

Study **SMART**

BUILD THE SKILLS FOR YOUR SUCCESS



Information Skills

PDF resources included in this booklet

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Information Skills

What skills do you need to think about information critically?

Information Skills

In a post-truth world, not all information is equal. Finding sources, understanding why some sources are better than others, and evaluating the quality of information for an assignment, are the suite of skills you have to learn quickly at uni. Developing and refining your judgement about information is something that the Library has the expertise to help you with.

STUDY SMART WEBSITE

Find this section on the Study Smart website here:

https://www.westernsydney.edu.au/studysmart/home/information_skills



Information Literacy

Information Literacy

As a learner, to be information literate means that you:

- are able to identify a need for certain information, and
- have the critical awareness and skills to find, evaluate, interpret, and apply information that is relevant to the situation, and
- are able to effectively manage and ethically share that information for appropriate purposes, now and in the future.

(adapted from the [ANZ Information Literacy Framework](#) (PDF, 406 kB), p.3)

The [Western Sydney University Library](#) can assist you in locating appropriate sources of 'scholarly' information. There are many different [types of sources](#) (PDF, 87 kB) available through library databases and on the open web, so you should always carefully evaluate these for currency, relevance and possible bias.

- Complete the Western Sydney University Library [Successful Searching Tutorial](#)
- Watch these Western Sydney University Library videos:
 - [Finding information for Assignments](#) (video, 1:59)
 - [Evaluate resources using APPEAL](#) (video, 6:26)
 - [Evaluate websites using APPEAL](#) (video, 8:09)

Referring (with correct acknowledgement) to the research of others in your assignments, coursework, and own research helps to strengthen your understanding and demonstrate that you have read widely about a topic or issue.

- Learn more about [academic integrity](#), [plagiarism](#), and [Australian copyright law](#)
- Find the Library [Referencing and Citation guide](#) for the referencing style your course of study requires you to use.

Data Literacy

[Data literacy](#) is similar to information literacy, in that it encompasses the knowledge and skills to find or collect, manage, and interpret data. Data is sometimes called 'raw' information because it's just the facts, without any analysis or interpretation having taken place. It's important to be

aware, though, that the act of **collecting data** could be influenced by economic, technological, or political factors so it is still important to evaluate all data carefully.

- To learn more about statistics, check out the Australian Bureau of Statistics (ABS) page: **Understanding Statistics**
- To learn more about research data and data skills, see the Library's **Research Data Management guide**
- For information about data visualisation, visit the **Digital creation, innovation and scholarship** section of this site

Media Literacy

Media literacy also covers skills in the critical interpretation of information. There's a lot of information out there, in lots of media formats, and anybody can publish material to the Internet without anyone else checking to see if it's accurate. That's why it's important to recognise bias when you see it and sort the fact from the fiction.

- **How can we learn to reject fake news in the digital world?** (The Conversation website)
- **Media literacy** (video, 3:09) - 5 key ideas & questions about media messages

Media literate students should also be able to choose an appropriate medium to communicate effectively to a particular target audience. Identifying the purpose of a piece of communication and adjusting the tone to suit the intended recipients of the message, is integral to the success of any communication effort, whether you're sending an email or producing a short film. When it comes to academic work, you can learn more about the purpose, structure, and tone of different assignment genres in the **Assessment Guides** section of this site.

Social Media Literacy

A key aspect of media literacy is understanding of the nature of social media, and what constitutes appropriate behaviour on these massive, influential, and sometimes unpredictable information channels. Being media literate also means the creation of ethically reliable information. It's worthwhile reviewing the following guide to ensure your social media interactions remain professional.

- **Social Media: Guidelines for Students** (Western Sydney University)



Coping with Information Overload

The digital, connected, always 'on' society is fascinating and full of opportunities for collaboration and learning. However, it can also be overwhelming. Do you ever feel as though you're drowning in information? One way to combat this is to sharpen your critical thinking skills so that you can quickly evaluate what's in front of you.

Another skill for coping with the huge amount of information that lands in front of us each day is to actively manage it.

- Think carefully before subscribing to email lists (often you need to uncheck the box on online forms so that you are not automatically subscribed to updates).
- Create a digital filing system (in your email and for your documents) that works for you, so that you can save and retrieve information you need or want and delete the rest.
- Take advantage of software that helps you manage information for assignments (like **EndNote** or **Zotero**), and find out which **note-taking**, time management, or file storage technologies suit your study habits.
- The **Personal Digital Archive Toolkit** provides steps to preserve your digital photographs, emails, recordings and documents.

Digital Scholarship

Digital literacy involves more than simply being a well-informed, analytical consumer of digital information and technology. Ultimately, you'll want to become a confident creator of digital content as well.

This aspect of digital literacy is about bringing together the knowledge you gain in each unit of study with your analysis and ideas about a topic or issue, leading to the creation of innovative solutions and engaging communication. Technology can be with you every step of the way – as the well-known Apple slogan goes, "there's an app for that"!

Digital Scholarship

Digital research and scholarship is a growing area of interest in universities all around the world. Often referred to as [e-research](#), digital scholarship is focused on using information and communications technologies to supercharge the research process and the dissemination of research findings. There's also a movement, facilitated by the Internet, towards [open access](#) to [research data](#) and publications, especially for publically funded research.

[Data visualisation](#) is also trending, especially for big data (this refers to massive datasets which may be added to incrementally and/or consist of very many pieces of information which would be impossible to analyse without the aid of computers).

- The [DiRT Directory](#) aggregates information about digital research tools for scholarly use.
- University Staff and Students have free access to the LinkedIn Learning online training library. You need to [register with your Western account](#). Once you have registered, try this playlist: [Learn data visualization](#)
- [Drawing by numbers](#) brings together free data visualisation tools from all over the web.
- The University of Edinburgh's [23 Things for Digital Knowledge](#) is a self-directed course which aims to expose you to a range of digital tools for your personal and professional development as a researcher, academic, student, or professional.
- Western Sydney University has a range of fantastic technology facilities:
 - [3-D printing](#)
 - [Music & video production](#)
 - [Construction testing](#)
 - [Magnetic resonance](#) technology for biological, chemical, and medical analyses.

Open Access to Scholarship

There is a vast range of free and open scholarship available on the web which supplements the Library's large collection of e-resources.

- Check out the [Library Subject Guides](#) and browse the e-resources organised by subject.
- Check out Western's online research repository, [ResearchDirect](#), which contains research and publications by Western researchers.
- [Directory of Open Access Journals](#) (DOAJ) is a service that indexes high quality, peer reviewed Open Access research journals and periodicals.
- [Directory of Open Access Books](#) (DOAB) indexes academic, peer reviewed books which are Open Access.

Digital Preservation

As a digital scholar, creator or collaborator you should plan for the long-term sustainability of the digital artefacts you produce. Your [ICT proficiency](#) will be important here as you consider appropriate [file formats](#), storage media, and [documentation or metadata](#), so that these artefacts remain accessible for future scholars.

- The [Personal Digital Archive Toolkit](#) provides steps to preserve your digital photographs, emails, recordings and documents.



Critical thinking

Critical thinking is often talked about at university. That's because it's a very important skill for you to develop as you go through your degree.

Critical thinking is a life skill

You probably already have experience in critical thinking from other areas of life, such as deciding on which phone or computer or car to purchase, where to live, or even what to wear on a particular occasion. In each situation, you probably don't just do what someone else tells you to do, but you make a decision based on a range of factors. For example, if you're looking for a room or property to rent, you might have to evaluate things such as:

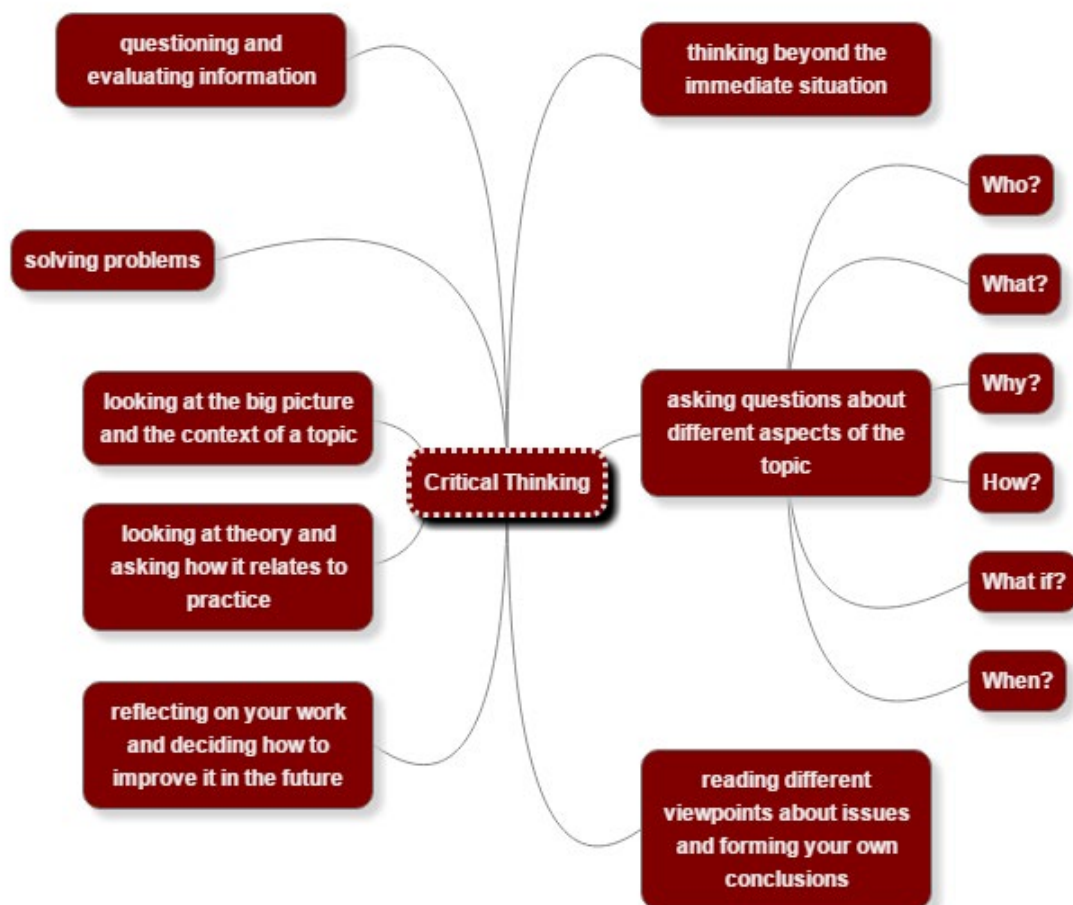
- What are the positive points of the property, and what negative points does it have (e.g. first floor apartment means no steps, but possibly less privacy and less security; bedroom is next to driveway so it could get traffic noise; I get my own bathroom, but I'll have to keep it clean myself)?
- Can I afford to live in the property, not just now but for the whole lease period?
- Does the property meet my living needs (enough space for family, pets allowed, smoking allowed, quiet enough, laundry facilities, heating/cooling, etc.)?
- Is the location suitable for my lifestyle (access to transport, distance to work or university, friends, shops, nightlife, etc.)?
- How does this property compare to other properties in the same area or different areas?
- Am I likely to be accepted as a tenant?
- Would I be able to live well with the neighbours/housemates?



The answers to these questions form part of the evidence you consider in order to make your final decision about where you will live.

Critical thinking at university

At university, critical thinking and writing involves many different ways of thinking. The diagram below shows some of these.



(Adapted from Hub for Academic Language and Learning (HALL), 2015).

It's good to remember that being **critical** in your thinking is not the same as being **negative**. For example, when you are reading a paper you might think the author has made a good point. The 'critical' part is being able to say *why* you think they've made a good point based on their evidence and argumentation.

If you do disagree with someone's ideas, you should always do so respectfully. You can show respect by taking their ideas seriously and doing your best to understand how they came to their conclusions. If you go through this process of genuinely engaging with other people's ideas, you have the right to disagree (even very strongly) with an author's view.

(Adapted from Miles & Spies-Butcher, 2012).

Why do I need to think critically?

In some cultures, students are expected to memorise information and regurgitate it in an exam. In the Australian university context, you are considered a member of the academic community. You are expected to be able to think independently and form your own conclusions based on information from various sources.

Thinking critically has the following benefits:

- you get to see that there is always more than one way of looking at something
- you'll be able to identify the best ideas and evidence to use in your assignment, and not just settle for the first thing you read
- your assignment will stand out from the rest because your ideas will be better supported and more convincingly argued
- your own ideas and academic 'voice' will be clearer in your writing because you are better able to explain how and why ideas differ
- you'll develop your knowledge and understanding more generally as you make connections between different ideas and methods
 - you'll become a better problem-solver and lifelong learner
 - you'll be more attractive to employers

How do I develop my critical thinking skills?

Some general tips for critically evaluating ideas or methods are:

- asking questions
 - considering what someone means by a particular idea
 - comparing and contrasting with other ideas or methods
- examining the evidence that someone presents to support their idea or method
 - examining the way someone argues their point
- identifying the strong and weak points of an idea or argument
- reading widely on a topic to immerse yourself in it and become familiar with the kinds of terms and frameworks used

Questioning as you listen

Your lecturer or tutor may mention some research that is relevant to the lecture topic. Make a note to read it later and check it out.

Your lecturer or tutor may use a technical term or symbol that has a meaning different from what you might expect.

Ask them about it.

Questioning as you read

Before you read a source in detail, consider whether that source is appropriate for your academic work.

You can use the 'APPEAL' framework to help you.



Watch [Using APPEAL to evaluate sources](#) (video), Library podcast, 6:26, and [Using APPEAL to evaluate websites](#) (video), Library podcast, 8:09.

Once you have identified appropriate sources for your assignment, use the questions in the table below to help you develop your critical reading skills. As you read, look for information to answer the questions. To make it more manageable, read through the list and choose one question from each box to answer about your reading.

Feature	Questions to ask about that feature
Purpose	Why has the author written the material? Does the author state his or her purposes explicitly? Are there other 'hidden' purposes?
Audience	Who is the intended audience of this material (e.g. other academics, students, general public, government officials, businesses)?
Focus & scope	Which aspects of the topic has the author chosen to concentrate on? Which aspects have they left out? Do they give any reasons for leaving out an aspect of the topic? Is the material presented in breadth (wide coverage but not very deep) or depth (detailed coverage of a narrow aspect of the topic)? What is the main argument or theme in the material?
Evidence	What explanation or evidence is used to support the main points? Is there any evidence of deliberate bias, such as which sources are used or how the material is interpreted? Do the facts seem correct? How easily could you check them? Has the author included any material that seems irrelevant?
Argumentation	How does the author introduce the subject? How does the author develop the argument or theme from one main point to another? How does the conclusion relate to the introduction and to the rest of the material?
Assumptions & influences	What are the author's assumptions? Are these explicitly stated? Is the author's purpose influenced by a contemporary issue or a particular philosophy? Is the author defending a particular point of view?
Organisation	What framework is used to organise the material? Is the framework clearly explained? How is the content organised and developed within the framework? Does the author restate what has been said at appropriate points? Does any graphic material (tables, diagrams, etc.) illustrate or restate the written content?
Style	In what style has the material been written? For example, is it formal or informal, simple or complex, didactic (teaching) or persuasive, narrative (telling a story) or analytical (pulling something apart and examining it)? How does the style and format influence your reaction to the material?
Your knowledge and questions	Which of your questions about the subject does the author answer? How are the contents related to what you know about the topic? Do any items puzzle or intrigue you?

(Adapted from Murdoch University (2016), after Marshall and Rowland (1981, pp. 102–103)).

Questioning as you write

As you research and write, you will make decisions and come to conclusions about particular questions and ideas. It's important to examine your own processes and ideas as well as those of others. For example, you might ask 'Why did I come to that conclusion?' and 'Why did I decide to include that piece of evidence but not another one?'.

More information

When you are starting to prepare for an assignment, try the following steps to immerse yourself in your assignment topic:

1. Plot your personal ideas on a topic before reading the assigned readings and any other readings. You could draw a mind map or use a free online mind mapping tool such as [MindMup](#) (use Chrome, Firefox or Safari browsers).
2. Read an introductory text or a chapter in your textbook on this topic. Has the reading changed or affirmed your views?
3. Read another chapter or text written by a different author on the same topic. How did the ideas presented by this author 'fit' with the first author? Have your ideas been further modified or not? Why or why not?

(Adapted from Hub for Academic Language and Learning (HALL), 2016).

For more tips on critical and active reading, see [How to read effectively](#) (PDF, 519 kB).

References

Hub for Academic Language and Learning (HALL) (2016). *Developing your critical writing abilities*. Western Sydney University.

Marshall, L. & Rowland, F. (1981). *A Guide to learning independently*. Melbourne: Longman Cheshire.

Miles, B. & Spies-Butcher, B. (2012). *Short exercise practice 1: Critical analysis – reading*. Sydney: Department of Sociology, Macquarie University.

Study Successfully. (2016). *Critical thinking is the art of asking questions*. Murdoch University.

Retrieved from <http://our.murdoch.edu.au/Student-life/Study-successfully/Support-for-your-assignments/Critical-thinking/>



Types of sources

Different sources for different purposes

You may encounter many different types of sources as you begin to research your assignment. Each kind of source has its place in expanding your knowledge and understanding of a topic.

Not all sources are equal, though. You'll need to look carefully at each one and critically evaluate it so you can work out where it fits within the range of 'voices' on your topic. For more information about how to critically evaluate sources, see [Critical Thinking](#). You should also watch the Library video [Evaluating sources using APPEAL](#) (video, 6:26).

The sections below describe different kinds of sources and what you could use them for.

Scholarly sources and non-scholarly sources

You may read in your Learning Guide or hear your tutor tell you that you should only use scholarly sources as evidence in your assignments.

Scholarly sources are sources that have been produced as a result of a rigorous research process and then reviewed by other scholars before they are published. Generally, they are written by qualified people in the academic community for other people in the academic community (like students, researchers, lecturers, etc.).

Non-scholarly sources are sources written or produced for an audience outside the academic community, i.e. the general public.

Source type	What it's useful for	Examples
Scholarly	→ University assignments → Academic research → Other kinds of research (government reports, etc)	→ Peer-reviewed journal articles → Scholarly books (written by academics for academics or for students) → Academic conference papers → Published research data sets → Academic book reviews
Non-scholarly	→ General knowledge → Everyday purposes, e.g. news, entertainment, social media sharing, topics of conversation → As data to analyse	→ News → General websites (including Wikipedia) → Blogs (including those written by academics) → Social media posts → Fiction books → Popular non-fiction books (including those written by academics for a general audience) → Government documents and publications

General sources and specific sources

It's important to recognise that some types of sources rely on more general knowledge, and some rely on more specific, specialised knowledge. You'll probably start your research with general sources, but make sure you move on to specific sources. Your marker will be looking to see that you have read and understood the more specialised information that specific sources give.

Source type	What it's useful for	Examples
General source	→ Getting started in your understanding of a topic → Understanding the key terms used → Getting familiar with the important concepts and researchers in the field who are interested in that topic	→ Encyclopedias → Dictionaries → Introductory textbooks → Wikipedia
Specific source	→ Deepening your understanding of a topic and the specific issues associated with it	→ Journal articles → Scholarly monograph books (by one author) → Edited books and book chapters (by multiple authors) → PhD theses and dissertations

Primary sources and secondary sources

A **primary** source is one where the author witnessed firsthand the events or phenomena they are writing about. A **secondary** source is one where the author is reporting on something that someone else saw and has written about.

Source type	What it's useful for	Examples
Primary source	→ Analysing as data for scientific, historical or social research → Getting as close as possible to the event or phenomenon you are interested in	→ Research reports (esp. in natural sciences) → Personal journals, memoirs, letters, etc → Public speeches → Newspaper or magazine articles (current news) → Audio or video recordings → Photographs or artworks → Literary works (poetry, novels, plays) → Artefacts → Records (statistical, etc)
Secondary source	→ Understanding how other people have interpreted the event → Understanding the different issues that are relevant in the study of the event or phenomenon	→ Journal articles → Academic books (including history books, textbooks, etc) → Encyclopaedias

Quantitative sources and qualitative sources

This distinction mainly applies to data that you might have to collect and/or analyse in a research project. **Quantitative** data is information about things that can be measured and expressed in numbers. **Qualitative** data is information about the qualities of things, which can't be measured and are usually expressed in words.

Source type	What it's useful for	Examples
Quantitative	→ Statistical analysis → Describing tendencies in terms of probabilities → Disciplines such as science, economics, accounting, engineering	→ Statistics from the ABS → Results from a science experiment
Qualitative	→ Content analysis → Understanding behaviour (human or animal) → Describing specific cases (e.g. case studies) → Describing general characteristics → Disciplines such as history, anthropology, sociology, literary studies	→ Texts (literature, stories, poetry, articles, etc) → Artefacts (objects) → Descriptions of behaviour or characteristics

More information

Once you've found your sources, you will want to use them effectively. Browse through the Study Smart website section "Reading and Writing" to explore strategies for reading effectively and organising your reading.

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