Designing Research Assignments that Enhance Research Skills

A reflective handbook for faculty in higher education

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A REFLECTIVE HANDBOOK FOR FACULTY IN HIGHER EDUCATION

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About this Book

Hi, I'm Kathleen. I have worked as an academic librarian at Sheridan College in Ontario, Canada for the past 13 years. In my role, I help International and domestic students find, evaluate, and use information sources ethically for their research assignments.

This handbook is the culmination of an 8-month sabbatical project to create an open educational resource that supports research assignment design at post-secondary institutions in Ontario.

How to Use this Book

As an open educational resource, you may access, share, or adapt the materials within this handbook for personal and educational purposes. Below are suggested methods, styles, or approaches to using this book.

Self-guided Activities

Read through the materials and complete the activities on your own, at your own pace. Use and modify the example text from chapter 4, Developing Assignment Instructions, for your own assessments. If you are working through the guide alone, I encourage you to take advantage of opportunities for working with colleagues or sharing your learning with your professional community.

Facilitated or Co-learning Approach

If you have the opportunity, completing and sharing the activities within a group setting or in partnership with a colleague can greatly enhance the learning experience. Not only will this deepen your learning and create a sense of accountability, but it can also provide a safe space to talk about your personal challenges developing effective research assignments as well as an opportunity to share first-hand experiences and effective solutions to common problems.

Experimenting & Collaborating

The best approach to really learning deeply about how to develop student research skills

through effective research assignment design is to experiment with the strategies provided throughout the handbook to discover what works best in your context. Seek out other instructors at your institution who are implementing creative, well-designed assignments who are willing to mentor you and share their strategies. And finally, reach out to librarians at your institution who are willing to work collaboratively on your plan.

Acknowledgements

This handbook was developed on land originally inhabited by the Haudenosaunee, Anishinaabe and Neutral peoples. As a second-generation Canadian from English-German heritage, I am grateful to be living and working here.

Drawing on the scholarly research and experiences of individuals from across Canada, the United States, and around the world, each study that informed this work brought its own unique context to bear on my understanding of the concepts discussed here. It's an honour to draw from and contribute to this rich body of literature.

I would like to thank all of the people who directly contributed to this handbook's development, including:

- Marian Traynor and Susan Shepley: thank you for giving me the opportunity to work on this project.
- The staff at the Learning Portal, a collaborative project of Ontario Colleges, who offered extensive feedback and support throughout the writing process.
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- Patricia Buckley who helped shape the approach to Indigenization.
- Jen Booth who helped put the finishing touches on the book and improved its accessibility.

Accessibility

The web version of *Designing Research Assignments that Enhance Research Skills* has been designed with accessibility in mind by incorporating the following features:

- Content has been optimized for people who use screen-reader technology.
    - all content can be navigated using a keyboard;
    - links, headings, and tables are formatted to work with screen readers;
    - images have alt tags.
- Information is not conveyed by colour alone.
- The option to increase font size (see tab on top right of screen).
- Use right and left arrows on your keyboard to navigate to next or previous pages.

This book is available in a number of file formats, including PDF, EPUB (for eReaders), and various editable files. Look for the “Download this book” drop-down menu on the cover page to select the file type you want.

Those using a print copy of this resource can find the URLs for any websites mentioned in this resource in the footnotes.

If you have any issues accessing this book, please contact me at: kathleen.oakey (at) sheridancollege.ca.

Why Read this Book?

Designing effective research assignments is challenging. Perhaps the biggest challenge is, in fact, ensuring that what students learn from a research project is what we wanted to teach them about research.

Table 1: What we want to teach vs. what students learn

What we want to teach	What students learn
Research is an iterative, creative, and exploratory process that often takes me in directions I did not expect.	Research is a tedious process of fulfilling a checklist of assignment requirements.
Research is an opportunity to expand my own knowledge, to interrogate my own assumptions and understanding, to think critically about information, and to synthesize information from a variety of sources.	Research is about finding answers or facts, particularly to support my own existing argument or opinion.
Research is challenging but doable.	Research is difficult and obscure.

Once negative misconceptions about research take hold, students can develop an internal response of anxiety or dread when presented with a research project, rather than motivation, excitement, or sense of curiosity.

How can we move students towards a more ideal view of research? This is the question I want to address in this book. And I think you'll find, as others have, that adjusting your approach to research assignment design can have a significant impact on how students envision research and themselves as researchers (Hardy et al., 2022, Conerton et al., 2023).

Research in the Age of Artificial Intelligence

In December 2022, The Atlantic rocked the academic community by publishing — in writing — what many academics were already contemplating: 'The College Essay is Dead'[1]. It wasn't the first time academics had suggested essay writing (the primary method for assessing writing, critical thinking, and research skills in post-secondary education) was passé. Despite its persistence, academics have been calling for more meaningful and authentic assessments for years.

However, what was different about The Atlantic's article, I think, was the unspoken assumption that perhaps writing in general — and research skills by extension — may no longer have any value in the society of the future. With the advent of generative artificial intelligence (GenAI) and the eerily human-like eloquence with which a digital tool could generate large amounts of text in a seemingly endless choice of styles, could we maybe begin to envision a world where the menial and time-consuming tasks of writing and researching will be outsourced to a machine? Perhaps.

And yet, when we look to the past, promising publishing and information-sharing technological innovations have often produced new challenges to frustrate the possibility of doing away with the teaching and learning of writing and research skills, and ChatGPT has been no exception. In many ways, these innovations and social disruptions have simply served to demonstrate the increasingly complex information landscape in which we navigate. For example, consider the following dilemmas:

The Internet & Information Overload

> For example, Nicolas Carr's famous 2008 article in *The Atlantic*, "Is Google making us stupid"[2] and Clay Shirky's response in his Web 2.0 keynote address, "It's not information overload. It's filter failure"[3].

Social Media, Personalized Algorithms & the Filter Bubble

> For example, Kartik Hosanger's 2016 opinion piece in *Wired*, "Blame the echo chamber on Facebook. But blame yourself, too"[4] and Julia Kamin's *Vox* article, "Contrary to what you've heard, Facebook can help puncture our political "bubbles"[5]

ChatGPT & Hallucinatory Facts

> For example, Cade Metz's 2023 article in *The New York Times*, "Chatbots may 'hallucinate' more often than many realize."[6]

While the extent of these challenges continue to be debated and these technologies continue to advance and improve, it is clear that rather than removing the need for good research or writing skills, these technologies have, more often than not, highlighted why we need, more than ever, to teach students how to critically engage with source materials, effectively express their own unique voice, and understand the value and power given to those who can harness information effectively.

As Stephen Marche asserts in that same article in The Atlantic: "In a tech-centered world, language matters, voice and style matter, the study of eloquence matters, history matters, ethical systems matter" (para. 10).

Preparing Students for the Future of Work

According to the latest *Future of Jobs Report 2023*[7] by the World Economic Forum, the cognitive skills growing in importance over the next 5 years include creative thinking, analytical thinking, technology literacy, and self-efficacy. In addition, the socio-emotional attitudes growing in importance most quickly include "curiosity and lifelong learning; resilience, flexibility and agility; and motivation and self-awareness" (p. 7).

Doesn't a well-designed research assignment offer an excellent opportunity for students to develop all of these skills and attitudes?

If you still value the learning opportunity that research assignments promise while seeking to ensure your assignments truly foster deep critical thinking, clear self-expression, infinite curiosity, and life-long learning skills that will equip students to thrive and stand out in their future careers, then this handbook is for you.

Notes

1. The College Essay is Dead [Article]: https://www.theatlantic.com/technology/archive/2022/12/chatgpt-ai-writing-college-student-essays/672371/
2. Is Google Making Us Stupid [Article]: https://www.theatlantic.com/magazine/archive/2008/07/is-google-making-us-stupid/306868/
3. It's not Information Overload. It's Filter Failure [Article]: https://youtu.be/LabqeJEOQyI?si=GJc-nLj5z7dzylZE-

4. Blame the Echo Chamber on Facebook. But Blame Yourself, Too [Article]: https://www.wired.com/2016/11/facebook-echo-chamber/
5. Contrary to What You've Heard, Facebook Can Help Puncture Our Political Bubbles [Article]: https://www.vox.com/the-big-idea/2016/12/28/14095452/fake-news-political-bubbles-democracy-facebook
6. Chatbost May 'Hallucinate' More Often then many Realize [Article]: https://www.nytimes.com/2023/11/06/technology/chatbots-hallucination-rates.html
7. Future of Jobs Report 2023: https://www.weforum.org/publications/the-future-of-jobs-report-2023

1. UNDERSTANDING RESEARCH SKILLS

In this chapter, we'll identify information literacy as a framework for thinking about research skills, discuss the importance of viewing information literacy as an overarching framework for inter-related literacies, such as digital and media literacy, and begin to consider how research assignments can address information literacy development.

What are Research Skills?

Before we can teach research skills to students, we need to have a clear idea of what research skills are. But of course, to understand what we mean by 'research skills', we first need to wrestle with what we mean by 'research' itself.

What do you think of when you hear the term 'research'?

- 'Googling' symptoms or medical treatments you or a family member are experiencing?
- Comparing vehicle specifications to help you determine which vehicle to purchase?
- Conducting a S.W.O.T. analysis for a business plan?
- Administering a lab experiment?
- Designing surveys and then analyzing the responses?
- Receiving the teachings of an Indigenous elder or traditional knowledge keeper?
- Compiling and analyzing qualitative or quantitative data?
- All of the above?
- None of the above?

We engage in many types of research every day – each within specific contexts and with unique goals and strategies.

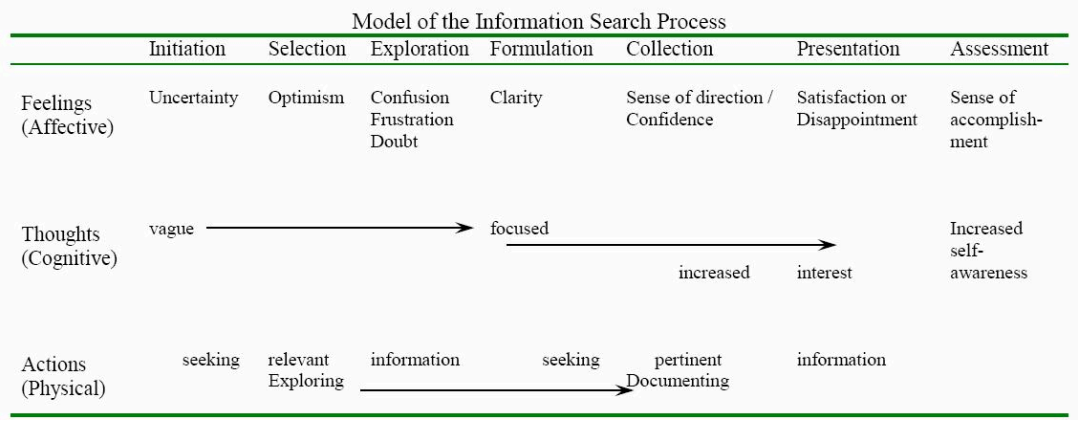
In this guide, we'll use the term 'research' to refer specifically to source-based research activities for academic purposes. In other words, the type of research required to complete typical research assignments or research projects offered in a post-secondary course of study.

Searching for Information

Research assignments are a unique type of assessment that requires students to find, select, and synthesize information from a variety of sources. The required information can come in many formats (e.g., oral, print, digital) and from a variety of different types of sources (e.g., webpages, magazine or newspaper articles, books, multi-media presentations, images, elders or knowledge keepers, scholarly journals).

The Information Search Process (ISP), developed and refined by Carol Kuhlthau over two decades of empirical studies, provides a helpful model for understanding the experiences and competencies required for this type of assessment. According to ISP, information seeking takes place over six stages: task initiation, selection, exploration, focus formulation, collection, and presentation. As shown in the figure below, the ISP incorporates three domains of experience: the affective (feelings) the cognitive (thoughts) and the physical (actions).

Figure 1: Model of the Information Search Process



NOTE: The *Model of the Information Search Process* by Carol C. Kuhlthau. Rutgers School of Communication and Information, (n.d.). http://wp.comminfo.rutgers.edu/ckuhlthau/information-search-process

As students move from exploring to documenting the information, they experience uncertainty, optimism, then confusion, frustration, and doubt, before gaining clarity and a sense of direction and confidence. While their thoughts begin as vague, they become more focused and develop increased interest in the information as the search

progresses. The completion of the activity generally elicits a sense of accomplishment and increased self-awareness.

While this model might suggest that research is a linear process, in practice returning to previous stages before progressing further in the process is commonly required.

Problematizing Research Competencies

In some ways, a simple list of research tasks as described above can obscure the complexity of these tasks and the complexity of the information landscape students must navigate within in order to complete a research activity.

Let's take the initiation stage as a simple example. Identifying a research need or research topic can often be a very difficult task in this stage of the ISP. Consider what students need to know to formulate a research-able topic. For example, students would need to:

- Have sufficient disciplinary knowledge to identify their own gaps in knowledge, understand the depth of research in the field, or draw new connections between core concepts.
- Understand what type of evidence is required to make sound conclusions, whether such evidence would likely be available for the topic, and where one might find such evidence.
- Know how to write questions with clarity and precision of language to help guide the research project effectively.
- Know how to explore background information to test out different topics and refine the research question and thesis.

You get the point. Behind each task for any given research activity is a longer list of competencies and knowledge practices required to be successful, often involving a sophisticated understanding of information, how it is produced and shared and by whom.

These complex research competencies and knowledge practices are often studied under the field of **information literacy**.

What is Information Literacy?

Like the concept of research, information literacy can be challenging to define. Eva & MacKay (2019) offer a useful summary:

> Information literacy has been defined in many ways, but most educators and librarians would agree that it is a **foundational set of skills** and **habits of mind** that enable someone to find, evaluate, and use information ethically to address particular needs and to create new knowledge. It is a broad concept enabling people to **use information effectively** but also to **think critically** about the information enterprise and our information society. And in this society, it has become a basic literacy – a foundational skill as much as reading literacy, numeracy, or other skills which underlie all disciplines and subject areas. (p. 229, emphasis added)

To develop information literacy, therefore, we need to address 3 essential domains:
Conceptual Understandings
e.g., information has value
Habits of Mind or Dispositions
e.g., respecting the original ideas of others
Skills or Practices
e.g., applying the rules of a citation style

Information Literacy Models

Over the past 40 years, a variety of models have been developed to help us frame our understanding of information literacy. Table 1 outlines the most prominent models published since 2010.

Table 1: Information Literacy Models Published Since 2010

Author	Title	Structure
Association of College and Research Libraries [ACRL]	Framework for Information Literacy for Higher Education[1]	6 frames, with between six and eight knowledge practices, and four and nine dispositions.
Trudi Jacobson and Tom Mackey	Metaliteracy[2]	4 goals each with between seven and ten behavioural, cognitive, affective and metacognitive learning objectives.
Association of American Colleges and Universities [AACU]	Information Literacy VALUE Rubric[3]	5 learning outcomes, each with four progressive performance descriptors.
Jane Secker and Emma Coonan	A New Curriculum for Information Literacy (ANCIL)[4]	10 strands, split into two to four subthemes, each with between two and four learning outcomes.
Society of College, National and University Libraries [SCONUL]	The SCONUL Seven Pillars of Information Literacy[5]	7 pillars, with between four and ten attitudes and behaviours (understandings) and five and nine skills and competencies (abilities).

NOTE: Adapted from Characteristics and origins of English-language models of information literacy in higher education published since 2010 by Hicks & Lloyd, 2023.

The ACRL Framework

The ACRL Framework, the most widely adopted model, articulates six inter-related threshold concepts that are particularly troublesome for students to adopt and integrate into their own research practices but once grasped can dramatically transform their approach to finding, evaluating, and integrating information in their work. These six frames include:

Authority is Constructed and Contextual

Experts understand that authority is dependent on:

- the **consensus** of a community or discipline, where biases exist that privilege some sources of authority over others.
- the **credibility** of the author or creator, which is typically grounded in

subject expertise (e.g., scholarship), societal position (e.g., public office or title), or special experience (e.g., participating in an historical event).

- the **information need**, or how the information will be used.

Understanding this concept helps students "critically examine all evidence—be it a short blog post or a peer-reviewed conference proceeding— and ask relevant questions about origins, context, and suitability for the current information need" (ACRL, 2016, p. 12).

Information Creation as a Process

Experts understand that the unique capabilities and constraints of the creation process of an information product or format impacts the message conveyed by the information and how the information is valued within different communities and for different use purposes.

Understanding this concept helps learners "recognize the significance of the creation process, leading them to increasingly sophisticated choices when matching information products with their information needs" (ACRL, 2016, p. 14).

Information has Value

Experts understand that information is valued for personal, social, or financial purposes and may be wielded within a variety of contexts in ways that disadvantage particular groups and privilege others. Because it is valuable, a variety of factors (e.g. political, economic, or legal) may constrain or influence the creation, access, distribution, and use of information.

Understanding this concept helps learners "understand their rights and responsibilities when participating in a community of scholarship" (ACRL, 2016, p. 16).

Research as Inquiry

Experts understand that research is an iterative and often collaborative process of asking questions to solve problems for personal, professional, or societal needs. Asking questions plays a central role at every stage of the

research process – from defining a research problem, to selecting and analyzing sources, to constructing conclusions.

Understanding this concept helps learners "acquire strategic perspectives on inquiry and a greater repertoire of investigative methods" (ACRL, 2016, p. 18).

Scholarship as Conversation

Experts understand that scholarly work contributes to an ongoing discussion within their discipline where new ideas are often contested and debated. Experts seek out competing perspectives within their own discipline and others, understanding that there may not be one single uncontested perspective, and engage with scholars in the conversation through citations.

Understanding this concept helps learners "seek out conversations taking place in their research area" and "see themselves as contributors to scholarship rather than only consumers of it" (ACRL, 2016, p. 21).

Searching as Strategic Exploration

Experts understand that searching is a complex endeavour that requires flexibility and creativity. Searchers benefit from extensive knowledge of information sources, tools, and search strategies gained through experience and exposure to diverse information sources.

Understanding this concept helps learners "search more broadly and deeply to determine the most appropriate information within the project scope" (ACRL, 2016, p. 22).

Exploring these core concepts can help students approach their research projects in more productive and effective ways as they begin to interact with information sources with a deeper understanding of their purpose, utility, and constraints.

A Life-long Pursuit

The dynamic nature of information creation and the rapid pace of technological development means that information literacy is a life-long pursuit where individuals must learn to apply concepts in new ways in new contexts as the information landscape evolves.

Notes

1. Framework for Information Literacy for Higher Education: https://www.ala.org/acrl/standards/ilframework
2. Metaliteracy: https://metaliteracy.org/learning-objectives/2018-metaliteracy-goals-and-learning-objectives/
3. Information Litearcy VALUE Rubric: https://www.aacu.org/initiatives/value-initiative/value-rubrics/value-rubrics-information-literacy
4. A New CUrriculum for Information Literacy (ANCIL): https://api.repository.cam.ac.uk/server/api/core/bitstreams/9038a411-20ea-4ece-b777-fb08ab255c3f/content
5. The SCHONUL Seven Pillars of Information Literacy: https://access.sconul.ac.uk/page/seven-pillars-of-information-literacy

Information Literacy and Interconnected Literacies

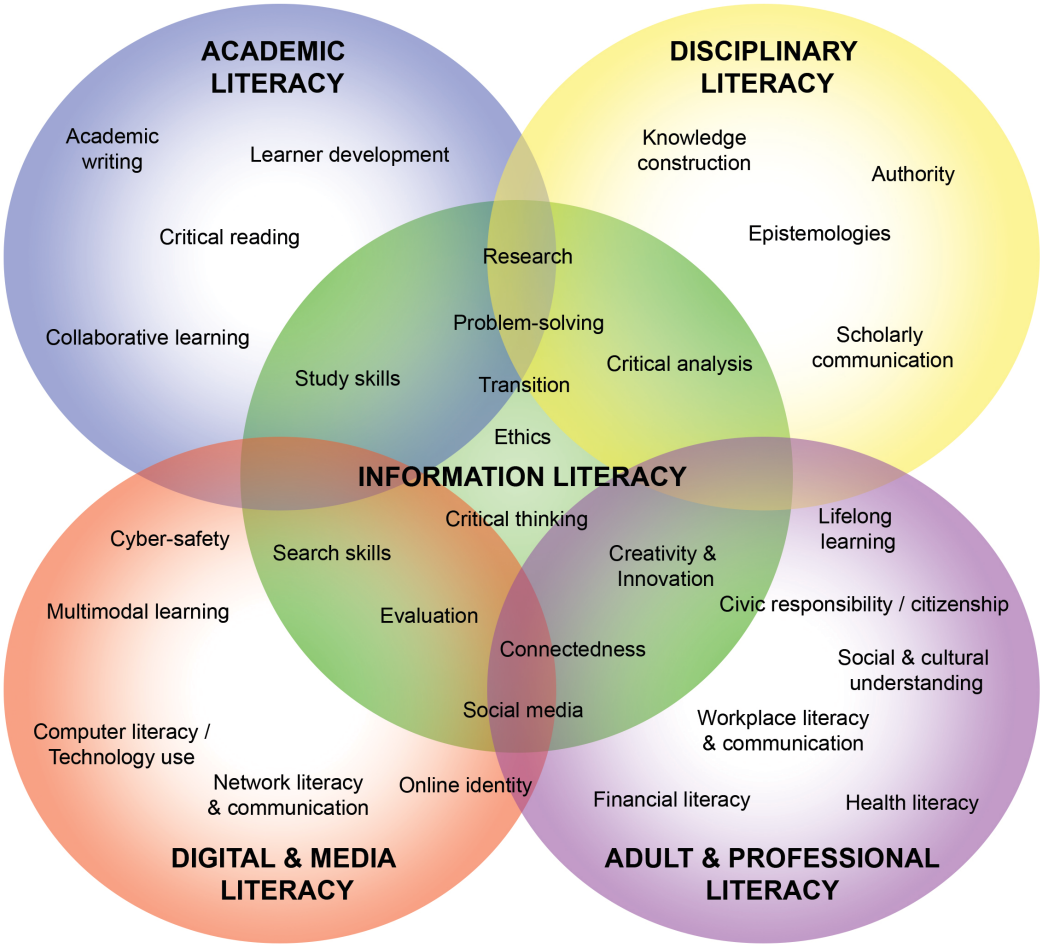
The complex information systems through which information is made available through oral, print, and digital mediums, means that information literacy is inextricably intertwined with a variety of related literacies, such as digital literacy, media literacy, visual literacy, and others.

For example, many of the knowledge practices and dispositions identified in ACRL's Framework require an understanding of the implications and effective use of digital tools to support research activities (Burns et al., 2023). And likewise, information literacy forms a key component of modern digital literacy frameworks (e.g., UNESCO's A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2 [PDF])[1].

In 2011, MacKay and Jacobson proposed that "the emergence of social media and collaborative online communities requires a reframing of information literacy as a metaliteracy that supports multiple literacy types" (p. 52). They demonstrated how media literacy, digital literacy, visual literacy, cyberliteracy, and information fluency are inextricably connected.

In a post-secondary educational context, the Feekery Information Literacy Model[2], developed by a team of educators across New Zealand and depicted in Figure 2, visually represents how post-secondary literacies such as academic literacy, disciplinary literacy, digital and media literacy, adult and professional literacy all interconnect with information literacy in important and meaningful ways.

Figure 2: The Feekery Information Literacy Model



NOTE: From *The Feekery Information Literacy Model* [Graph], by Dr. Angela Feekery, 2017. https://informationliteracyspaces.wordpress.com/2017/05/04/the-feekery-information-literacy-model

In other words, research assignments that support information literacy require a wide variety of literacies essential for fostering thoughtful, critical, and reflective life-long learners.

Notes

1. UNESCO's Digital Literacy Framework: https://uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf
2. The Feekery Information Literacy Model: https://informationliteracyspaces.wordpress.com/2017/05/04/the-feekery-information-literacy-model/

Information Literacy and Indigenous Ways of Knowing

The relationship between information literacy and Indigenous ways of knowing is a relatively new but growing area of inquiry. Developed within capitalist, colonial, Euro-centric values and knowledge systems that often clash with Indigenous ways of knowing and being, research assignments and information literacy instruction have historically privileged written and published knowledge over oral traditions, and individual ownership of words and ideas over community-based, shared knowledge. This type of cultural bias in assessment practices can have a variety of negative impacts on Indigenous students (William & Perrone, 2018).

The importance of Indigenizing research and assessment practices merits special attention as we consider how to develop students' research skills. Calls to Action 10 (iii) and 63 (iii) from Canada's *Truth and Reconciliation Commission* ask us to "develop culturally appropriate curricula" and to "build student capacity for intercultural understanding, empathy and mutual respect". To begin this work, your research assignment and information literacy instruction can be enhanced by:

1. Reflecting on your own positionality and how colonial systems have influenced your perspective.
2. Investigating culturally relevant methodologies for demonstrating student learning.
3. Developing research topics that respect and engage diverse ways of knowing.
4. Expanding your definition of appropriate types of sources.
5. Consulting with local Indigenous faculty and curriculum specialists to explore Indigenous Worldviews relevant to your discipline and taking a Two-Eyed Seeing approach to your assignment design (e.g., Two-eyed seeing in Nova Scotia[1]).

Allen et al. (2018) acknowledge that the difficult and emotional work of Indigenization necessitates humility:

> The work of Indigenizing post-secondary education requires accepting that there are ways of holding and sharing knowledge and learning and engaging all parts of the human being (spiritual, intellectual, emotional, physical), thus moving beyond seeking a singular right answer. The complexity of Indigenization is realizing that there are multiple truths and no single clear answer; so as educators, we need to trust the unlearning and relearning process and be humble while engaging in the process. (Section 1, Holding Space and Humility section)

A commitment to interrogating assumptions and bias prevalent in current academic practices generally and information literacy learning specifically is the starting place for making meaningful change.

Notes

1. Two-eyed seeing in Nova Scotia: https://www.cbc.ca/news/canada/nova-scotia/two-eyed-seeing-doc-1.6304574

Teaching Information Literacy

Taking all of these dynamics into consideration, how do we move students beyond viewing source-based research as a tedious exercise or mere formality in the writing process and towards viewing it as an iterative, creative, and exploratory process central to critical thinking, enabling us to expand our perspectives and question our assumptions? How do we ensure we are teaching students to critically engage with source materials (whether oral, print, or digital), to employ search tools effectively, to select appropriate sources for the research inquiry, to recognize the power dynamics animating information creation, distribution, and access, and to synthesize and use information in an effective and ethical manner?

The strategies identified in this handbook focus on the class discussions and activities, the design or structure of research-based assessments, and the assignment instruction sheets you develop for your course. Each of these elements, working together, can have a significant impact on how students understand and relate to research and information sources.

While you are not required to cover every concept in your course — in fact,***no single lesson or project can cover everything students need to learn —*** by focusing your assignments, big or small, on specific research practices and information literacy concepts, you can help students put together a piece of the puzzle. Inserting opportunities for thoughtful, repeated exposure to increasingly complex research activities throughout each program of study may be the most effective way to develop competent, well-rounded researchers equipped to employ effective and ethical research practices across academic, professional, and personal domains.

Taking a collaborative approach with librarians at your institution can help support your efforts. Librarians have specialized expertise in teaching and applying information literacy practices in a variety of contexts. They often offer custom services to support student learning, including consultations with faculty to discuss research assignments, in-class synchronous workshops, asynchronous learning materials and activities, student consultations, and more.

Learn More

To learn more about information literacy, explore:

Teaching information literacy: Beyond basic research skills[1]
Hosier, A., Bobish, G., Hackstadt, A., Holden, I., Jacobson, T., O'Brien, K., & Seaman, P. University at Albany, SUNY. https://sites.google.com/view/teachinginfolit/home

Indigenous information literacy[2]
Chong, R. (2022). Kwantlen Polytechnic University. https://kpu.pressbooks.pub/indigenousinformationliteracy

Project Information Literacy[3]
A nonprofit research institute that conducts national, ongoing studies on how adults find and use information as they progress through, and beyond, their higher education years and throughout adulthood.

Notes

1. Teaching Information Literacy: https://sites.google.com/view/teachinginfolit/home
2. Indigenous information literacy: https://kpu.pressbooks.pub/indigenousinformationliteracy
3. Project Information Literacy: https://projectinfolit.org

Activity

In this activity, you will examine a research task that students often find challenging and explore methods for addressing the challenge.

1. Read Bottlenecks of Information Literacy[1] by Joan Middendorf and Andrea Baer.
2. Share your ideas and experiences addressing “research as inquiry” in the Padlet below:

Share your thoughts

Open Padlet[2]

Notes

1. Bottlenecks of Information Literacy: https://rdw.rowan.edu/lib_scholarship/15/
2. Open Padlet: https://padlet.com/koakey/how-do-you-foster-research-as-inquiry-8h1tij0zvf63xc4v

Reflection

Take a moment to reflect

1. How do you think research practices have changed for students over the past 10 years? In what ways has technology made it easier? In what ways has technology made it more difficult?
2. How well do you think your students find, analyse, produce, and share information in their personal lives? In their academic work? What hinders or helps them?
3. How do students benefit from research activities in your course or program?
4. What information literacy concepts do you still struggle with understanding or explaining? What would you like to learn more about?

2. STUDENTS AS LEARNERS

In this chapter, we'll examine research assignments as situated learning experiences and begin to develop a list of key pedagogical considerations when teaching research skills. Each section includes a fictional case study following two fictional characters, highlighting common student experiences throughout the research process.

Forging an Academic Journey

Students experience research assignments within the context of a larger academic journey. It's crucial for them to recognize how the research project you assign extends their learning from past courses and contributes to their future goals. As you design your assessment, consider the course learning outcomes, program level, and unique characteristics of the discipline to ensure your assessment is relevant, meaningful, builds on previous research activities, and prepares students for future research experiences.

Case Study: Monisha

Monisha is in the second semester of the Makeup for Media and Creative Arts program. Thus far, she is loving her studies. Her father works in the film industry and she has grown up visiting sets and chatting with people who work in the industry. While she feels like she knows a lot about makeup and costume design, she is realizing there's so much more to learn. After graduation, she hopes to work for theatre companies across Canada and the United States.

This semester, she's really excited about a course she's taking called Era & Period Hair Design where she is tasked with replicating a hairstyle from the Roaring 20's. This is exactly the type of work she hopes to do after graduation. As part of the assignment, she must:

- Conduct research into the Roaring 20s in the context of hair styling applications.
- Effectively apply techniques for styling hair suitable to era applications.
- Determine the appropriate product required to replicate a period hairstyle.

She's excited to get started.

Question: What makes this assignment so engaging for Monisha?

Case Study: Aydin

Aydin is in the first semester of a Chemical Engineering Technology program. He hopes to one day work in a quality control lab for a food processing plant. He has a few relatives who work in the industry and he did well in science and math courses in high school.

For his general elective this semester, Aydin chose a sociology course called Innovation: Shaping the Modern World. Aydin isn't sure he is an innovator, or that he'll have much opportunity to innovate in his future career. But the course fit his time schedule and one of his friends was taking it, so he added it to his schedule. For the final project of the course, Aydin must find information about a modern innovation of his choice and draw connections between the development of the innovation and course concepts.

Aydin already knows what he's going to research: the development of industrial food preservation. However, the final project is supposed to be a written essay, and writing essays is his least favourite task. In fact, the lack of writing requirements was one of the reasons he chose the chemical engineering technology program. Plus, the last research paper he had to write was at least 3 years ago. He's already dreading getting started.

Question: What makes this assignment challenging for Aydin? How might the instructor address these challenges?

Strategies for Success

- Align the learning outcomes of the assignment with the stated learning outcomes of the course and program.
- Consider how the assignment will fit within the program as a whole. What past research experiences have students had? What future experiences will be offered? What gaps exist?
- Use every research project as an opportunity to develop authentic skills used by

researchers and practitioners in the discipline.

Developing an Identity as a Researcher

Students often struggle with seeing themselves as researchers. However, as Purdy & Walker (2013) state, "the construction of a powerful, directed research identity is necessary for students to engage in learning about and making knowledge in both academic and nonacademic environments" (p. 10).

How students understand research impacts how they see themselves as researchers. And how students see themselves as researchers can impact their confidence in completing assignments well. Feeling unsure of their own ability to complete an assignment can lead to anxiety and fear when presented with a research project. Messages students receive about their research practices, or what constitutes good or poor research practices, can significantly affect their identity as a researcher.

Case Study: Monisha

When Monisha started her program, she felt she had excellent skills as a researcher. Often, her friends would come to her for help with looking up information on Google. However, in the Essentials of Communication course last semester, she realized there was more to research than she thought. While she still feels fairly confident in her abilities to find and evaluate sources, she's begun to recognize that different contexts sometimes require specialized knowledge or advanced strategies. She's beginning to recognize that asking other knowledgeable, more experienced people can be helpful.

Q: How could the instructor encourage Monisha to continue to develop her identity as a researcher?

Case Study: Aydin

Aydin really does not like doing research projects. He'd much prefer the profes-

sor just give him the required content. Going out and finding information, trying to sift through the results to find relevant articles… it's all just so tedious. He identifies as a digital native and feels very confident navigating online, but the types of sources required by his instructor are difficult to read and boring. It takes forever just to find something relevant to the topic.

Q: How could the instructor encourage Aydin to value the difficult process of research and strengthen his identity as a researcher?

Strategies for Success

- Discuss what it means to be a researcher.
- Provide opportunities for students to reflect on their identity as a researcher, both academically and in their everyday lives.
- In your assignment instructions, convey confidence in students' abilities, and use language that reinforces the view of students as researchers.
- Avoid discouraging students with overly complicated or challenging tasks:
    - Test out new assignments before assigning them to students.
    - Consult with a librarian.
    - Provide guidance and support throughout the process.
- Encourage students to make connections between their non-academic research strategies and academic research strategies.
- Provide opportunities for students to promote their work as research products (e.g. displaying poster boards on campus, uploading work to institutional repositories, etc.).
- Invite colleagues to share their own research projects and activities with students in order to demystify research practices and to inspire students to identify their own research interests.

Building on Prior Knowledge and Understanding

You play a critical role in drawing out the knowledge practices and conceptual understandings about research that students already possess as they enter your course, helping them transfer their previous knowledge into new contexts, and building on what they've already learned. Acknowledging students' prior knowledge and understanding can help reinforce their identity as a researcher and increase their expectation that they can successfully complete the assignment.

Key factors that can impact students' prior knowledge and understanding of research and information literacy practices include their:

Previous academic experience

For example, students entering your institution from other school systems that lack exposure to academic resources and experiences due to a lack of school funding, a lack of parental support, or difficult life circumstances, have extra challenges as they try to catch up to those with more recent or robust exposure.

Groups that may be disproportionately negatively affected include first-generation students, students from underprivileged school boards (e.g. northern Indigenous communities, rural communities, racialized communities), and mature students.

Cultural context

For example, students from other cultural contexts may have extra challenges as they try to make sense of how information is organized and valued within another culture. In some cases, they may be unlearning what they had previously learned in order to meet the assignment expectations.

Groups that may be disproportionately negatively affected include International and Indigenous students.

Familiarity with disciplinary and academic language

In particular, students with language barriers are at a significant disadvantage as they must identify effective keywords in academic language and sift through hundreds of results using advanced vocabulary to identify relevant articles and analyze lengthy texts – tasks that can be challenging for students with advanced English language proficiency.

Case Study: Monisha

While her program hasn't been research intensive, the course readings from her first semester have helped Monisha feel more comfortable with discourse from the field. She also had an opportunity last semester to conduct research in the Essentials of Communication course. Her topic for that project, however, was about parental controls on social media. She quickly realizes that the research required by the Makeup for Media and Creative Arts project is a little different from what she's used to. She's not sure what types of sources would be considered authoritative in this case or where they would be found.

Q: How could the instructor help Monisha transfer her previous knowledge about research strategies to this new context?

Case Study: Aydin

Since Aydin is in his first semester, he hasn't conducted academic research since high school. All he remembers is that he shouldn't use Wikipedia. While he spends a fair amount of time looking up information on Google or Microsoft's AI tool, Copilot, the assignment for the Innovation: Shaping the Modern World course explicitly states that use of these tools is not permitted. Instead, he must use library resources only. But after an initial search of the library, he feels lost and confused.

Q: How could the instructor help Aydin build on his existing knowledge about conducting research and apply it to this new context?

Strategies for Success

- Use class discussions, discussion boards, or small groups to draw out student knowledge about information literacy practices before or during the research project.
- Provide opportunities for students to share with their peers their approach to the research project, solutions to research problems they encountered, or favourite research tools and resources they discovered.
- Develop formative activities (or invite a librarian to lead a workshop) so students can practice skills like identifying sources, using library databases, reading academic articles, etc. (See Teaching Troublesome Tasks under chapter 3).

Becoming Experts

As novice members of the academic community, students often lack insider knowledge about research practices and information sources in their disciplinary context, which can hinder their ability to meet faculty (expert) expectations regarding research assignments. As situated learning opportunities, research assignments require institutional and information literacy knowledge that experts in the field take for granted but which are not often obvious to learners as novice members of the community (Folk, 2021). Connecting students with expertise within the institution, therefore, is key to supporting student learning.

Case Study: Monisha

In the Essentials of Communication course last semester a librarian provided a really helpful workshop on searching the library. However, Monisha is shy, and besides, she's not sure that library staff can help her with this assignment. She is confident she can figure out where to find the information she needs on her own.

Q: How could the instructor encourage Monisha to access the support services available to her?

Case Study: Aydin

Aydin has only ever visited the library for a comfortable and quiet place to study or hang out with friends. The library staff always seem friendly, but busy checking books in and out. He has booked appointments with tutors for help with some of the chemistry content. In fact, a tutor was available for study sessions in one of his more difficult courses. But he didn't think they could help with a research project. He needed to figure this out on his own.

Q: How could the instructor introduce Aydin to helpful support services at the institution?

Strategies for Success

- Provide multiple opportunities for feedback and dialogue regarding student progress.
- Invite experts from a variety of departments across the institution into your classroom, such as librarians, tutors, or other support specialists to lead an activity or presentation related to the assignment and their area of expertise.
- Provide links to support services (e.g., tutoring, learning or writing centres, library services, accessibility services, etc.) on the assignment instruction sheet.
- Invite previous students to share what they learned about research through completing the assignment, either in person or through a recording.

Navigating Affect and Competing Obligations

Indigenous communities have long recognized the necessity for an education that addresses not just the intellectual sphere, but the emotional, as well as the physical and spiritual dimensions of learning. Research tasks, in particular, can elicit a variety of responses from students as they progress through the research process.

In a study of 180 students at a technical community college, Mabee & Fancher (2020) connected affective states experienced during research activities to cognitive functioning. Their study confirmed previous studies where research projects elicited a variety of affective states, such as frustration, overwhelm, anxiety, guilt/shame, passion/excitement, connection/solidarity, awe/amazement, anger/sadness, pragmatism, and empowerment. They conclude that "it is clear that our students have complex lives with competing responsibilities and demands on their time and that research, especially research for academic purposes, tends to produce an array of positive and negative emotions that can, at times, interfere with cognitive functioning" (p. 497).

In other words, adopting a pedagogy of care by addressing the affective experiences and recognizing the competing social obligations students navigate as they complete large academic assignments is an important component of teaching students how to research effectively.

Case Study: Monisha

Monisha initially begins her research with enthusiasm. However, as she continues searching, she quickly becomes discouraged, realizing that finding helpful articles will be more difficult than she anticipated. In addition, as the weeks progress, pressure begins to mount as tests and assignment due dates pile up. To top it off, she learns that her father was laid off work, and although she knows her parents don't want her to worry, she can tell they are concerned about their finances while he looks for another job. It weighs heavily on Monisha since her parents have already sacrificed so much to help her afford her education. She starts looking at job ads and wonders if she should be applying

for part-time work.

Q: How could the instructor help alleviate or manage some of the pressure Monisha is experiencing?

Case Study: Aydin

Although Aydin is initially reluctant to begin the research process, he finally decides to ask a librarian for help getting started a few days before the due date. It isn't long before the librarian has found a few really interesting articles. He was surprised by how quickly she found them and she also had some great tips for him if he needed more information. He starts feeling more confident about the project. But now he's in a bit of a crunch. He only has a few days to write the paper and the articles are long and challenging to read. He isn't sure where to start writing, or how to draw connections between what he's read and the course content. With the due date approaching quickly, a sense of overwhelm immobilizes him and in frustration he looks for a shortcut.

Q: How could the instructor encourage Aydin to better plan out his project?

Strategies for Success

- Ensure your expectations for the assignment are clearly communicated to students.
- Monitor student stress levels and frustration. If excessive, consider whether your assignment is unclear, too complex, or at an inappropriate level of difficulty. Connect with your librarian to assess whether students require additional instruction or if the assignment itself can be modified to better focus on the specific skills and knowledge practices required.
- Normalize affective responses by providing opportunities for students to express the emotions they are feeling throughout the process, what's causing those emotions, as well as how to nurture positive responses and problem solve when negative responses arise.
- Offer multiple, low stakes "mini" assignments to reduce stress levels.

- Avoid assigning penalties to due dates. Instead, consider due dates as a flexible guide to help students plan and manage their time.

Activity

In this activity, you will examine different types of information literacy learners and explore strategies for addressing information literacy in diverse ways.

1. Read Architects, Renovators, Builders, and Fragmenters[1] by Maoria J. Kirker and Ilana Stonebraker (**NOTE:** subscription to the Journal of Academic Librarianship is required).
2. Share your ideas and experiences addressing differing student approaches and responses to research in your courses in the Padlet below:

Share your thoughts

Open Padlet[2]

Notes

1. Architects, Renovators, Builders, and Fragmenters: https://doi.org/10.1016/j.acalib.2018.10.009
2. Open Padlet: https://padlet.com/koakey/how-do-you-address-students-as-diverse-learners-8p3s52k4b0la3h4l

Reflection

Take a moment to reflect

1. How do students typically respond when given a research project in your course? What might their response indicate about their previous research experiences?
2. What future research opportunities does your assignment prepare students for – academically and professionally? How will this assignment prepare students for these future activities?
3. How is research in your discipline unique (e.g., purpose, outputs, types of sources, etc.)? How can your research assignment help highlight these unique qualities?
4. How do you hope students will feel about research upon completion of your assignment? What can you do to help generate that response?

3. APPLYING TEACHING & LEARNING STRATEGIES

In this chapter, we'll look at key strategies for preparing students for a research assignment. In some cases, the strategies outlined in this module will address overall assignment design while others outline activities and strategies you can employ as students complete the research project.

Promoting Academic Integrity

The rise in popularity and use of course-sharing sites, essay-writing services, and generative artificial intelligence tools have led to increasing concerns regarding academic integrity. The ease of access to these services and tools have often left professors scrambling to determine the best strategies to promote academic integrity and prevent inappropriate behaviours that undermine the integrity of our credentials.

While most often associated with written components of a research project, breaches in academic integrity can occur irregardless of format.

A Multi-Pronged Approach

Breaches in academic integrity are often unintentional, stemming from a misunderstanding of academic norms, assumptions, or practices within specific contexts. Preventing unintentional breaches typically involves clarifying the expectations for your assignment as well as teaching troublesome tasks (Bens, 2022, Penaluna & Ross, 2022).

To prevent intentional misconduct, you could:

1. **Address the five main mechanisms of prevention**

   Birks & Clare (2023), for example, highlight strategies that:

   - increase risk and effort (e.g., supervise assessment tasks);
   - reduce reward and provocation (e.g., reduce strict deadlines); and
   - remove excuses (e.g., be explicit about what constitutes a breach of academic integrity).

2. Remove unfavourable learning conditions

Lang (2013) found that the four main conditions that pressure students into cheating include:

1. an emphasis on performance (e.g., only grading the final product);
2. high stakes riding on the outcome (e.g., pass/fail course);
3. an extrinsic motivation for success (e.g., focus on grade average); and
4. a low expectation of success (e.g., lack of self-confidence).

3. Focus on Relationality, Respect, and Reciprocity

Indigenous authors Poitras Pratt & Gladue (2022) stress the importance of re-framing academic integrity through Indigenous values and traditions, including:

- Relationality: where relationships between members are prioritized over individual gains.
- Respect: where academic relationships are based on mutual respect for the work and role of each member.
- Reciprocity: where each member is responsible, committed, and accountable to the wellness and wholeness of all other members of the community.

Addressing academic integrity requires a multi-pronged approach that must be conceived as an extension of the commitment to integrity that you have fostered through relationality, respect, and reciprocity since day one in your classroom.

Strategies for Success

- Convey confidence that students can, with effort, complete the assignment with integrity.
- Address academic integrity in such a way as to avoid creating an adversarial environment of suspicion and distrust. For example:
    - Check your tone and language.
    - Avoid overemphasizing academic integrity or allowing academic integrity to become a dominating theme of the course.
- Be explicit about what constitutes a breach of academic integrity in the context of your assignment. For example:
    - Connect appropriate and inappropriate behaviours to learning outcomes of the assignment.
    - Invite students to collaboratively determine appropriate and inappropriate behaviours.
    - Address academic integrity on your assignment instructions sheet.
- To prepare students for the assignment:
    - Provide scenario-based tutorials or discussions that highlight key academic integrity concerns for your course or assignment.
    - Develop early, low stakes (i.e., "mini") assignments that help you identify students who may not understand research expectations or who need additional support.
- Emphasize process over product (i.e., learning over performance) in your instructions and assessment criteria.
- Complete portions of the project during class time (e.g., searching for sources, developing an outline, writing thesis statements, peer editing, etc.).
- Require students to disclose the use of software tools in their assignment, and how such tools contributed to the assignment.
- Ask students to submit multiple drafts.
- Reduce penalties for late submissions.

In the next sections, we'll expand on a few additional strategies that can help support academic integrity outcomes:

1. Engaging students
2. Leveraging Artificial Intelligence

3. Teaching Troublesome Tasks
4. Developing Metacognition and Self-Regulation
5. Connecting Students with a Support System

Engaging Students

Your research assignment should support the engagement with course content that you have already fostered in your instructional practice beginning on day one of your course and continuing until the final exam.

While factors that motivate learning are deeply personal, core criteria as described by Svinicki (2004) include: recognizing the value of the learning experience, and an expectation that successfully completing the task is possible.

Strategies for Success

- Ensure your assignment is at an appropriate level of difficulty. If possible, test out new assignments before assigning the work to your class.
- Encourage students to make connections to their own personal experiences by challenging them to:
    - Explore topics that will solve problems or achieve goals in their own personal lives, the lives of a friend or family member, or their future careers/industries.
    - Connect topics to their own personal cultural identities or contexts.
    - Question power structures and how they impact their personal lives.
    - Reflect on how their projects will contribute to their success in their future careers.
- Offer choices in topics (e.g., provide a list of topics to choose from, or allow students to narrow topics according to their interests) and how students will demonstrate their learning (e.g., an essay, a video podcast, a poster presentation, an infographic), where appropriate.
- Create authentic rhetorical situations (e.g., a technician helping a client) that replicates real-world activities (e.g., creating an explainer video).

- Focus on the learning experience (rather than the final product only) by offering students opportunities to practice skills, reflect on research tasks throughout the process, submit drafts for instructor or peer feedback, and/or re-submit their work.
- Invite students to display their work in front of a real-world audience (e.g., publish on social media, display poster boards on campus, upload work to institutional repositories).
- Be explicit in the rationale for the assessment, and the criteria for success.
- Show exemplars of past student work.
- Show your own enthusiasm for student work!

Resources

UDL Guidelines: Engagement[1]
Describes guidelines and checkpoints for engaging all students in a course of learning.

The Meaningful Writing Project[2]
An on-going cross-institutional study on students' meaningful writing experiences.

Notes

1. UDL Guidelines: https://udlguidelines.cast.org/engagement
2. The Meaningful Writing Project: https://meaningfulwritingproject.net/

Teaching Troublesome Tasks

Students often struggle more than we might realize when completing research assignments. While novice researchers can discover roadblocks at any stage of the research process, particularly troublesome tasks commonly include:

- Defining an appropriate topic.
- Estimating the time required to find, read, and analyze sources.
- Understanding how keywords and algorithms impact their search results.
- Navigating proprietary library databases.
- Identifying scholarly sources vs. popular or trade sources of information.
- Contextualizing authority.
- Understanding the purpose of citation and when to cite.

Supporting students throughout the research process and focusing the assessment on mastering specific research tasks or information literacy concepts enriches the learning experience and helps ensure students develop a positive identity as a researcher and stay motivated and engaged throughout the research project.

Librarians at your institution can help identify and address troublesome tasks for your assignment.

Strategies for Success

1. **Provide formative activities.** Have students practice the tasks they'll need to complete for the assignment. For example, they could:
    - Identify and/or contrast thesis statements from published research articles.
    - Create a concept map for their topic.
    - Read and compare similar or different types of articles.

- Compare attributes of different types of sources.
- Choose appropriate sources for different information needs.
- Write in-text citations and reference lists.

2. **Scaffold research tasks.** To avoid overwhelming students with a full, independent research project, narrow or remove some of the tasks required. For example, you could:
    - Provide a list of topics.
    - Provide a list of articles for each topic.
    - Require one type of source only (e.g., original research articles from scholarly journals).
    - Recommend a specific database or search tool.
    - Provide worksheets or templates to help guide students through new or difficult tasks.
    - Use generative artificial intelligence tools, like ChatGPT, to support some of the planning and writing tasks.
    - Have students complete all of the research steps that would be required for an essay, without submitting a final essay.

    Example: World War I Project [1] – in this example, the professor helps students narrow their topics and select appropriate sources by providing a list of potential population groups and scholarly articles to choose from.

3. **Chunk a larger research project into multiple smaller assignments.** Novice researchers often struggle with planning out a large project or even just getting started. By breaking down the activity into smaller chunks or low stakes assignments, students begin to internalize healthy research practices, can better manage their time and expectations for the project, and are less tempted to breach academic integrity standards. When chunking assignments, consider the following:
    - Common chunks often include: (a) topic formulation, (b) annotated bibliography, (c) first draft, (d) final project. Feedback and instruction should mark each stage (whether by peers or instructors).
    - Avoid forcing students to stick with their initial ideas. Instead, encourage students to modify their thesis and outline as they find sources, and

then again as they begin to write and put together their thoughts.

- Emphasize how the process of reading, writing, and revision helps students organize their thoughts and express their ideas more clearly and articulately.

Example: PSYC 110 Assignment [2] – in this example the instructions are broken down into three separate assignments that build on each other, guiding students through the three different stages.

Helpful Resources

Decoding the Disciplines[3]
A process for identifying and addressing a particular place in an activity where significant numbers of students are unable to adequately perform essential tasks.

Community of Online Research Assignments: Project CORA[4]
A repository of research activities and lesson plans.

ACRL Framework for Information Literacy Sandbox[5]
A repository of resources contributed by librarians and other educational partners.

Notes

1. World War 1 Project: https://4fbab5b5-0ad1-47bc-aa0d-33d9b6b7e250.filesusr.com/ugd/c11fb0_5c05f19c9f7f4f38a36c79ec57591b7d.pdf
2. PSYC 110 Assignment: https://www.ala.org/acrl/issues/infolit/standards/using/exampleassignments
3. Decoding the Disciplines: https://decodingthedisciplines.org
4. Project CORA: https://projectcora.org/
5. ACRL Framework Sandbox: https://sandbox.acrl.org/

Leveraging Artificial Intelligence

Since the release of ChatGPT in the fall of 2021, there has been a flurry of articles written on the pros and cons of using generative artificial intelligence (GenAI) in the classroom. While many embrace the changes that GenAI has the potential to bring to our understanding of authorship, plagiarism, and assessment (e.g., Compton, n.d.), the International Centre for Academic Integrity's Statement on Academic Integrity and Artificial Intelligence [PDF][1] highlights many of the concerns raised in the literature. The use of text-generating tools in the classroom generally, or for writing activities more specifically, is an on-going debate worth considering.

When used with caution and discretion, however, introducing students to appropriate uses of GenAI tools may be helpful for mitigating academic integrity breaches and teaching core critical thinking and literacy skills. Consider how you might use GenAI to help students:

- Brainstorm topics
- Identify keywords
- Create or critique an outline
- Identify sources (e.g., organizations, individuals, etc.)
- Summarize
- Revise
- Fact-check
- Give or receive feedback
- Develop metacognition & self-regulation (e.g., Brett D. Jones and David Hicks example[2])

Strategies for Success

- Discuss or demonstrate both the strengths and limitations of using GenAI.
- Demonstrate and guide students in the permitted uses of GenAI for the assignment, if any (e.g. provide example prompts for brainstorming or identifying keywords).
- In your assignment instructions, clearly reference the learning outcomes for the assignment in your rationale for inappropriate uses of GenAI.

Helpful Resources

AI Pedagogy Project[3]
A collection of assignments and materials for educators curious about how AI affects their students and their syllabi. By metaLAB (at) Harvard.

Exploring AI Pedagogy: A Community Collection of Teaching Reflections[4]
This site posts timely reflections on AI teaching experiments. Provided by the MLA-CCCC Joint Task Force on Writing and AI[5].

Generative AI Activities for the Writing and Language Classroom[6]
A presentation by Anna Mills that includes a number of ideas for micro lessons and other options for incorporating AI into your pedagogy.

TextGenEd: Teaching with Text Generation Technologies[7]
TextGenEd collects early experiments in pedagogy with generative text technology, featuring 34 undergraduate-level assignments to support students' AI literacy, rhetorical and ethical engagements, creative exploration, and professional writing text gen technology.

101 Creative Ideas to Use AI in Education[8]
An open, crowd-sourced collection of ideas developed in the first months of 2023 focused on potential alternative uses and applications of Artificial Intelligence (AI).

New Modes of Learning Enabled by AI Chatbots: Three Methods and Assignments[9]
Covers (1) using AI to help improve transfer about concepts, (2) creating essays for students to critique and improve, and (3) helping students recognize and acknowledge gaps in their knowledge about a topic.

Notes

1. Statement on Academic Integrity and Artificial Intelligence: https://academicintegrity.org/images/ICAI_Statement_on_Academic_Integrity__Artificial_Intelligence.pdf
2. Jones & Hicks example: https://www.civicsoftechnology.org/blog/charting-the-course-incorporating-ai-into-assignments-to-foster-self-regulation
3. AI Pedagogy Project: https://aipedagogy.org/
4. Exploring AI Pedagogy: https://exploringaipedagogy.hcommons.org/
5. MLA-CCCC Joint Task Force Committee: https://aiandwriting.hcommons.org/
6. Generative AI Activities for the Writing and Language Classroom: https://docs.google.com/presentation/d/1IbEBckhoOPKRWKQovCVL43-552rF4tlK/edit#slide=id.g28cd987cbf7_0_915
7. TextGenEd: https://wac.colostate.edu/repository/collections/textgened/
8. 101 Creative Ideas to Us AI in Education: https://creativehecommunity.wordpress.com/2023/06/23/oa-book-101-creative-ideas-to-use-ai-in-education/
9. New Modes of Learning Enabled by AI Chatbots: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4300783

Developing Metacognition & Self-Regulation

According to The Mirriam-Webster Online Dictionary, metacognition is an "awareness or analysis of one's own learning or thinking processes." Developing metacognition improves student ability to self-regulate their learning and make adjustments to their learning practices, as needed (Seigsmund, 2017).

By using metacognitive strategies during a research project, students are able to build on their previous knowledge about research practices, track their progress, and identify new learning goals for improving their research skills for future projects.

Strategies for Success

- Offer students opportunities to reflect on their goals, research strategies and experiences at the beginning of a course, throughout the research process, and/or at the end of a course.
- Explicitly state the purpose of a reflective task and how the activity will benefit students.
- Encourage students to share information about their research process and sources with their peers explaining why they made certain decisions, what they struggled with, and what strategies and tools they found helpful. Students can then compare notes and offer additional feedback and suggestions, further developing their expertise.

Example Reflections

Prompts for the beginning of the project

Identify a topic you recently needed to research in your personal

life. What prompted you to research the topic? What did you do to find information? Where did you find answers to your questions? How did you decide if the information was credible?

Think of the last academic research project you had to complete. What strategies and resources did you use to find and evaluate sources? What will you need to do differently this time?

What part of a previous research project have you needed help with? What do you expect you'll need help with this time?

What would you like to learn about research (e.g., types of sources, search strategies, evaluating sources, citing, etc.)? How will knowing these skills or concepts help you in the future?

Write a letter from your future self: Imagine you have successfully completed your research project and are looking back at your progress over the semester. What have you done that contributed to your success?

Prompts for the middle of the project

How well are you progressing towards completing the project? What have you completed? What tasks are still outstanding?

What questions do you need answered in order to move forward? Where can you find those answers?

What have you learned about research so far (e.g., types of sources, search strategies, evaluating sources, citing, etc.)? What do you need to learn more about?

Prompts for the end of the project

What are 3 things you learned about research (e.g., types of sources, search strategies, evaluating sources, citing, etc.) during this course?

How did your research strategies (e.g., tools for searching, search

words, evaluation criteria, etc.) for this project differ from your typical research process when researching topics in your personal life? How was it similar?

What part of this project was challenging for you? What made it challenging? How did you overcome this challenge?

What part of this project was interesting for you? What made it interesting?

What would you do differently next time and why?

What tips would you give next semester's students about completing this project?

Read your letter from your future self (written at the beginning of the project). What would you change about the letter or about the strategies you used this semester?

Helpful Resources

Activities for Metacognition[1]
A helpful list of creative activities you can adapt to your research project.

Metacognitive Assignment Revision Tool[2]
Although developed for high school psychology educators, this tool may be helpful for post-secondary instructors across the disciplines, as well. Developed by a Working Group on Skills that Promote Well-Being and Flourishing from the APA Summit on High School Psychology Education in 2017.

Notes

1. Activities for Metacognition: https://resources.depaul.edu/teaching-commons/teaching-guides/learning-activities/Pages/activities-for-metacognition.aspx
2. Metacognitive Assignment Revision Tool: https://www.apa.org/ed/precollege/topss/teaching-resources/metacognitive-assignment-revision

Connecting Students with a Support System

As discussed in chapter 2 under Becoming Experts, students often need some support to become familiar with the resources and expertise offered by post-secondary institutions. They may feel intimidated to ask for help from support services, leading to unauthorized assistance, increased frustration and stress, and poor learning outcomes. Bringing support services into your classroom often provides the opportunity students need to recognize their own gaps in knowledge and connect with expertise offered by these helpful services.

In addition, hearing the same information in a variety of ways from multiple sources can help students solidify their understanding.

Strategies for Success

- Connect with your librarian as well as learning or tutoring supports to determine the best way to support students and familiarize them with the services and expertise available to them.
- Provide links to support services and key resources from library and learning services on the assignment instruction sheet.

Activity

In this activity, you will examine international students' experiences of identifying ownership of words and ideas and consider methods for addressing troublesome tasks like citing sources.

1. Read Moving from plagiarism police to integrity coaches[1] by Silvia Vaccino-Salvadore and Rachel Hall Buck.
2. Share your ideas and experiences addressing "ownership" in the Padlet below:

Share your thoughts

Open Padlet[2]

Notes

1. Moving from plagiarism police to integrity coaches: https://edintegrity.biomedcentral.com/articles/10.1007/s40979-021-00085-7
2. Open Padlet: https://padlet.com/koakey/how-do-you-foster-a-sense-of-ownership-in-research-based-ass-igeui8ec6loz6muq

Reflection

Take a moment to reflect

1. What tasks do you think students most struggle with when completing their assignments? Why might this be?
2. To what extent do you think students' research skills improve with each research activity? What strategies have supported or hindered their growth in the past?
3. What steps can you take to improve the learning experience for students?

4. DEVELOPING ASSIGNMENT INSTRUCTIONS

In this chapter, we'll look at key components of the assignment instructions. Assignment instructions can have a significant impact on how successfully students complete the research activity and learn information literacy concepts.

Purpose & Description

The purpose and description of the assignment are key components of the assignment instructions that guide students in successfully completing the assignment. Knowing why a task is required is a motivating factor (CAST, 2018) and also helps students focus their efforts strategically.

Strategies for Success

- The purpose of the assignment should be clear and concise. Why are students being asked to complete this particular assignment for this course? How does it connect to course learning outcomes?
- Clearly articulate the skills and knowledge practices that students will gain. What will they learn by completing the project?
- In your description, include details about the:
    - **Format:** What will students create (e.g., research essay, annotated bibliography)?
    - **Rhetorical Situation:** What 'role' should the student play (e.g., researcher, practitioner, instructor)? Who is their audience (e.g., colleague, peers, instructor)? What is the purpose of the communication (e.g., to explain, inform, promote)?
    - **Tasks:** What steps will students need to take to complete the assignment?
- Avoid over-complicating your instructions.
- Ask a colleague (preferably from a different discipline) or a librarian to read over your instructions and point out any areas that require clarification.

Academic Integrity Strategies: Choose formats and tasks that are not easily reproducible by artificial intelligence, course-sharing sites, or other readily-available tools.

Indigenization Strategies: Provide opportunities for students to visualize their learning (e.g., through exhibits, artistic performances, symbolic illustrations, etc.) or demonstrate their learning orally. Incorporate opportunities to reflect on personal experiences and current skills and knowledge. Consult with an Indigenous learning strategist at your institution to discuss culturally-appropriate assessment methodologies for your context and learning outcomes.

Universal Design Strategies: Offer a variety of choices to students regarding the format, tasks, or other aspects of the assignment, where possible.

Example Formats and Tasks

The following list describes common research assessment formats and tasks. Search journal articles and websites to find specific examples of how other educators have implemented these strategies in their own courses.

Assessment Formats

Students may present their research findings in any format, or a combination of formats.

Essay or Position Paper	Students develop a written argument based on their research findings.
Annotated Bibliography	Students present a list of resources on their topic, write a summary and evaluation of the content, as well as an explanation for why they chose the resource.
Literature Review	Students conduct an extensive search of the scholarly literature and then describe findings from key research articles.
Research Proposal	Students complete a full description of their research project, including research questions, methods, and related literature.
Abstract	Students write a short summary that describes their own original research proposal, or that of a published research article.
Report	Students provide a summary of key facts on a topic. Often includes visual elements (e.g., graphs and images) as well as elements to support scanning (e.g., headings, bullet-points).
Anthology	Students create a “mini” anthology or course pack, either collaboratively or individually, complete with an introduction, excerpts, and a short analysis of each work.
Presentation	Students present their research findings to an audience. Usually delivered verbally, either live or recorded, with accompanying slides or other multi-media.
Debate	Teams are pitted against each other in a debate-style presentation where students read pre-written arguments based on research findings. Class votes on the most convincing team.
Research Diary (Log/ Reflection)	Students keep a record of their research activities, including search tools used, keywords, databases, expertise consulted, sources selected, etc., and reflect on challenges and successes through the research process.

Visual Representation or Artistic Performance	Students collect information about their topic and summarize and organize the information as an artistic performance (e.g., dance, song, vignette) or within a visual representation (e.g., timeline, graph, image).
Authentic, Active, Digital, or Problem-based Activities	• Write a letter to the editor. • Create a podcast or videocast. • Create an explainer or promotional video. • Create a program proposal. • Write a grant proposal. • Write a speech. • Develop a conference poster. • Design a training module. • Write a blog post. • Create a video game. • Develop a prototype. • Develop an animated short film. • Design a public poster display for a library, museum, or similar. • Create a 5 min. pitch. • Present a dramatic re-enactment or skit. • Write a song. • Write an email to someone you disagree with on a topic.

Research Tasks

These research tasks could be used as formative or summative activities. Student responses may be presented informally or formally in a written, verbal, or visual format, depending on the activity and your goals for the assessment.

Un-research paper	Students write a paper without doing any research or citations. Then, they conduct research to find sources that either (a) support a claim/point in the paper they wrote, (b) bring a new point to the paper, (c) contradict a point made in the paper, or (d) enhances the paper. (Hosier, 2015)
Everything but the Paper	Students conduct all of the research and complete key steps of a research paper, but do not write the final draft, creating time for in-depth study into the different components of the research process.
Article Analysis	Students summarize an article and identify the assumptions, thesis and research methods, or other elements of a single article.
Annotate an Article	Students create margin notes and annotations for an article using digital tools (e.g., Hypothesis[1]). Groups or the entire class could annotate one article. Alternatively, students could annotate an article individually with a novice reader in mind. It may be helpful for them to envision someone specific, such as a younger sibling, a grandparent, etc.
Source Comparison	Students compare multiple articles of the **same type** (e.g., literature review articles, websites) to develop a list of similar attributes or evaluate for quality, bias, or other criteria.
Source Contrast	Students compare multiple resources of **differing type** (e.g., literature review vs. original research, primary vs. secondary sources) to identify key characteristics of each, to determine how each type contributes to the topic in differing ways, or to evaluate quality, bias, or other criteria. Articles on related topics work best. Combine with an article analysis for each type of source to extend and enrich the activity.
Fact-Checking	Students take a recent newspaper or magazine article and find sources that support or refute claims made in the article.

Update your Facts	Students take a newspaper or magazine article from 10+ years ago and identify more recent scholarly articles that present new findings related to claims made in the original article.
Find the Original Research	Students locate the original scholarly journal article referenced in a newspaper or magazine article. Evaluate the usage of the scholarly article in the popular source and compare the authorship, content, format, and conclusions of the two articles to highlight differences in popular and scholarly sources.
Evolving Conversation	Select a topic and provide students with literature that discusses the topic from 2 different time periods. Have students discuss how the treatment of the topic has changed over time.
Citation Chaining/ Tracking	Students trace an important or controversial paper or topic through citation chaining and reflect on the importance of citation, how consensus is developed, and/or the influence of a particular author or paper within the discipline. Textbooks may offer a good starting point.
Trace a Scholar's Career	Students find articles by prominent scholars and trace how their ideas change over time.
Compare Disciplines	Students compare the treatment of the same topic in scholarly articles from two different disciplines.
Student Expert	Students read different articles assigned by the instructor or find and read background information on a topic or task related to course curriculum. In class discussions, or during group assignments, students are deferred to as the expert in that article/topic/task.
Case Study Analysis	Students analyze a real-world case to determine appropriate course of action, describe key concepts involved, etc.

Helpful Resources

- **Transparency In Learning and Teaching Project**[2]
  Provides example assignments with excellent purpose and task statements.
- **Bloom's Taxonomy (University of Waterloo) [PDF]**[3]
  Categorizes useful verbs for describing cognitive skills. Useful for developing purpose statements.
- **ACRL Framework**[4]
  Outlines knowledge practices and dispositions for key information literacy concepts. Useful for developing purpose statements.
- **UDL Guidelines: Action & Expression**[5]
  Provides recommendations for activities and tools that support universal design.

Notes

1. Hypothesis: https://web.hypothes.is/
2. Transparency in Learning and Teaching Project: https://tilthighered.com/tiltexamplesandresources
3. Bloom's Taxonomy: https://uwaterloo.ca/centre-for-teaching-excellence/sites/default/files/uploads/files/cognitive_domain_-_blooms_taxonomy.pdf
4. ACRL Framework: https://www.ala.org/acrl/standards/ilframework
5. UDL: https://udlguidelines.cast.org/action-expression

Research Topics

Research topics generally start out as broad subject areas (e.g., homelessness), and eventually are narrowed down to a question (e.g., How has climate change impacted homelessness in Toronto, Canada?). Criteria for effective research topics varies by discipline and the purpose of the assignment. Consider: What types of questions are common in your discipline? What types of questions are appropriate for your course content?

As discussed in chapter 3 under Teaching Troublesome Tasks, defining a research topic can be a very challenging task for students at all levels. Depending on student competencies, familiarity with the subject matter, and the purpose of the assignment, you may choose to supply research topics or help students narrow or limit their chosen topics.

Strategies for Success

When providing topics to students:

- Choose a variety of topics that could appeal to diverse students.
- Test out each topic with a few quick searches in library databases or other search tools.
- Ask your librarian for feedback and suggestions.

When asking students to define their own topics:

- Provide some general guidelines. For example, topics should be related to course content, should solve personal problems or help attain personal goals, should examine a specific cultural perspective, etc.
- Discuss appropriate scope of topics. What is manageable within the time frame and word count requirements?
- Provide strategies for narrowing a topic. Your librarian may be able to provide a workshop or recommend additional learning materials.

- Offer class time for students to conduct background research to explore possible topics.
- Offer examples of successful topics.
- Require students to submit their topics before they begin writing.
- Encourage students to modify their topic, if needed.

Academic Integrity Strategies: Encourage students to draw unique connections between two or more ideas discussed in class or relate their topics to personal experiences. Randomize your topics every semester and avoid reusing the same topics year over year. Keep a detailed list of topics chosen by students.

Indigenization Strategies: Encourage students to respect and engage with diverse ways of knowing, or consider how colonialism, systemic discrimination, or other aspects of their personal context impact their topics and personal perspectives.

Universal Design Strategies: Offer students a variety of choices in the topics they can explore.

Example Topics

Common Phrasing

1. Analyze the impact of ____ on ____.
2. Analyze the philosophies/theories/arguments of ___.
3. Analyze the cause/determinants/risk factors of ___.
4. Analyze the advantages/disadvantages of ___ for ___.
5. Analyze the historical context of ___.
6. Trace the development of ___.
7. Compare/Contrast two or more aspects of ___.

Topics to avoid

Avoid	Examples	The Problem	Instead
Topics that can't be proven	• the existence of God or extra-terrestrial beings • life after death • miracles	Sufficient evidence is lacking.	Explore philosophies or theories related to these types of topics, public reports of sightings, cultural or artistic expressions.
Topics that are too technical	• any topic beyond your students' current area of study	Students will become frustrated and may learn to conduct surface research, potentially reinforcing misconceptions about academic standards of research practices.	Stick with topics within the subject area the student is studying. In cases like Communications or Composition courses, encourage students to explore topics familiar to them from everyday life.
Legal or moral topics	• "should or shouldn't" • "right or wrong" • "legal or illegal"	Often too complex for students to do well. Students may rely on their preconceived ideas or bias to generate an argument instead of exploring new ideas.	Ask students to look at specific groups and how they justify their actions or beliefs, or examine the impact of a specific behaviour (e.g., illicit drug use) on a specific group of people (e.g., children).

Topics that are too recent	• events or trends within the last year or two	There may not be enough evidence or appropriate sources for students to explore.	Choose events or trends from two or more years ago.

Sources

Novice researchers benefit from some direction about appropriate types of sources and how to find them. In particular, students often feel overwhelmed by the number of results that are returned. Suggestions for narrowing their results can be really helpful (e.g., within a certain publication date, from a particular database, etc.). Being too stringent, however, can cause the opposite problem and students will become frustrated when they cannot find what they need.

In some cases, you may prefer to supply students with a selection of sources to use in order to allow students to focus attention on other aspects of the research process or analyze a specific type of source before they need to search for that type of source. A librarian may be able to assist you in collecting a wide variety of examples.

Strategies for Success

- Explain the purpose of using sources in the context of your assignment and why certain sources are preferred over others.
- Check the availability of appropriate sources by doing some quick searches or asking a librarian.
- Provide definitions or descriptions of terminology or resources that may be unfamiliar to students (e.g., scholarly sources, library databases, etc.).
- Provide some direction about where to find appropriate sources.
- Provide links to additional information about finding sources (e.g., information about selecting keywords or identifying appropriate types of sources, as well as library or community resources and services).

Academic Integrity Strategies: Require printouts or digital copies (e.g., PDFs) of the sources cited. Require a recording (e.g., audio or video) of their justification for their selections. Have students submit a list of their sources for approval before they submit the final project.

Indigenization Strategies: Invite students to curate citations from Indigenous voices. De-emphasize traditional academic sources by supporting oral and other culturally-relevant sources. When learning from Indigenous elders and knowledge keepers, help students respect local Indigenous protocols. Discuss how colonial structures privilege particular voices and shape concepts of authority.

Universal Design Strategies: Ensure that all students have equitable access to appropriate sources of information. Speak with an accessibility specialist or librarian if you have any concerns.

Example Source Statements

Scholarly Articles

Browse scholarly journal articles to learn what researchers have discovered about your topic. Choose at least 4 original research articles from scholarly journals, published within the last 5 years, that offer unique or surprising insights on your topic. As you write your paper, 1 journal article per main idea generally works well, but this is not a strict rule. In some cases, for example, you may want to compare or contrast research findings from different articles. For this assignment, successful papers rarely require more than 8 articles.**Google Scholar** and the **library search** are good places to find freely available scholarly articles. Be aware that not every article you find will be an original research article, and, in addition, the full article is not always available for free on these services. To learn more about finding original research articles and how to identify them, go to **Scholarly Sources** or **Contact the library**.

NOTE: You may find dictionaries, encyclopedias, and other types of sources helpful for filling in background information (e.g., definitions, statistics, important dates) and you are welcome to cite them. However, since your ability to analyze and interpret research findings is a core learning outcome for this assignment and course, research findings from scholarly journal articles should provide the primary evidence to support your points.

News Sources

Browse newspaper articles from across Canada to learn about the key developments of your topic within the past 3 years. The library offers a newspaper database called **Canadian News** (available from the library's **Databases A-Z list**) that may be helpful. Canadian News provides full-text articles from all major newspapers from across Canada in one place, including large publications like The Toronto Star and The Globe and Mail, as well as smaller, local newspapers. If needed, **contact the library** for suggestions for finding appropriate news articles for your topic.Once you have identified 3 key developments for your topic, choose 2-3 articles that illustrate the variety of perspectives offered by different news outlets (e.g., Toronto Sun vs. Globe & Mail) for each development.

Websites

Use a popular search engine (e.g., Google, Bing, DuckDuckGo) to explore a resource on your topic from 3 credible websites. A resource could include a webpage or article, a pdf or other document file, a video, a course or module, a meme or image, or other. Each resource should reflect a unique perspective or audience. For example, the author may be:

- an organization that supports the population group affected by the issue you are studying;
- an individual who has been affected by the issue you are studying;
- a government agency that conducts research or develops policies related to the issue you are studying;
- an organization that opposes or promotes a specific action related to the issue you are studying;
- other.

Or the audience may be:

- policy-makers;
- persons affected by the issue;
- practitioners;
- general public;
- researchers;
- other.

If you prefer, you may also collect pamphlets, posters, or other publications in print by visiting organizations within your community that address the issue you are studying. If you would like to use personal communications (i.e., interviews) with individuals impacted by the issue, please **email me** to discuss ethical considerations such as obtaining permission from the individual and methods for recording or capturing the information they share.

You can **contact the library** for help identifying appropriate search strategies for your topic and evaluating your sources.

NOTE: Artificial intelligence tools (e.g., ChatGPT), encyclopedic-type sites (e.g., Wikipedia), and news outlets (e.g., CBC.ca) may be helpful for identifying useful sites and organizations to explore but should not be used as a primary source of information about your topic. Instead, collect information directly from community organizations, government agencies, and others who are invested in the topic you are studying.

Helpful Resources

UDL: Representation[1]
Provides recommendations for presenting information in a variety of formats.

Notes

1. UDL: https://udlguidelines.cast.org/representation

Addressing Academic Integrity

Addressing academic integrity on your assignment instruction sheets extends the strategies you are already using in-class to encourage academic integrity throughout your coursework (e.g., in-class discussions, paraphrasing practice, etc.), as discussed in chapter 3 under Promoting Academic Integrity.

Keep in mind that expectations regarding academic integrity can vary dramatically by context, depending on the discipline, level of scholarly work, type of writing, and personal preferences of individual instructors (Bens, 2022). While many institutions have developed their own standard statements to insert in academic assessments, students need explicit examples related to your specific context, assignment, and expectations (Bens, 2022).

Paired with contextualized, in-course instruction, explicitly addressing academic integrity in your assignment instructions can help reduce breaches of academic integrity by reaffirming your commitment to academic integrity and clarifying expectations that can appear ambiguous to novice researchers.

Strategies for Success

- Convey your commitment to academic integrity while avoiding ostracizing honest students through harsh, judgmental language.
- Provide specific examples of appropriate or inappropriate behaviour in the context of your assignment.
- Connect appropriate and inappropriate behaviour to the learning outcomes of the assignment to explain why, in this context, certain behaviours are permissible and others are not.
- Include links to institutional policies and tutorials, and/or customized checklists.
- Offer to answer questions personally.

- Provide links to academic integrity support services.

Example Statement

> Before you begin, review the **Academic Integrity Checklist** and the **Copyright and the Internet Guidelines**. In class, we will explore strategies for using Generative AI tools (like ChatGPT) to brainstorm ideas, refine thesis statements, and edit paragraphs for your final draft. As you will be marked on your personal ability to analyze and synthesize findings from scholarly articles, copying and pasting an entire article summary or essay from a generative AI tool is not appropriate. If you have any questions about what is appropriate for this project, please speak with me or the **Tutoring Centre** before submitting your work.

Helpful Resources

Instructor's Educational Resources[1]
A list of resources from various universities and colleges. Collected by the International Centre for Academic Integrity.

Notes

1. Instructor's Educational Resources: https://academicintegrity.org/instructors-educational-resources

Style Guide

The style guide includes any description of the required formatting and citation style for the assignment. Providing students with some direction regarding your expectations of the final product is important. However, a long list of rules can lead students to focus more on “checking off” a checklist, than exploring and developing their research skills.

Citation may require a little extra support. Expectations for citing sources often varies depending on the discipline and instructor. Understanding that students are building on previous knowledge and developing their understanding of when and how to cite in a variety of contexts and applications is important.

Strategies for Success

- Keep style requirements (e.g., font, margins, grammar) brief.
- Explain why following style rules is important in the context of your assignment.
- Provide examples of citations (especially important for presentations or visual representations).
- Show a variety of examples of completed assignments with proper formatting.

Example Statement

You should aim to complete your paper in 5-7 pages (not including cover page, appendices, or reference page), using double spaced, point 12 Arial font.

Write with your classmates in mind as the audience — knowledgeable, but perhaps unfamiliar with some specialized

terminology. Use formal English (e.g., full sentences, no textese or slang, etc.), and pay attention to spelling and grammar as they will contribute to clarity and conciseness in your writing.

Please use the American Psychological Association's (APA) Style for formatting the cover page, margins, page headers, subheadings (if any), and citations. APA Style is widely used across disciplines and you will likely use it again as you progress in your program. Following a style guide ensures consistency in format between papers and reduces distractions in reading. As a result, you help me read and mark your papers fairly. The library's **APA Research Style Guide** provides examples and highlights key rules you should follow.

Criteria for Success & Assessment Tools

The criteria for success is the list of attributes a successful project will demonstrate. Such criteria are important for clarifying the expectations for the assessment and helping students focus their efforts. When used to facilitate learning, effective assessment tools help students "mind the gap" between desired proficiency levels and student performance (Lipnevich et al., 2014).

Common ways to provide the criteria for success include:

- a rubric
- a checklist
- a variety of exemplars (i.e., previous student work)
- a combination of two or more of the above

The challenge with assessing information literacy practices or concepts in the final output is obtaining evidence. Research assignments that only assess the end product or performance are less useful for evaluating information literacy, which is primarily concerned with knowledge practices and dispositions demonstrated during the process of developing the end product or performance. Chunking your assignments, creating mini assignments, or requiring a research log that enables students to showcase the process and strategies they used to produce the final product can enable you to better assess research and information literacy competencies.

Strategies for Success

For checklists and rubrics:

- Ensure the language describing the criteria is clearly defined, easily understood, and framed in a positive way.
- Align the criteria with the purpose, tasks, and learning outcomes of the assessment.

- Avoid using number of sources or type of sources as markers of success. Instead, focus on quality of selected sources and appropriateness to context.
- De-emphasize mechanics of writing and citation, in favour of higher order thinking, research, and writing skills (unless core to course learning outcomes).
- In some cases, providing a checklist or rubric as feedback *after* a first draft has been written may be helpful in focusing revisions.

For exemplars:

- Provide annotations for each exemplar (either verbally or in writing) indicating the elements of excellence.
- Offer a variety of exemplars with differing strengths/weaknesses.
- In some cases, providing exemplars *after* a first draft has been written may be helpful in focusing revisions.

Indigenization Strategies: Ensure your criteria includes multiple dimensions of learning. For example, consider using a traditional medicine wheel as a model for assessing students (e.g., Verwood et al., 2011).

Universal Design Strategies: Ensure all students are able to access the criteria for success.

Example Criteria

Finding & Selecting Sources

- Determines the initial scope of the assignment required to meet their information needs (Wilson & Angell, 2017).
- Uses a variety of strategies and search tools to locate relevant articles.
- Uses a variety of criteria to evaluate and select sources based on the information need.
- Sources have a format/creation process that fits the rhetorical context, demonstrating an underlying understanding of the information need (Chisholm & Spencer,

2019).

- Choice of sources demonstrates a sophisticated understanding of the indicators of authority within the discipline, across formal, informal, scholarly and non-scholarly sources.
- Sources are appropriate to the topic and contribute to the thesis, argument, or discussion in a meaningful way (Chisholm & Spencer, 2019).
- Choice of sources demonstrates a discerning eye for scholarly and non-scholarly sources (Goodman et al., 2019).

Integrating Sources Ethically

- Exceptional use of information sources, including using summary and paraphrase well and selecting excellent quotations to support arguments (Chisholm & Spencer, 2019).
- Determines the strengths and weaknesses of sources or exactly what a source answers or does not answer (Goodman et al., 2018).
- Establishes the validity and importance of sources to the context (Burns et al., 2023).
- Identifies the contribution that the selected articles make to disciplinary knowledge (Wilson & Angell, 2017).
- Draws reasonable conclusions based on the analysis and interpretation of information (Wilson & Angell, 2017).
- Accurately represents the original authors' ideas and/or words when citing, demonstrating a close reading of the text.

- Demonstrates respect for the original ideas of others by providing attribution for sources where appropriate.
- Demonstrates an understanding of their own authoritative voice and the responsibilities this entails, including seeking accuracy and reliability, respecting intellectual property, and participating in a community of practice (Wilson & Angell, 2017).

Creating Information Products

- Demonstrates an understanding that choices in the creation process impact the purposes for which the information product will be used and the message it conveys (Wilson & Angell, 2017).

Following a Citation Style

- Demonstrates a sophisticated understanding of source types and publishing information as well as basic concepts of APA citation style by matching in-text citations with reference list entries using the author and date format and providing accurate author, date, title and source information in reference lists.
- Few errors in use of formatting, punctuation, capitalization, order of information, and italics for each reference list entry, even when dealing with problematic/less common source types.

Helpful Resources

- **RAILS: Rubric Assessment of Information Literacy Skills**[1]

A collection of submitted rubrics for various information literacy tasks.

- **Bloom's Taxonomy (University of Waterloo) [PDF]**[2]
  Categorizes useful verbs for describing cognitive skills. Useful for developing rubrics or checklists.
- **ACRL Framework**[3]
  Outlines knowledge practices and dispositions for key information literacy concepts. Useful for developing rubrics or checklists.
- **Transparency In Learning and Teaching Project**[4]
  Describes strategies for clarifying assignment expectations. Includes examples.

Notes

1. RAILS: https://railsontrack.info/rubrics
2. Bloom's Taxonomy: https://uwaterloo.ca/centre-for-teaching-excellence/sites/default/files/uploads/files/cognitive_domain_-_blooms_taxonomy.pdf
3. ACRL Framework: https://www.ala.org/acrl/standards/ilframework
4. Transparency in Learning and Teaching Project: https://tilthighered.com/tiltexamplesandresources

Activity

Activity 1

In this activity, you will examine elements of a research assignment instruction sheet that encourage students towards problem-exploring, rather than answer-getting.

1. Read How do Assignments Dispose Students Toward Research?[1] by Madsen Hardy, Gwen Kordonowy, and Ken Liss.
2. Examine your own assignment instruction sheets. How does your assignment lead students towards problem-exploring? Where have you inserted problem-exploring phrases in your instructions?

Activity 2

In this activity, you will examine a research assignment instruction sheet and consider how you might improve the assignment.

1. Read the Research Paper Assignment[2] by Virginia Montecino.
2. Compare with the Revised Research Assignment Instructions[3].

Complete the questions below

Part A: Scan the Research Paper Assignment. Answer the questions below.

1. Does this assignment meet its stated purpose? How so?
2. What do these assignment instructions teach students about research? What impression does the tone and level of detail leave with students?
3. How would you modify these instructions?

Part B: Scan the Revised Research Paper Assignment. Answer the questions below.

1. How does the revised research paper assignment instructions compare with the original instructions? What is similar? What has changed?
2. What do these assignment instructions teach students about research? What impression does the tone and level of detail leave with students?
3. How would you further improve the revised research paper instructions?

Notes

1. How do Assignments Dispose Students Toward Research? [Article]: https://hdl.handle.net/2144/46091
2. Research Paper Assignment: http://mason.gmu.edu/~montecin/researchpap.htm
3. Revised Research Assignment Instructions: https://docs.google.com/document/d/14J5zjLvPc-nxOQ4VQu82ATnO83s_sVWtyUSx43EsprDk/edit?usp=sharing

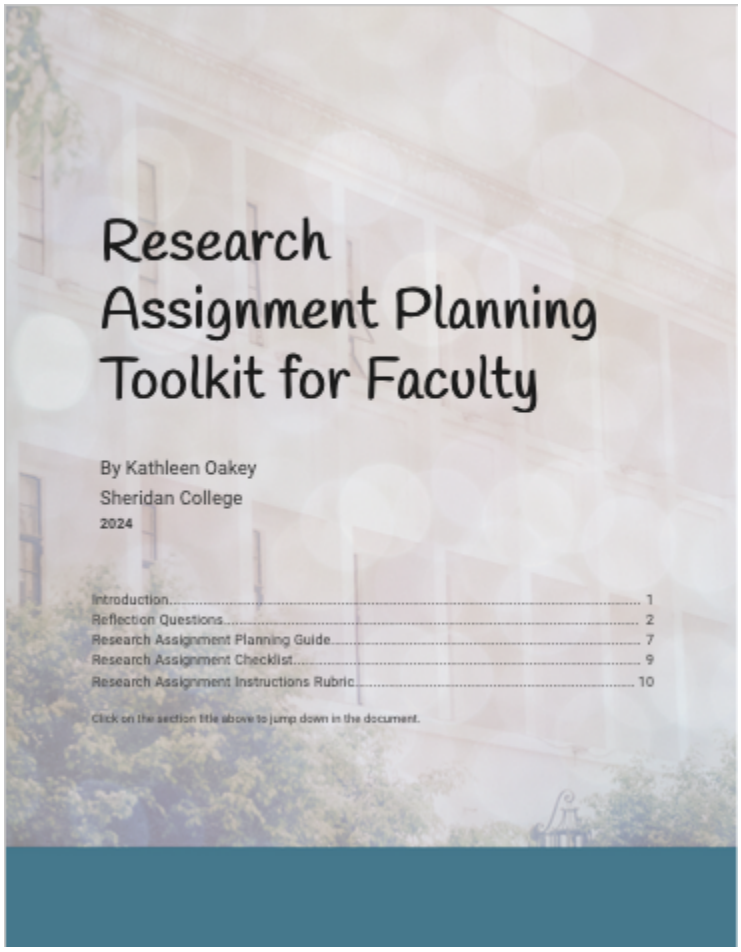
Reflection

Take a moment to reflect

1. What aspects of developing the assignment instructions do you most struggle with? Who could you collaborate with to improve your instructions? (e.g., Library, Writing/Learning Centre, colleagues?)
2. How can you further clarify or focus your assignment tasks on the purpose and learning outcomes you have identified for the project?

Research Assignment Toolkit

The *Research Assignment Planning Toolkit for Faculty*[1] is a companion resource to the handbook. The toolkit offers helpful resources for planning and evaluating your research-based assessment, including reflection questions, a planning guide, a checklist, and a rubric. The toolkit can be downloaded, modified, printed and reused for educational purposes.



Notes

1. Research Assignment Toolkit: https://docs.google.com/document/d/

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NOTE: All images used in the cover page and throughout the handbook and toolkit were created using a Canva.com subscription, unless otherwise indicated.

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