning Objectives

### Learning Objectives

- Refine your topic based on the patterns you discovered in the previous unit
- Use advanced search techniques (e.g. citation chasing) to find more sources on your narrowed topic
- Evaluate your sources from the perspective of the authors' positionality
- Judge when you have enough sources to have reached saturation

### Time needed for this unit

"But the biggest thing that I've learned is to just set [sic] in it, set in the confusion for a minute and just, **let it marinate and sit**. And the more you're able to look at things objectively, or, well, yeah, objectively, **the clearer the path will become** for me." (Graduate student participant as cited in [Droog et al. 2024](#), p. 835)

Plan to spend anywhere from 6 hours (bare minimum) to many months, ideally spread across: **days to months**.

The amount of time you'll need to allocate to this unit will depend on the purpose of your literature review.

### Course assignment/paper

Your instructor might have provided a framework for how many sources they expect you to cite. Most likely, you are required to have sufficiently narrowed your topic to be able to substantively address your topic using only a few (10-20 is common for course assignment) highly relevant sources. Therefore, you could probably complete this unit in a few days. **If your semester is longer and you have a few weeks, I recommend allowing your thoughts time to marinate.** You'd still only need a few days on hands-on work, but it can **help to have a few days between searching**.

I encourage you to budget more than a few hours if possible. Completing this unit in only a few hours would require that you:

- Make no further adjustments your topic
- Need only a few more sources
- Are highly comfortable with using databases effectively
- Are a fast reader

### Dissertation/Thesis

For a longer work, you will have longer deadlines and therefore more time. This is necessary, as refining your topic can take more iterations. Most likely you will need or be required to:

- **Schedule meetings with your advisor/chair** to ensure they approve of your topic. They might steer you towards additional angles either because they have a stronger background and can therefore support you better in their expertise, or to ensure you will be able to create a viable study within the confines of your program.
- **Take more iterations of searching the literature** to determine if you have reached saturation because you will not have the luxury of a specific number of sources being a requirement (we'll discuss this further in this unit).
- **Provide more sources on the theoretical framework(s)** you use for your study as well as the theoretical foundations used most frequently in the literature on your subject.
- **Provide more history & background.** Depending on your field and your topic, it can sometimes be useful to provide some historical context beyond your discipline. For most studies, you will want to provide at least the history of your discipline's relationship with your topic.
- **Provide more depth and breadth** than you would for a course assignment's literature review.

Therefore, this stage will definitely take between weeks to months.

## Publication

You'll likely need weeks, if not a couple months. Unlike the course assignment, you will not have a required number of sources. Similar to a dissertation, you will likely be using the literature review to determine a refined question which you will study. However, unlike a dissertation, the literature review will be far shorter. Therefore:

- You will need several iterations of searching the literature to determine if you have reached saturation.
- But you will not need to read quite as many sources, which will save some time compared with how long the dissertation will take

If you have co-authors or are writing alongside a faculty member, you might only be writing a section of the final literature review, which will further save your time.

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## 6.2: Refine Your Topic

### Quote

*"Then I go in with, with a certain formulation of it but then as I explore conflicts in the literature space. It's like the question often changes and, and morphs into a related but slightly different question. It's quite associative? Yeah, yeah so it ends up forming a network like, like a neural net or something like that".* (Graduate student participant as cited in [Droog et al. 2024](#), p. 843)

### Characterize Research on Your Topic

As with any mystery, once you've collected your clues, the next step is to step back and see what the bigger picture is. You might not have the full picture yet, but you can start to see what's known, what's still hidden, and where you might need more evidence.

Let's consider the patterns you found in Unit 5 more deeply.

### Activity: Consider patterns 6.2.1

1. List some of the patterns you found in the previous unit.
2. What can you say about each pattern in a few sentences?
  1. What does the literature say?
  2. What do you feel about that?
  3. How does it connect to your topic?
3. Which patterns need more information?
4. Where there any patterns you didn't find any information about, but had hoped to find?

Complete the table below based on your answers to the above questions:

Table of thoughts on patterns

**Pattern**

**Reflections on the literature**

|  |  |
|--|--|
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

In [Section 5.2 Defining Literature Reviews](#), you read published literature reviews. You looked for what characterized their topics. Now you'll start to characterize research on *your* topic based on the sources you read.

#### ✓ Example: Characterize research 6.2.1

At this step in my research, I would have characterized research on the topic of *grad students + research + affect* as:

The research on this topic shows:

- Students experience research both cognitively and affectively
- More research focuses on the cognitive aspect
- Studies that focus on affect do not always define it. Several provide dimensions, which vary across studies, but can include emotions, motivation, values
- Studies are focused on undergrads, not grad students

I don't know enough yet to comment on methodology nor theory.

#### ? Activity: Characterize research on your topic 6.2.1

Even though you've only read a few sources, consider how research on your topic is characterized.

Below are a few guiding questions to help prime your answers. Not all will be relevant, so focus on the ones that fit your research:

- What can you say about the different patterns you've seen?
- What seems to be lacking or missing?
- What do you think about the methodology used?
- What populations were studied? Who wasn't studied?

- What geography was covered?
- What theories were used?

If you wanted to tell someone in a few sentences about what you found so far, how could do so, succinctly?

#### Reflect

How easy was the above activity for you?

When I had only found a few sources for my topic, I'd found this very difficult because my sources were initially so disparate.

- I'd tried to narrow to *graduate students*, but couldn't find enough sources.
- When I broadened my search to just *student affect*, my sources were on too many different aspects, including student advising.
- I realized I needed to refine in a different way and decided that although my topic was still clearly about graduate students, I would search for (*undergraduates* or *higher education* or *graduate students*) + (*affective domain*) + (*librarians* or "*library instruction*" or "*information literacy*" or "*library orientation*").
  - In this way, I did broaden my searches, but not my topic.
  - I narrowed my topic to library instruction, which also helped narrow my searches.

If you also found it difficult to synthesize the patterns among your sources, your sources might also be covering too many different aspects. That's pretty common if you only read a handful of sources! Usually this simply means:

- Some of your sources might not be relevant to your topic; or
- You might need more sources to gain a more complete picture; or
- Your topic might be too broad or too murky

It's very likely that you will need more sources at this point. Before going back to the databases, consider first if anything about your topic shifted based on the sources you found.

### Adjust Your Venn Diagram

Go back to the [Venn diagram you drew for your topic](#). Now that you have an initial sense of what past literature has covered, is there anything you want to change about your topic?

- Perhaps you've become interested in a slightly different area and want to make some major shifts.
- Maybe you realize you were trying to cover too many aspects and you have a better sense now of which you do not want to include
- Maybe you added place holders to the Venn diagram initially, such as "benefits" or "impacts" or "barriers". But now you've seen some example of those in the literature and you want to change that bubble to one of the specifics. Maybe you add several circles for each of the different barriers, to see how they connect with different aspects of your topic. Some examples:
  - *Benefits* becomes "employment" or "stress reduction"
  - *Barriers* becomes "transportation" or "cost"
- Maybe you want to add a particular theoretical orientation

If nothing shifted for you, that's fine too!

### Next Steps

In the next section, we'll use these patterns and reflections to find more sources.

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## 6.3: Revisit the Literature

You'll use several of the same techniques for finding sources that we covered in [Unit 4](#). However, now that you already have a few sources, have considered their patterns, and possibly adjusted your topic, you're ready for additional techniques.

### Citation Chasing

One of the easiest ways to find more sources is to use the ones you already found.

#### Find older sources

- Check the bibliographies or references of the sources you read.
- If any of their references look useful, use your library to find the full text.

#### Find newer sources

Not all articles have been cited, but this technique is particularly useful for older articles as well as landmark sources.

Consider:

- Did any sources you read cover multiple areas of your topic?
- Did any cover an area or population of interest, but not well covered by other sources?
- Did any use particularly useful/interesting terminology about your topic?
- Were any a bit dated, but still useful?

If yes, you can look for sources that cited those works. Here's how to do this in Google Scholar (your library might have a way to do this within databases).

1. Go to [Google Scholar](#).
2. Paste the title of the source you have into Google Scholar.
3. Under the citation, look for: **Cited by [number]**
  1. If anyone has cited it, Google Scholar lists the number of citations here.
  2. Click the "Cited by" hyperlink to see all the sources that referenced your source.
  3. If there are many, check a box under the search box for "Search within citing articles" and add keywords to narrow.

### In Practice

#### ? Activity: Citation chasing 6.3.1

Look at the sources you already found and assess whether they might be useful enough to help you find more sources.

1. If you have very recent sources, look at *who they cited*.
2. If you have older sources, look at *who cited them*.

### Return to the Databases

In addition to citation chasing, you'll want to do further database searches.

#### Find more terms

- You might already have terms from [Unit 4 when you were evaluating citations](#).
- You might have discovered new terminology from the sources you read.
- If you refined your topic, you might also have new areas you want to pursue.

#### Try another database

I started my searches in APA PsycInfo because I wanted to see the psychological literature about affect. However, I quickly realized this was not useful and had also tried ERIC, an educational database, which was more successful. However, my best bet was actually searching in a library-specific database.

If you're not sure of other databases available to you, email your library or make an appointment.

## In Practice

Depending on how many more sources you need, this will involve iterative steps and can become unwieldy and overwhelming. Therefore, continue searching systematically.

### ? Activity: Database searching 6.3.1

Start with one pattern you noticed needs more sources. Or, you can start with a facet of your Venn diagram that's lacking enough sources.

1. Select a relevant database.
2. Conduct a search
  1. Combine all the terms you've found for 1 facet in a large set, combined with OR. This can include both subject headings and keywords.
  2. Or, if you'd like to see what kinds of citations you retrieve with different terms, you could conduct two (or more) similar searches.
3. Evaluate citations. Save any relevant citations.
4. Save your search(es).

You can choose whether you'd prefer to go through this set of sources, reiterating the steps from Unit 5 on [scanning](#), [reading](#), [taking notes](#), and considering [patterns](#). This round will usually be faster because you already have some context and a sense of some of the patterns.

Or, you might continue to find additional sources on a second pattern or by combining different facets of your Venn diagram.

## Process & Note-Taking

Taking notes is particularly necessary at this stage. You'll likely try multiple terms, combinations, and databases. You probably won't finish in one sitting, especially as you'll iteratively read a few more sources, refine your topic, and then do additional searches.

Maintaining a methodical process by trying one search at a time, saving your citations & searches, and keeping systematic notes will ensure you

- Feel less overwhelmed
- Track what you've done
- Identify clear next steps for other searches to try
- Save time by not re-doing searches you forgot you tried

These notes are just for you so take them however is helpful to you. I recommend that you consider recording:

- What & where you've searched
- What you've learned & how you've felt
- Your next concrete, baby step

An example of notes might be:

- **What/where searched**
  - *Example:* APA PsycInfo, ERIC, ASC (Academic Search Complete), Google Scholar ("student affect" "graduate students")
    - Here, I list a couple databases as acronyms. I don't list what I searched there since I can save my search history.
    - For Google Scholar, list your searches since they can't be saved
- **What learned**
  - *Example:* Found a bit on student affect. More on anxiety, but less on the process overall. Worried sources still aren't relevant.
    - Here I'm just listing quickly a bit about my findings, just for myself
- **Next steps:**
  - *Example:* Search for "research process" and emotions in APA PsycInfo

- I just add 1 very specific next step. I could instead have written "Read 3 sources", depending on what I want to do next.

## Build Supports

Even if you already met with a librarian in Unit 4, this can be a good time for another visit, as a fellow detective on your hunt for clues.

Librarians can suggest additional databases or search terms you might not have considered and help you troubleshoot if you're feeling stuck. Over the years, I've met with many students who wanted to confirm whether they had truly found a gap in the literature or were simply missing sources. Sometimes I could confirm that the area seemed under-researched; other times, I'd suggest a new database or search term, opening a plethora of relevant results.

## Next Steps

Once you've found more sources, return to the iterative process from Unit 5:

- [Scanning](#)
- [Reading](#)
- [Taking notes](#)
- Considering [patterns](#)

The cycle often gets faster & easier as you gain context & familiarity with your topic and the literature. Depending on your topic and the need you have to write this literature review, you might need to dive into other types of sources, beyond the recently published peer-reviewed studies you've been finding.

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## 6.4: Advanced Source Types

Now that you have conducted several searches in your topic area, you may need to find citations that fit specific criteria. If you are working on a dissertation, thesis, or publication, these will be important to your literature review. These may or may not be needed for a course assignment, depending on your instructor's parameters.

### Seminal/landmark works

#### What are they?

These are published works that originally presented an idea, theory, model, or methodology that became influential in the field. They're sometimes called *seminal* (from Latin for *seed*), *landmark*, *pivotal*, or *foundational* studies.

#### How to find them?

Seminal works are not labeled, so you need to look for clues.

- Your faculty and textbook may explicitly mention them. For example, you likely already know some of the biggest names in your discipline. Similarly, your faculty know the biggest names within their specialized areas of research and expertise.
- References of your sources - are there authors who appear often?
- Do your sources explicitly mention authors or works as being pivotal?
  - For example, Droog et al. (2024) "Kuhlthau asserts in her seminal information search process model that feelings correlate with thoughts and actions throughout the entire research process, from uncertainty at the beginning to relief after search closure" (Droog et al., 2024). As a reader, you could immediately note that Kuhlthau is a seminal author on this particular topic.
- Check how many times a source has been cited.

If you learn that a source is pivotal - read it. Even if it is quite dated, it will likely still be worth citing. If your assignment requires only sources within the last 5-10 years, you can still cite an older source *if it is pivotal*. However, if your instructor stipulated that you use a certain number of sources, then all of those citations should be recent, and the pivotal work would be *in addition to your required number of citations*.

If you are writing a thesis, dissertation, or publication, you will definitely need to include all landmark works within the scope of your topic.

### Theories

Theories (also called *frameworks*, *models*, or *paradigms*) are a way of giving context or explaining something; it could be a behavior, mechanism, or anything. Especially for theses and dissertations, you may be asked to incorporate theory into your literature review. How you use theories depends on the purpose of your literature review and your topic. You may be developing or questioning a theory itself; you may be using theory to justify your research; you may be using it to explain or organize what you've found; or you may just do a literature review of theories.

Pay attention to the sources you're already reading. What theories do they discuss?

Once you have a specific theory in mind, search the databases specifically for that theory. This tends to be a bit less straightforward than searching by topic.

### Methodology

#### Wait, aren't we talking about literature reviews?

Yes but if you will be designing a study, you will need to justify your method and show how it has been used. It is less likely that you would need to search explicitly by methodology for a course assignment's literature review.

For a literature review, you still want to cover *all* the literature, not just studies using a particular methodology.

### How to search

- Search for one of your broader facet terms with a methodology (e.g. *affective + interviews*; or "*library orientation*" + *interviews*)
- Add a filter: Some databases can limit by methodology.

## Non-Peer-Reviewed Sources

If your assignment requires peer reviewed sources, then you should not use any of the following types of sources. However, if you are writing a dissertation, thesis, or publication, you might need to consider using the following types of sources.

### Dissertations

Keep in mind that dissertations are scholarly, but they are not reviewed by one's peers. They are, instead, evaluations of learning so they are not assessed in a double-blind method. The evaluators are highly invested in the student's success. Therefore, while the process of doing a dissertation is rigorous, the process of evaluating them is quite different from published articles.

Dissertations are also usually quite lengthy. For both of these reasons, you might not want or even be permitted to use dissertations in course assignments. Rarely do publications cite dissertations.

If you're writing a dissertation, however, you should check others' dissertations to:

1. Avoid replicating someone else's dissertation.
2. Discovering extensive reference lists (find more sources).
3. You might be able to cite someone else's dissertation (check with your advisor if you find one that looks useful).
4. Get a sense of how other dissertations are structured or how another student designed their methodology (note that your chair might disagree with a certain design so be cautious).

Many databases will include dissertations in the search results if you do not limit to peer-reviewed sources. You can sometimes add a limit to find only dissertations. Additionally, your library might have databases of just dissertations. Likely, your university has past dissertations from its alumni accessible so you could read what others in your department wrote.

### Books & book chapters

#### What are books?

Although books are often scholarly, they are not peer reviewed. Books are only reviewed by the book's editor.

#### When to use books

- Useful for theory & historical context
- Case studies can be helpful
- Even if your instructor permits scholarly works which are not peer reviewed, the majority of your resources should usually be peer reviewed articles with a smaller number (if any) of books.
- Dissertation/thesis: you will likely cite some books.

#### How to find books

- Most databases will include some book citations.
- You can also search for books in your library catalog.

## Grey Literature & Non-Scholarly Sources

### What is grey literature?

Grey Literature is something created by experts in the field, outside of traditional academic resources, such as articles and books (often called White Literature). It includes media, documents, and data, and can be written by authors or by organizations. You'll find it usually as PDFs, webpages, blogs, and multimedia. Some examples:

- Government reports and resources
- Dissertations
- NGO (Non-Governmental Organization) reports and white papers

- Blog posts from well-known expert, such as a faculty member or an advocate
- Professional associations reports
- Legal documents, including court transcriptions

### When to use grey literature

Since the literature review covers previous research on your topic and grey literature is not academic research, much of it is usually not acceptable for most class assignments (unless the course specifies to look outside academic sources). However, it is often useful to cite some grey literature in your introduction, although not as often in your literature review.

### Why use grey literature?

Grey literature includes statistics and data sets, which can be useful or even necessary to discuss in your introduction to demonstration the background problem.

More diverse voices are represented than within the niche of academia.

For more detailed information about grey literature, including how to find and evaluate it, check out this link for the [University of Illinois Urbana-Champaign's Library Guide on Grey Literature](#).

### Media (traditional & social media) - not scholarly!

In addition to grey literature, you might want to review media (both traditional and social media) on your topic.<sup>1</sup>

Reviewing social and traditional media can give you a better sense of the lived experiences of people personally impacted by your topic. While it's not common to cite these in your assignments, dissertation, nor publications, by reading, listening, and watching additional voices, your lens for how you view your topic and your study will shift.

### Build Supports

This can be a great time to meet with your faculty because they often have familiarity with pivotal authors, landmark studies, methodologies & theories to consider, and where to find grey literature on your topic.

It's also another great time to meet with your librarian. While they might not have the same level knowledge about your field as your faculty, they will be able to guide in searching for some of these types of sources on your own.

### Next Steps

A detective might start the investigation by reviewing clues at a scene, then broaden the investigation to talk to people involved. In the same way, now that you read your sources and found patterns, let's zoom out and consider the conversation among the authors of the research.

<sup>1</sup>: Some people consider these part of grey literature because they're not peer reviewed, but can be written experts on a particular subject. Others do not consider traditional media grey literature since it's published within the commercial publishing system. For our purposes, these definitions are not important.

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## 6.5: Research as Conversation

### Quote

[research provides a] “feeling of connectedness and understanding...I do feel like I’m actually connecting in some sense with the authors of the papers that I read.” (Graduate student participant as cited in [Droog et al. 2024](#), p. 839)

Research involves more than simply the content you read. Instead, it is a conversation happening across time and space among researchers. So while it's critical to understand *what* researchers write, it can also be important to consider the cast of characters who conducted the research and wrote about it.

### Authority/Expertise

#### Reflect 6.5.1

What does it mean for authors to have authority on a topic?

How can you evaluate an author’s expertise?

Traditionally, in academia, we're often taught to use peer-reviewed journals as indicators of authority. This is a great start, as peer-reviewing reduces some of the bias in publishing, since reviewers typically do not know who the author is. However, the author usually is affiliated with a university and has a certain degree in that field. Throughout human history, various groups of people were excluded from academia. Although in different eras, the Middle East, India, China, and other areas were centers of scientific research and innovation, most recently, Europe and then the United States came to dominate the research world. In most of these times, women were often excluded from studying at all, let alone becoming researchers themselves (with of course notable exceptions). In the 19<sup>th</sup> and mid-20<sup>th</sup> centuries, various ethnic groups were excluded.

#### Activity: Research as a parlor conversation, 1941 6.5.1

The following paragraph was written by Kenneth Burke in 1941, describing research as an unending conversation. Read through it, paying attention to word choices.

"Imagine that you enter a parlor. You come late. When you arrive, others have long preceded you, and they are engaged in a heated discussion, a discussion too heated for them to pause and tell you exactly what it is about. In fact, the discussion had already begun long before any of them got there so that no one present is qualified to retrace for you all the steps that had gone before. You listen for a while until you decide that you have caught the tenor of the argument; then you put in your oar. Someone answers; you answer him; another comes to your defense; another aligns himself against you, to either the embarrassment or gratification of your opponent, depending upon the quality of your ally's assistance. However, the discussion is interminable. The hour grows late, you must depart. And you do depart, with the discussion still vigorously in progress." ([Burke, K. 1941](#))

I love this description because it viscerally demonstrates that research is a conversation among real people, not just words on paper or a screen. And while his word choices and description are specific to his culture & time, they can help us consider several important aspects of research.

Try visualizing the above scene that Burke describes. Research exists within cultural contexts. He's writing in the United States in the early 1940s. What is the research culture he's describing? Is it neutral? Who is included/excluded?

- Consider who type of parlor were in the United States in the early 19th century. Use the sources to consider the parlor:
  - What did a parlor look like? What kind of chairs would be there? What kind of decorations adorned the walls? What's the lighting like?
  - Are these people drinking anything? If so, what?
  - Is anyone smoking and if so what are they smoking?

Click Discussion below for my thoughts on this:

### Discussion

In Burke's time, most research was done by white men from Europe and the United States. So when I imagine Burke's parlor, I picture sumptuous leather chairs, expensive rugs on wooden floors with men smoking cigars and sipping bourbon.

You might have pictured something completely different - perhaps a more intimate front room in a room, filled with friends chattering over cups of tea in straight-backed chairs, scolding the occasional child running through the room.

This is obviously just a thought exercise and does not perfectly portray the complexities of reality, but it helps to make the conversation of research far more tangible.

## Positionality

In [Unit 1](#), we discussed [considering our own positionality](#) and we've continued discussing it throughout the workbook.

Now that you're reading others' works, let's discuss how *their* positionality impacts your topic.

It's just as important to consider the positionality of the authors of the sources you find. Although the culture of academia has changed in the past 100 years, there are still some voices who are not present within academia. In many academic disciplines, even though there is more diversity among researchers, the northern hemisphere still dominates in research publications.

English currently dominates research, so that even authors who speak other languages must read and write in English. Consider how this shapes who gets published, how they express themselves, and what people choose to study.

Since you're just starting your research, you might not know who the current researchers are on your topic. If you do, consider who they are, and what their backgrounds are, if you know them. If not, consider how their credentials and backgrounds impact their research question, their methodology, their interaction with study participants, and how they analyze results.

### ? Activity: Current conversations6.5.1

Consider the current state of research in your discipline.

- How much has changed in your field since 1941 about who does research?
- Or, more concretely, who are the authors of the resources you found?
  - Do they include positionality statements?
  - If not, can you tell anything about their positionality?
  - How might their backgrounds bias them one way or another in regards to the population & topic they're studying?

Imagine you walk into a room and the authors of those resources are discussing their works. Where might this room be? Perhaps at a conference?

Go back to the section on [positionality & your drawing](#).

- If you were in a room with the authors of the sources you've found, how would you feel contributing to the conversation?

- What does your voice add to the conversation?

### Amplify Minority Voices

Even though research culture has become more inclusive, some groups are still underrepresented. Including additional perspectives strengthens your review and provides a more complete picture. There are a few sites you can check for works by Black American authors and by female authors. Here are a couple examples:

- [Cite Black Authors](#)
- [Women Also Know Stuff](#)

Race and gender shape how we are perceived by the world and how we, in turn, consider the world. Therefore, perspectives on your topic by researchers from different backgrounds gets us closer to answering questions on any given topic, particularly within the social sciences.

Beyond demographic diversity, as I mentioned earlier in our discussion of what a literature review is, you need to include all perspectives, even if you disagree with a certain study or theory.

### Populations Impacted by Your Topic

#### ✓ Reflect 6.5.1

Consider the future participants in your research, or the participants in the research you've read. What groups of people might be impacted by your topic?

- Do they have access to read the research about them?
- If yes, do they have the skills you do in evaluating the article's methods and conclusions?
- Do they have the time and skills to assess the article within the context of other sources, as you've been doing throughout this workbook?
- Will they benefit from being participants?

Again, consider as you did at the top of the page: Who is an expert on your topic?

Academics, graduate students, or sometimes undergrads & professionals will have access to research about them. But for the most part, anyone outside of academia does not have access to research, as it is rarely freely available.

Few people outside of academia have the skills or time to evaluate the article's conclusions, much less assess sources within context.

I am not suggesting that all research must be action research. Rather, in addition to reading academic sources, I encourage you to **pay attention to what these populations say about themselves & their experiences**, perhaps through social media. While this will not mean that they are direct collaborators, it does shift your perspective that they can be considered experts on their experiences of your topic. They might not have academic expertise on your topic, but they are experts on their own experiences.

### ? Activity: Disseminate findings 6.5.1

Look back at your original, deeper [motivation for doing this research, back in Unit 2](#).

There's no right answer and the reasons for doing research are as varied and complex as research itself. Some people research to learn how people can be helped. Even if that isn't a direct goal, research often does help people. An obvious example is medical research, which can find life-saving treatments. Similarly, social science research can improve therapeutic treatments or people's quality of life. Some people might research primarily for the excitement of the puzzle or to gain tenure through publishing. However, their research may still benefit people.

#### Consider:

1. Who might benefit from *your* research?
2. Would they benefit *more* if they learned about the patterns you've noticed in the literature?
3. Would they be interested to learn the findings of your study?

#### Brainstorm:

You've already done the hard work of finding clues, considering the cast of characters, and working through the puzzle. How can you disseminate your findings, legally, in a way people would be able to understand and parse for themselves?

Once you've brainstormed on your own, click below for a few of my ideas.

#### Ideas

- Edit a Wikipedia page related to your topic by adding accurate, relevant citations (See [Cornell University Library's page on how to edit Wikipedia](#))
- Create a video or infographic
  - Briefly explain your findings, why they're credible, and how they can help people or how people can use them.
  - Share it on social media or forums where people impacted by this topic might see it

I am not suggesting you expend a large amount of extra time to do any of this. Simply use what you already found and find an easy way to share it, legally, in a useful way for those impacted.

*Example:* My research is about graduate students. In addition to presenting my findings at conferences and publishing articles, I adapted my lesson plans, based on my research. This did not involve extra work, as I continually update my lesson plans, but now I incorporate findings from my research. For instance, I had always striven to reduce student anxiety and increase their confidence about research in my classes. Due to my research, I explicitly added affective domain learning objectives to my lesson plans.

## Next Steps

In the next section, we'll discuss how to know you've cracked the case and are ready to write up your findings.

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## 6.6: When to Stop Searching

### Saturation

#### Quote

*“You know, that’s a struggle with, with research in general is they don’t tell you what’s enough. You know like no one, no one tells you like, this is good enough, or like, this is where it should be.”* (Graduate student participant as cited in [Droog et al. 2024](#), p. 835).

It's natural to feel a bit stuck at this step (particularly for dissertations and publications) because there's no magic number for how many sources you need.

A 'comprehensive' literature review does **not** mean citing *everything*, which would be impossible given the outpouring of scholarly literature. Rather than aiming for a number, your goal is **saturation**: the point at which additional searches yield the same authors, ideas, themes, and do not provide new insights.

Saturation will vary depending on your topic, scope, and type of study. Before starting to write, you should be able to articulate:

- Who & what the leading theorists/theories are; and
- What patterns you've found in the research on your topic
- Where further research is needed

### Research Question(s)

Throughout this process, you've been refining your topic. Now is the time to fully zoom in and ensure your topic is now a question that's clear and actionable. Watch the following 12 minute video on creating research questions:

Dr. Amina Yonis. (2022 Nov 8). How to write a research question/hypothesis & template - The research process beginners guide. [Video] YouTube. <https://www.youtube.com/watch?v=mYISzNyrVO8>

Research with Dr. Saeed. (2023, July 1). How to write research objectives and research questions like a pro: A step-by-step guide. [Video] YouTube. [14:00] [https://www.youtube.com/watch?v=ni\\_1dUDaVM0](https://www.youtube.com/watch?v=ni_1dUDaVM0)

#### Activity: Finalize your research questions6.6.1

Write your research question(s).

Consider:

- Has the research already addressed this question adequately? If so, how can you further the conversation?
- Can you realistically answer the question(s) within your time frame and the populations you're able to access?
  - Time frame (e.g., longitudinal studies are generally not advisable for dissertations)
  - Population(s) (are they part of a projected group? If so, how will you reach them?)
- Do your questions start with question words such as How, What, Why, Which?

Does your literature demonstrate:

1. Why this question is **worthwhile studying**
2. Where your question **has not yet been adequately answered?**

If not, you probably need to continue iterations of finding sources, reading, and connecting patterns.

## Create an Outline

Even if you're unsure if you've reached saturation, drafting an outline now will help you note what you know so far, and also prepare you for writing.

Literature reviews can be organized in different ways, depending on your field and the best way to describe the conversation on your topic.

- **Thematic**
- **Chronological**
- **Method**
- **Theory**

Watch the following videos for more information about creating an outline.

Scribbr. (2020 May 18). Outline your literature review's structure. [Video] YouTube. [2:40] <https://www.youtube.com/watch?v=pOK1-H8Vafs>

Dr Amina Yonis. (2020 Nov 1). The structure of a literature review - Thesis writing guide. [Video] YouTube. [10:13] <https://www.youtube.com/watch?v=So48qIHDLVY>

### ? Activity: Write your outline 6.6.1

Review how your sources structure their literature reviews for ideas. By now, you may already have a sense of how to organize yours.

Write your outline.

## Supports

If you're doing a thesis or dissertation, make an appointment with your faculty to share your research questions and outline with them. They might want to wait to meet with you until after you've written a draft of your literature review. In that case, you'll move forward to write your draft, and then check in with them. If your faculty think you did not go into enough depth or breadth, they will let you know what further information you need. It's important to check in with your advisor/chair to ensure they approve of your research question(s).

If you're working on a class assignment, your instructor might have provided enough parameters that you'll be able to move forward at this stage without connecting with them first.

## Next Steps

Once you have determined that you're ready, you'll start writing your literature review.

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## 6.7: Check-In

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### Reflect:

Time to check in again! Before moving to the last section of this workbook, take a minute to pause, breathe, and look at how far you've come.

#### What have you learned?

What new skills or techniques did you develop in this unit?

What new insights did you gain about your topic and population? Did anything surprise you?

Did any sources challenge your thinking? How?

### Emotions

How are you feeling about your research at this stage in the process?

### Next steps

In the next unit, we'll conclude this workbook and set you up to write your literature review!

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## CHAPTER OVERVIEW

### 7: Continue the Journey

This unit concludes this piece of your research journey. You'll reflect on the process and chart a path to start writing your literature review.

[7.1: Reach the End of This Trail- Check-In](#)

[7.2: Your Next Trail](#)

---

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## 7.1: Reach the End of This Trail- Check-In

### Quote

*"And when a portion is completed, whether that's [sic] chapter, whether that's survey item, whether that's looking for a coefficient value, whatever it is, I just feel so delighted with me. [laughs] and I feel achieved, so there's you know, a sense of 'all right Me! You go Me!'"* (Graduate student participant as cited in [Droog et al. 2024](#), p. 839)

### Congratulations!!

You've reached the end of the trail. Take some time to truly celebrate! You might revisit the mini-celebration ideas from the end of [Unit 5](#) or plan something larger this time.

### Reflect

Before you start writing, look back at [your drawing from the beginning of this journey](#). At the end of this current trail, would you draw research the same way? Has anything changed for you? Draw or write what has shifted, if anything.

Review your reflections from the end of each unit ([Develop your topic](#); [Find Citations](#); [Find Patterns](#); [Dive Deeper](#)). Chart your emotional journey over the course of this trail. What was consistent? Where were the highs and lows? In your journal, depict your emotional journey. Consider using colors or an ebbing & flowing wave to depict the change over a timeline.

What skills or techniques did you learn? Which make you the most proud?

Reflect on the journey. What were the biggest roadblocks? How did you overcome it - or are you still navigating it? What does this teach you about your resilience & the research process?

Who were your best supporters? Did you support yourself?

### Next Steps

Although this is the end of this trail, you have more ahead of you. In the next section, I'll provide a few resources to help you with writing.

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## 7.2: Your Next Trail

### Quote

*"by the time the end of it you have this incredible bond that you build you have done this thing you made these discoveries and you have a remarkable story to tell."* (Graduate student participant as cited in [Droog et al. 2024](#), p. 835)

It's time for you to tell the story of what you've found in the literature.

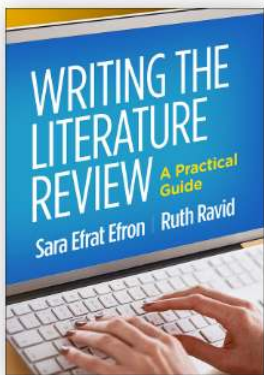
### Quote

*"And I feel like research scientists take that and we'll publish. You know, this is what we found, this does not mean that this is applicable to anybody else in any other context. That we're not saying that this is how humans work. This is just what we found under the specific sets of circumstances and there's always, you know, that section: opportunities for future research. You know, like I think social scientist researchers [emphasis on researchers] are really good about understanding the limits, but human beings are not. And so you have things that people pick up from data sets without really looking at the limitations or understanding the data well".* (Graduate student participant as cited in [Droog et al. 2024](#), p. 844)

## Writing

You found sources, connected patterns, synthesized them, and considered where the gaps are. You wrote your research questions and drafted an outline. You're ready to write!

For support with the writing process, I highly recommend Efron & Ravid's book about writing the literature review. The first half of the book will be a review of what we already covered, but their tips on writing are excellent. This text was instrumental in helping me publish my first manuscript.



Efron, S.E. & Ravid, R. (2018). *Writing the literature review: A practical guide*. Guilford Press.

For a shorter explanation, check out the 4-minute video below:

Scribbr. (2020 May 29). 4 TIPS for writing a literature review's intro, body, & conclusion. [Video] YouTube. [4:29] <https://www.youtube.com/watch?v=kW6Uzn-8uMI>

## Supports

This is a great time to make an appointment with a writing tutor or coach at your university.

## After the Literature Review

For some of you, the literature review is only the beginning of your research journey. If you are designing your methodology, collecting & analyzing data, I encourage you to continue to use your research journal. Use it to check-in with yourself about your emotions and how you'd represent research pictorially.

After I conducted and published my research, I continued to use the drawing activity in my classes. I always drew alongside students and each time, my drawing shifted. Often, I published with wonderful co-authors, and my drawing included them, showing the collaborative nature my research had taken. Most critically, once I started writing case studies, creating surveys, conducting interviews, I realized I thought of myself as a researcher. So check in with yourself, especially after you defend or publish - do you see yourself as a researcher now?

There are a myriad of resources available to you about all the next steps of this journey. Check in with your faculty, your university's learning support center for more resources. Additionally, the YouTube content creators I shared throughout this workbook have excellent videos on the additional aspects of research, so check those out too.

Whether you continue with further research or not, I hope the skills you practiced here will continue to support you throughout your academic journey. Outside academia, too, celebrate the small wins, build supports, and move forward one step at a time, even when life doesn't give you a map.

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## 8: Appendix- ADA Accommodation

### Kuhlthau's Information Search Process

The image depicted by Caraveo shows a series of rectangles. They each have a title of the phase of the research process, and the thoughts, feelings, and actions associated with each phase as well as a visual of a human experiencing each phase. Under the rectangles is a yellow ribbon which goes up and down, depicting the emotional arch of the journey. Below is a chart that explains Kuhlthau's information search process:

Kuhlthau's information search process - explanation of image by Caraveo

|          | Initiation         | Selection          | Exploration                 | Formulation | Collection            | Assessment               |
|----------|--------------------|--------------------|-----------------------------|-------------|-----------------------|--------------------------|
| Thoughts | Seem vague         | More focused       | More focused                | Focused     | Increased interest    | Increased self-awareness |
| Feelings | Uncertainty        | Optimistic         | Confused, doubt, frustrated | Clarity     | Sense of confidence   | Sense of accomplishment  |
| Actions  | Seeking            | Relevant exploring | Information                 | Seeking     | Pertinent documenting | None                     |
| Ribbon   | Starts high, drops | High               | Low                         | Rising      | Rising                | High                     |

To get back to the reading, click [here](#).

### Google Search: How do graduate students research

- How **should** we be selecting our **graduate students**?
  - [OD Weiner](#) - Molecular Biology of the Cell, 2014 - molbiolcell.org
  - ... To the extent that we use universal metrics such as GPA, GRE, and the amount of **research** experience, it is worth noting that some of these **are** significantly more discriminating than the ...
- **Are** we doing enough for today's **graduate student**?
  - EH Offstein, [MB Larson](#), AL Mcneill... - International Journal of ..., 2004 - emerald.com
  - ... First, financial support for **research** and stipends that **graduate students** depend on **are** now more scarce and hence, more competitive. Incidentally, these types of financial pressures ...
- Preparing **graduate students** for **graduate-level study** and **research**
  - K O'Clair - Reference Services Review, 2013 - emerald.com
  - ... A **research** topic with too broad or too narrow of a scope **will** turn out to be nearly impossible to ... **Graduate students** often **do** not fully understand the nature and purpose of the literature ...
- The successful **graduate student**: A review of the factors for success
  - S Bain, LV Fedynich, M Knight - Journal of Academic and Business ..., 2011 - academia.edu
  - ... **study** a concentrated number of **student** responses to a survey designed to identify success factors among **graduate students** ... this **study** sought to review the factors for **graduate student** ...

To get back to the reading, click [here](#).

### Citation information from a database search

### Citation #1

Peer reviewed – Academic journal

Title: The insecurity of doing research and the ‘so what question’ in political science: how to develop more compelling research problems by facing anxiety.

By: Gustofsson, Karl; Hagstrom, Linus

In European Political Science

Dec 2024

Academic Search Complete

Research problems are crucial in the sense that they provide new research with purpose and justification. So why, despite the abundance of guidance available from an extensive methods literature, do graduate students often struggle to...

Subjects: Political science; Graduate students; Anxiety; Emotions

To read my reactions to this citation, click [here](#).

### Citation #2

Peer reviewed – Academic journal

Title: To be honest, it’s complicated’: training postgraduate students to work with emotions in qualitative research

By: Ferrie, Jo; Greenwood, Sharon

In: Teaching in Higher Education

Jan 2025

Academic Search Complete

Emotion is an integral part of the knowledge production process, yet is rarely acknowledged within research methods teaching or textbooks. As educators, preparing students for fieldwork is essential, and should go beyond skill...

Subjects: Graduate education; Trigger warnings; Teaching methods; Graduate students; +2 more

To read my reactions to this citation, click [here](#).

### Citation #3

Peer reviewed – Academic journal

Title: Generative artificial intelligence tools to augment teaching scientific research in postgraduate studies

By: Segooa, M.A; Mobida, F.S.; Motjoloplane, I.

In; South African Journal of Higher Education

Mar 2025

Education Source

Scientific research is the cornerstone of postgraduate studies. However, various challenges hinder the progression and success of postgraduate students, which also affects throughput [sic], students experiencing challenges in formulating...

Subjects: Graduate students; artificial intelligence; writing processes; Generative artificial intelligence

To read my reactions to this citation, click [here](#).

### Citation #4

Peer reviewed – Academic journal

Title: Challenges library and information science (LIS) postgraduate students encounter in research topic selection

By: Elia, Emmanuel F.; Ndenje-Sichallwe, Esther

In: IFLA Journal

Jun 2025

Library & Information Science Source

This study examines research topic selection among LIS postgraduate students in Tanzania. A quantitative approach was used to collect the data, and purposive sampling was used to recruit a total of 105 respondents. Key findings showed...

Subjects: Library school students; quantitative research; Tanzania; administration of education programs; +5 more

To get back to the reading, click [here](#).

[Matrix from my research](#)

Matrix example

| Authors               | Title                                                                                                                                  | Year | Definition | Attributes /components | Reason (need) & impact | population | Methodology          | Learning objectives | Model/taxonomy | Useful?              |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------|------|------------|------------------------|------------------------|------------|----------------------|---------------------|----------------|----------------------|
| Lopatovska & Arapakis | Theories, methods, & current research on emotions in library & information science, information retrieval & human-computer interaction | 2010 | yes        | yes                    |                        |            | literature review    |                     |                | as a lit review, yes |
| Cahoy & Schroder      | embedding affective learning outcomes in library instruction                                                                           | 2012 | yes        |                        | yes                    |            | survey of librarians | yes                 |                | yes                  |
| Zhou                  | "I am really good at it" or "I am just feeling lucky": the effects of emotions on information problem-solving                          | 2013 |            |                        |                        |            |                      |                     |                |                      |
| Cahoy                 | Affective learning & personal information                                                                                              | 2013 | yes        | yes                    |                        |            | newsletter-ish       | yes                 |                |                      |

| Authors          | Title                                                                                                                                   | Year | Definition | Attributes /components | Reason (need) & impact | population | Methodology                                                  | Learning objectives | Model/taxonomy | Useful?                                     |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------|------------|------------------------|------------------------|------------|--------------------------------------------------------------|---------------------|----------------|---------------------------------------------|
|                  | on management                                                                                                                           |      |            |                        |                        |            |                                                              |                     |                |                                             |
| Wilson & Given   | Student search behaviour in an online public access catalogue : an examination of 'searching mental models' and 'searcher self-concept' | 2014 |            | yes                    | yes                    | Undergrads | interviews/grounded theory                                   |                     |                |                                             |
| Savolainen       | emotions as motivators for information seeking: a conceptual analysis                                                                   | 2014 |            | yes (Davidson)         | yes                    |            | literature review                                            |                     | yes            | Provides table based on lit review findings |
| Dempsey & Jagman | I felt like such a freshman: first-year students crossing the library threshold                                                         | 2015 |            |                        |                        | undergrads | analyzed essays                                              |                     |                | yes                                         |
| Wang             | Assessment for one-shot library instruction: a conceptual                                                                               | 2016 |            |                        |                        | undergrads | research readiness focused assessment (RRFA) tool to measure | yes                 |                |                                             |

| Authors | Title      | Year | Definition | Attributes /components | Reason (need) & impact | population | Methodology                                                      | Learning objectives | Model/taxonomy | Useful? |
|---------|------------|------|------------|------------------------|------------------------|------------|------------------------------------------------------------------|---------------------|----------------|---------|
|         | 1 approach |      |            |                        |                        |            | cognitive, behavioral affect after teaching to class assignments |                     |                |         |

[Return to text.](#)

### Article Mapping: Who Cited Whom

The image is of a sheet of paper where I wrote "Peer Teachers as Instructors (Medical)" at the top. On the next line, I have three different citations in a row with which term each citation defined.

- (Ten Cate & Durning 2007) - Definition: near peer teacher
- (Bulte, Betts, Garner, Durning 2007) - Definition: near peer teacher
- (Lockespeiser, O'Sullivan, Teherani, Muller, 2008) - PAL "peer assisted learning"

The next row shows two citations. The first (Jackson & Evans 2012 "NPT") has lines to all three of the above citations. The second (Evans, Cuffe 2009 "NPT") has lines only to the second two citations.

The third row has two citations. (Reyes-Hernandez et al 2014 "NPT") has a line to (Evans & Cuffe) from the second row. (Alkhail 2015) "Near peer assisted learning" NPAL has lines to the second two citations from the first row.

The next three rows have the following citations:

- (Stephens, Hall, Andrade, Border 2016) "NPT" has a line just to the 2nd citation in the top row
- (Williams & Nguyen 2016) NPT Healthcare has a line to all citations in the top row
- (Rees, Quinn, Davies, Fotherham 2016) "NPT" has lines to just the first and second citations in the top row.

[Return to text.](#)

### Article Mapping 2: Patterns

This is a photo of a sheet of paper titled Library - "Peer Teachers" with citations in two columns.

The first column has the following citations:

- Deese-Roberts & Keating 2000
- Holliday & Nordgren 2005
- Mathson & Salisbury 2009
- Dementor 2011

There is a line connecting the first and third citations. Another line connects the second and third citations.

The second column has the following citations:

- Ronan & Pappas 2001
- Evanson 2015
- Mestre & lecrone 2015
- Denda & hunter 2016
- LaFlamme & Kipphut-smith 2018

The first citation has a line to the Mathson & Salisbury citation in the first column. The third and fourth citations have a line connecting them. Another line connects the fourth and fifth citations.

A key shows depicts various patterns with a color. Thus, the pattern "Instruction" is visually color-coded for just the Ronan & Pappas citation. The pattern "Tutor" shows the entire first column relates to this. Another color is used for the pattern "Empowerment/creativity" and connects the second, third, and fourth citations in the second column. The last color designates the pattern "Theory" and connects the last two citations.

[Return to text.](#)

### Article Mapping 3: Mind Map

This is a photo of a sheet of paper with five circled words. Each circled word then connects to several of the article citations, shown by lines drawn.

- Instruction with lines to:
  - Ten Cate & Durning 2007
  - Bulte, Betts, Garner, Durning 2007 (also lines to Assessment)
  - Ronan & Pappas 2001 (also lines to "of peer teachers", Library)
  - Lockspeiser et al 2008 (also lines to Assessment)
- Assessment with lines to:
  - Bulte, Betts, Garner, Durning 2007 (also lines to Instruction)
  - Lockspeiser et al 2008 (also lines to Instruction)
  - Connects to two more words as well:
    - "of student learning" with lines to:
      - Hanson et al 2016
      - Dancer et al 2015
    - "of peer teacher experience" with line to:
      - Ronan & Pappas 2001 (also lines to Instruction, Library)
- Library with lines to:
  - Deese-Roberts, Keatog 2000
  - Dementer 2011
  - Evanson 2009 (also lines to "theory/rationale")
  - LaFlamme & Kipphut-Smith 2018 (also lines to "theory/rationale")
  - Denda & Hunter 2016 (also lines to "theory/rationale")
- Theory/Rationale with lines to:
  - Evanson 2009 (also lines to "library")
  - LaFlamme & Kipphut-Smith 2018 (also lines to "library")
  - Denda & Hunter 2016 (also lines to "library")

[Return to text.](#)

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## Acknowledgements

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### Acknowledgements

In the years it took to create this workbook, a number of people have been instrumental.

Thank you to the best listeners of my life: My husband, Ed, and my mother, who listened to my euphoric and despairing moments over years of creating of this book.

I'm deeply indebted to the invaluable support from my friend and colleague, Stephanie Swanberg, a librarian at Michigan School of Psychology. It is due to long, involved discussions with her, that this book is structured as it is, and many of the activities are pulled directly from her experience working with graduate students. This book truly would not be anywhere near as useful, pragmatic, and understandable if it had not been for her expertise. On a purely personal level, I'm so grateful for how much emotional support she gave me throughout the book's inception.

Dani Kallis, art therapist, dreamed about this book with me when it was still just an ephemeral thought. It is due to her brilliant creativity and brainstorming that the book includes the check-in points, particularly for emotions and positionality.

For all the students at Adler University during the years I worked there - you all taught me what you needed, and this book was conceived from my work with you.

To all those whose work contributed to ChatGPT (authors whose work it used as well as programmers, etc.) because it served as a useful sounding board as I word-smithed and edited formatting. [AID Statement](#): Artificial Intelligence Tool: ChatGPT, used Sept 2025 no identifiable data shared; Writing—Review & Editing: ChatGPT proofed for spelling/grammar errors and made suggestions on formatting & clarity (e.g. bullet points & reducing redundancy).

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