

TORONTO PUBLIC LIBRARY

# The Research Virtuoso

How to Find Anything  
You Need to Know

Fully  
revised  
and  
updated

Art by  
victor gad



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# Introduction

It's not the destination but the journey that counts. So what does this old saying have to do with you? Don't worry, you didn't just pick up a self-help book by mistake—this *really* is a research guide. If you're reading this book in your hour of need, desperately seeking help with a research paper that's due tomorrow, then you're probably a little disappointed by that first sentence. But trust me: everything goes back to that old saying eventually. Yes, even your dreaded research assignment.



Learning *how* to research properly gives you a valuable skill for the rest of your life. Even if you never have to write another essay again, you'll continue to research one thing or another, most times without even realizing it. Your future research needs might include things like getting ready to buy a car, gathering information about

a potential employer, or deciding where to go on vacation. Consider buying a new mobile device for a moment. With all the choices available in contracts, data plans, and so on, things can get a bit overwhelming. To make an informed decision, you'll have to weigh all of your options. And believe it or not, this book will help you do just that. Or how about staying up-to-date on the latest musicians, movies, or trends? Well, that's a part-time job on its own, one that will undoubtedly benefit from your intimate knowledge of the research process.

This book shows you how to become a *research virtuoso*. The word *virtuoso* comes from the Latin word for *virtuous* and denotes someone with remarkable skill and integrity. What sets a research virtuoso apart from the average researcher is not only skill level but also the fact that the research virtuoso is excited about doing research. Although you might not see it now, with your assignment deadline looming, being *able* to do research is more than necessary and valuable—it's a privilege, and it's your chance to contribute to the creation of new knowledge.

It's easy to take the freedom to conduct research for granted. Using the words *research* and *freedom* in the same sentence might seem like an oxymoron, but these seemingly contradictory words actually form the core of what's called *academic freedom*. Academic freedom enables researchers to investigate unpopular and controversial topics without fear of getting in trouble. This type of independence is the cornerstone of academic communities—colleges and universities—around the world. Recognizing that you have the freedom to conduct research in the first place is a step along the road to becoming a research virtuoso.

Along with this freedom comes the responsibility to report your ideas and findings honestly and accurately. I'm talking about the big *P* here: *plagiarism*. Passing off someone else's work as your own can sometimes be an honest slipup, with your failure to acknowledge a source being nothing more than an innocent oversight. In these instances, poor planning and organizational skills are often the culprit.

The tips in this book will help you guard against plagiarism and give you the tools to uphold academic honesty. But wait . . . that's not all. This book will guide you in how to access source material effectively and efficiently. The ABCs of evaluating information will help you to become a critical consumer of information, and the checklists at the end of each section will help you to stay on top of what needs to get done. The Grab & Go pages are templates to use throughout your research process.

So what are you waiting for? Crack this book open and take pleasure in the journey because, before you know it, you'll have reached your destination and your research assignment will be pretty well mapped out. And you'll be on your way to reaching research virtuoso status!









## SECTION 1

# Getting Ready: Preparing Yourself for Research

## A Map for Digging Deeper

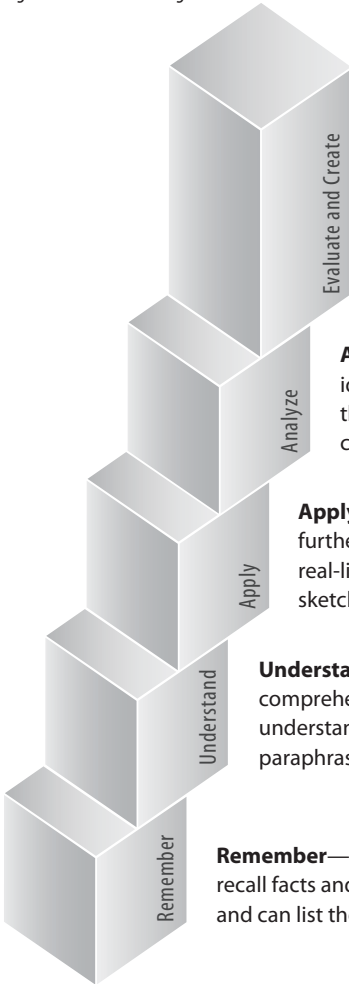
Whether you're preparing to go off to college or university or you're already there, you need to know that the expectations of a postsecondary environment are greater than what's expected of you in high school. With this in mind, you need to step up your academic game. Acquainting yourself with Bloom's Taxonomy can help you do just that.

In 1956, a famous educational psychologist named Benjamin Bloom wrote about the learning process as six different levels of achievement. The idea behind Bloom's Taxonomy—a structure that orders thinking skills into increasingly complex levels that build upon one another—is that critical thinking takes place at the higher levels. The taxonomy was slightly revised in the 1990s and continues to be used widely. Bloom's Taxonomy can be used as

- a framework to help you think about thinking and the research process in general
- a way to help you develop a focus for your research

## Climbing the Ladder: Breaking Down Bloom

*Higher-Order Thinking Skills*



**Evaluate** and **create**—seen as the highest-level skills. The order of evaluate and create (synthesize) was changed in the 1990s revision of Bloom's Taxonomy. Creating (synthesizing) means creating a product that is uniquely yours, producing new meanings or structures. Evaluating can mean reflecting on that end product to assess its value or assessing the value of another expression—for example, what you analyzed in the previous level. Evaluating involves valuing, judging, arguing, defending, and so on.

**Analyze**—means that you can take ideas and information apart, examine them critically, look at their structure, compare, contrast, and so on.

**Apply**—means taking the learning further by applying the learning in a real-life situation, demonstrating it, sketching it, and so on.

**Understand**—means that you comprehend facts and ideas; you understand their meaning in order to paraphrase or explain them, and so on.

**Remember**—means that you can recall facts and ideas from memory and can list them.

*Lower-Order Thinking Skills*

## Why Scratch When You Can Dig?

Research virtuosos dig deep into their subjects. In contrast, students who don't push themselves beyond the lower-order thinking skills of remembering and understanding merely scratch the surface of a subject. Postsecondary education challenges you to move beyond simple understanding and encourages you to develop strong critical thinking skills, nudging you along the scale of Bloom's Taxonomy as you go.



The key steps that follow will help you dig deeper in this stage of the research process. At the end of this section, we'll take a look at how checking Bloom's Taxonomy can help you make sure you are digging deep enough into your research assignment.

## First Step: Make Friends with Your Research Assignment

Believe it or not, your assignment sheet is a treasure trove of information!

**Understand what's being asked of you:** The University of North Carolina at Chapel Hill (UNC-CH) Writing Center recommends (and we agree!): read your assignment carefully as soon as you receive it, and ask for clarification about anything you don't understand. Consider the types of words used on the assignment sheet. Some common key words and their definitions are listed below.

- **Define:** Give the subject's meaning.
- **Explain:** Give reasons or examples of why something happened.
- **Compare:** Present similarities.
- **Contrast:** Present differences.
- **Assess:** Summarize how your subject measures up to a set of preestablished criteria—either your own criteria established for this purpose or those of an expert.
- **Analyze:** Break down the topic into its parts to understand the parts, how the parts relate to one another, what the topic means, and how it works.
- **Argue:** State a thesis or choose a side, and defend your position with arguments that support your view and dispute other views.

There are different types of research papers and essays, so make sure you understand which one you are expected to write. Here are some of the more popular types and examples for a single subject:

Types	Examples
Cause and effect	<ul style="list-style-type: none"> <li>• What effect has the U.S. Supreme Court's landmark <i>Roe v. Wade</i> decision had on the abortion debate in America?</li> </ul>
Compare and contrast	<ul style="list-style-type: none"> <li>• Compare and contrast the American and Canadian legal precedent(s) on abortion.</li> </ul>
Survey of current thinking	<ul style="list-style-type: none"> <li>• Summarize the current public debate over abortion.</li> </ul>
Position paper	<ul style="list-style-type: none"> <li>• Do you believe that abortion should be legal? Explain your position and provide support.</li> </ul>

## Research Paper or \_\_\_\_\_? Be Creative if You Can Swing It

Although the most-used means of disseminating research is a research paper, it's not the only game in town. Your assignment might allow for—or require—a different way of communicating your results. But before you settle on a particular format, remember to check the requirements of the assignment and even double-check with the person who assigned it.

This book will help guide you along the research process no matter what format of communication you use. And in Section 4, you'll find useful tips on putting together a presentation, as well as ideas about how to present your research in other formats.

## Discipline-Specific Writing

As you move further along in your postsecondary pursuits, you will be expected to specialize in one particular discipline. The research tasks faced by students in different disciplines can be vastly different, and each area of study comes with its own set of expectations. Take academic studies in English literature and history, for example:

- As an **English literature student**, you might be asked to critically evaluate two literary works and provide support from scholarly publications. In this case, your essay should attempt to persuade the reader that your perspective on those literary works is valid.
- As a **history student**, you might be asked to compare primary documents on a historical movement (with particular emphasis on one key figure) to historians' interpretation of these events as found in secondary sources.

Make sure you familiarize yourself with the expectations of your chosen discipline and clarify your assignment requirements.

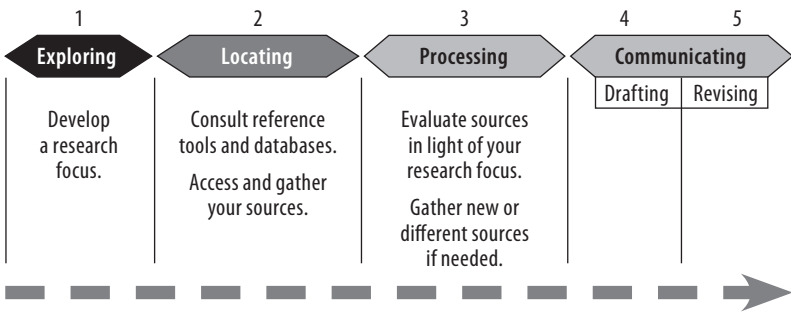
## Set Up a Research Plan

Developing a research plan will help to keep you focused throughout the research process and as you draft, revise, and finalize your results. Here are some tips:

1. **Understand the research process:** The time line illustration below is like a map for the journey ahead. However, here are some cautions:
  - Some parts of the research process (such as locating and processing information) take more time than others, so make sure you plan for this.

- The research process is rarely lockstep and linear. You will often find that stages in the process overlap. Also, you will find yourself moving back and forth between stages.

A research virtuoso establishes a time line for every project. The sections of this book loosely follow the time line laid out below.



- 2. Create a schedule:** Jot down all the things you need to do, along with deadlines for each, in an agenda or online calendar. Commit to specific days and times for completing the different stages of research.
- 3. Use checklists:** You will find a Get Organized Checklist at the end of each section, in the Grab & Go pages. These checklists will help you stay on top of what needs to get done along the way.

## Gather Your Thoughts

Like their hunter-gatherer counterparts, researchers have to both hunt (for specific pieces of information) and gather (their thoughts, that is). The end product may not be appetizing, but it sure as heck is satisfying.

When starting any research process, it's important to take the time to gather up your ideas and existing knowledge on the topic—in other words, brainstorm. This brainstorming stage will help you move on later to hunt for more information.

Let me introduce you to a well-known scientist and teacher who, by digging deeper, changed the world ... Mr. George Washington Carver!

The Latin name for cultivated peanuts is *Arachis hypogaea*. The peanut seed is an oil-storing seed. It contains only 3% water.



"Soil robbers" are crops that make the soil they grow in less potent and plentiful.



There are too many sharecroppers planting cotton here, in Alabama. Cotton crops are ruining the soil and the farmers' ability to make a decent living. Decades of cotton have starved Alabama farmers!

I will help empower these poor farmers by studying better crops

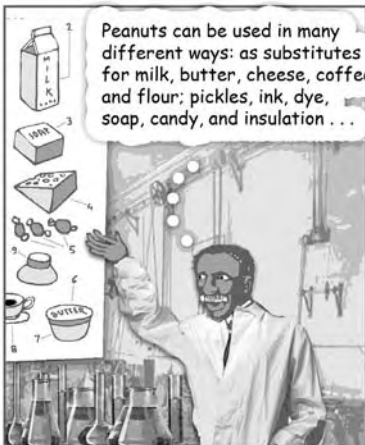


After taking peanuts apart and putting them back together again, studying them inside out, George Washington Carver reached a conclusion.

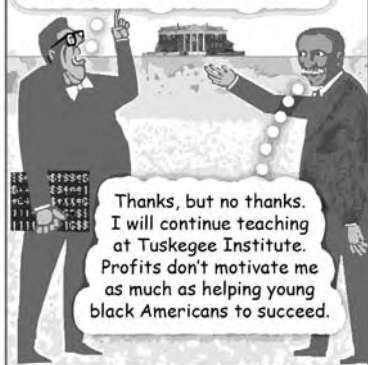
Forget cotton—plant peanuts! Peanuts are rich in vitamins and minerals, and the crop returns nutrients to the soil as it grows.



Peanuts can be used in many different ways: as substitutes for milk, butter, cheese, coffee, and flour; pickles, ink, dye, soap, candy, and insulation ...



Mr. Carver, your peanut research has helped to make you famous. Now we can help to make you rich!



Thanks, but no thanks. I will continue teaching at Tuskegee Institute. Profits don't motivate me as much as helping young black Americans to succeed.



## Get Organized Checklist: *Getting Ready*



- I understand Bloom's Taxonomy and will use it as a guide to dig deeper into my research in order to analyze, evaluate, and create.
- I have carefully checked the research assignment and other expectations to understand the assignment requirements.
- I understand the research process and have committed myself to a research plan.
- I have gathered my existing knowledge and ideas.
- I have developed a list of key words and synonyms to use when searching for information.
- I have developed my ideas using maps or other visual organizers.
- I have accessed the knowledge of others, including teachers and librarians.
- I have consulted some general reference sources.
- I have investigated the reference management tools available to me.
- I have developed a focus for my research.
- I have considered my audience.

## Key Word Bank



A research virtuoso does not rely on a single term or viewpoint to drive the research forward. A virtuoso builds a bank of related words and concepts to strengthen the search for information and access a deeper and broader pool of sources.

Look at **synonyms**, a **database thesaurus**, **subject headings**, **indexes**, **library catalogs**, and **abstracts** to generate a list.

Concept	Related Key Words
	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>
	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>
	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>
	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>

# Topic Brainstorm Web



Consider:  
Big Ideas

- 
- 
- 

Consider:  
Details

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- 
- 

Consider:  
Issues

- 
- 
- 



Consider:  
Events

- 
- 
- 

Consider:  
People

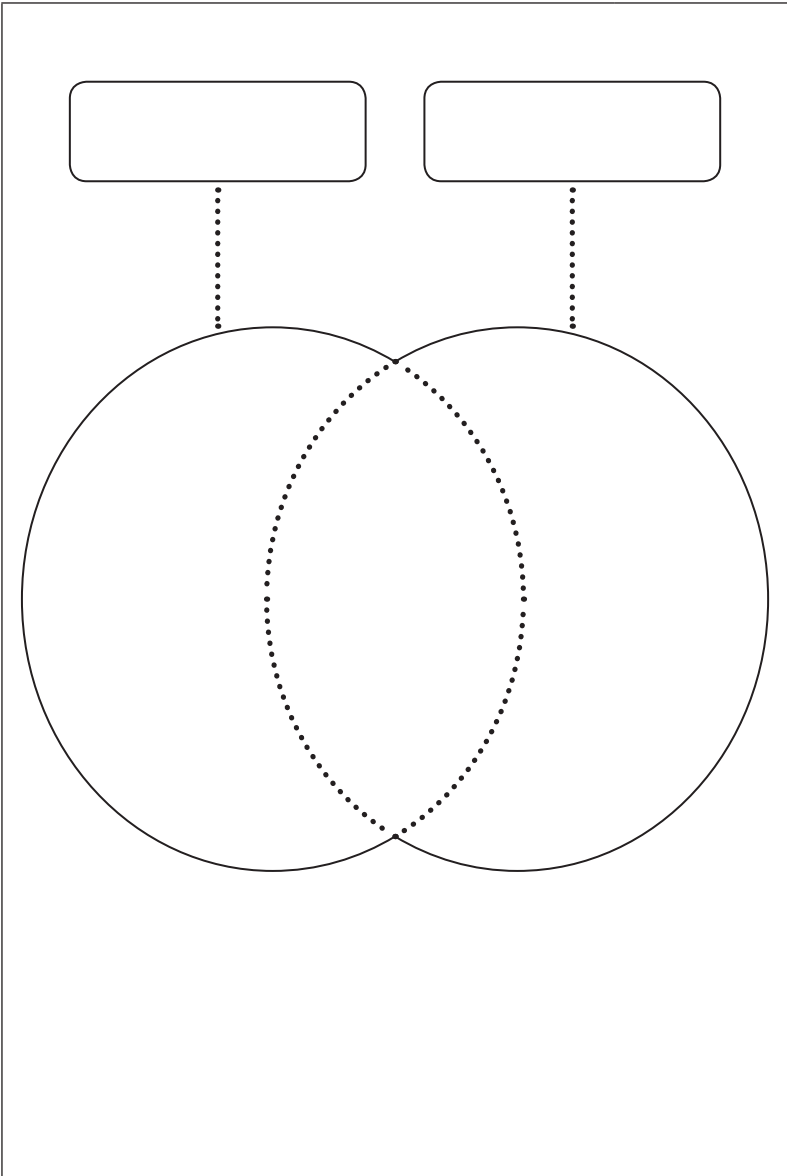
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Consider:  
Related Topics

- 
- 
- 

Adapted with permission, 2011, from *Think Literacy: Library Research*, 2005

Venn Diagram:  
*Compare & Contrast*



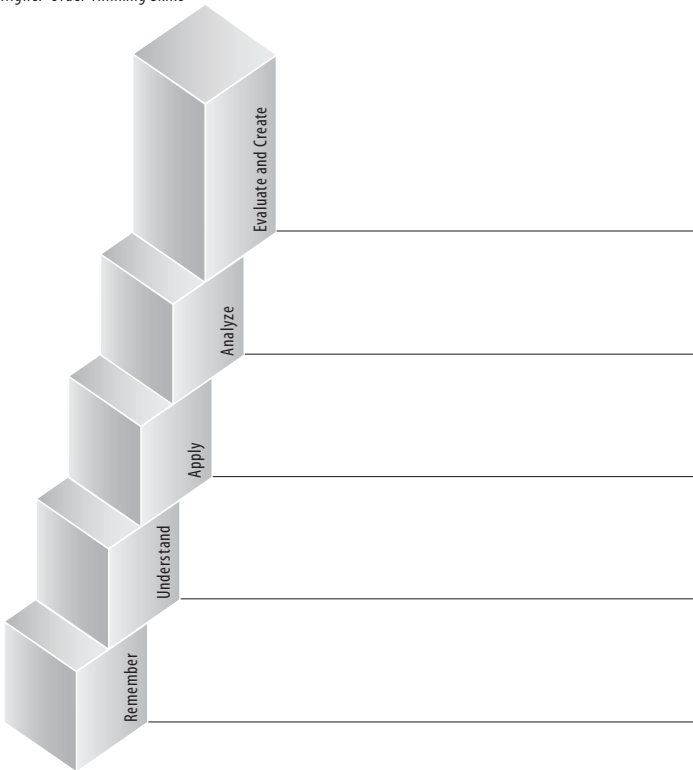
# Digging Deeper with Bloom's Taxonomy



Use this chart to create a research focus that digs deeper.

1. Once you have a research focus drafted, examine it to see what thinking it involves and how you could place the research focus on the chart below. For example, will the focus make you remember and recall? connect facts? compare? create an alternative approach? Write it on the chart.
2. How could you revise or add to your research focus using the higher-order thinking skills? Space has been provided below to allow you to jot down your ideas.

*Higher-Order Thinking Skills*



*Lower-Order Thinking Skills*