



Have you been asked to complete an assignment and one of the criteria is "critical analysis"? Have you received feedback on an assignment that says "little analysis", or "no clear argument", or "too descriptive"?

This guide introduces the idea of critical thinking for university study. Essays, reports, presentations and position papers all require you to show that you not only have researched and understood the topic, but that you have thought deeply about it and can express your thinking in appropriate ways.

### **What is critical thinking?**

#### Definition of critical thinking

Critical thinking has been defined in many ways, but is essentially the process of deliberate, systematic and logical thinking on any subject, while considering bias or assumptions that may affect your discussion. Critical thinking can be defined as, "the art of analysing and evaluating thinking with a view to improving it" (Paul & Elder 2009).

Critical thinkers test what they are told and what they read.

#### **A critical thinker...**

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has a goal	<i>What do I already know? What do I need to work out?</i>
applies relevant and well-focused questions to information and opinions	<i>Is this fact or opinion?</i>
seeks clarity, consistency and accuracy	<i>How do I know this?</i>
tests conclusions and reasoning against specific relevant criteria	<i>What evidence do they have for their claims/ conclusions?</i>
attempts to understand the causes, effects and implications of events, systems and ideas	<i>Why does/ did that happen?</i>
strives to recognise bias including their own	<i>What are the stated and unstated assumptions in this information?</i>
is open to alternate ideas, views and information	<i>What other ways can we think about/ act on this?</i>

## Thinking at university

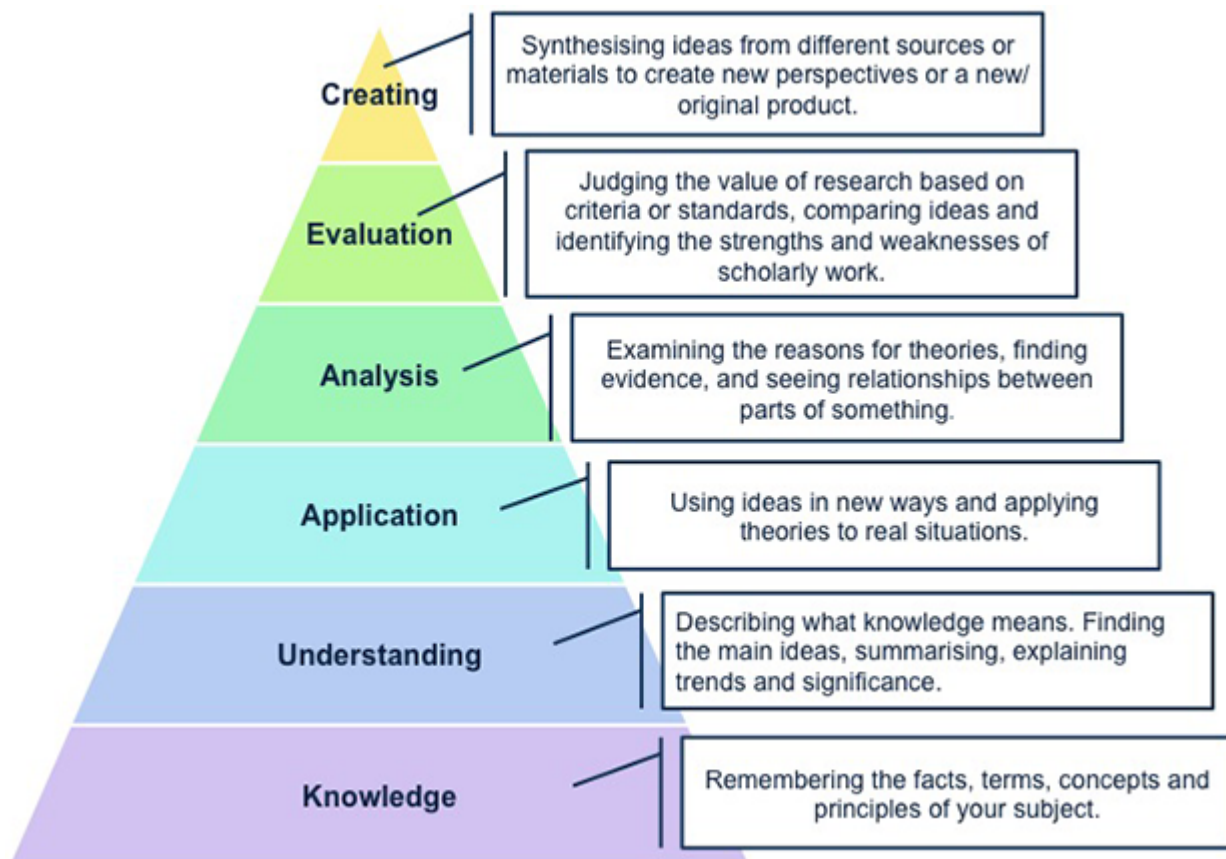
At high school, most learning occurs at the levels of Knowledge, Understanding and Application. For example, you may be expected to learn the names and properties of chemical elements (knowledge), understand why some react with others (understanding) and conduct experiments (application). At these levels, memory and comprehension are necessary, and remain so at university. However, your markers will expect more.

Markers often write comments on assignments which only communicate these lower levels of thinking, such as; "this is just description", "analyse this in more detail", or "you haven't understood the issues".

### The thinking you need

#### Bloom's Taxonomy of Intellectual Behaviour - or the thinking you need to do at university\*

The pyramid below shows the levels of thinking skills expected at university in all disciplines of study.



### The top three intellectual behaviours

The top three intellectual behaviours: Analysis, evaluation, and creating; are considered higher levels of thinking and help us to demonstrate our critical thinking.

- **Analysis** refers to the process of examining the parts of a whole, the causes and results of events, and the differences between phenomena. For example, an economics student may be asked to analyse the causes of the global financial crisis of 2008-2009. To get a high mark, the student would have to do more than describe what happened. He/she would be expected to name the main factors, explain which of these were the most important, and consider how the crisis could have been avoided.
- **Evaluation** may seem the most difficult, because it involves expressing opinions about the work of other people or expressing a justification for choices or ideas. It must follow from the other types of thinking, because you must understand the theories and ideas of a subject area in order to evaluate them successfully. For example, the engineering student solving a design problem that has many possible solutions. The student would choose the best solution by identifying, comparing and testing the theories and ideas related to the design problem.
- **Creating** is the process of joining or combining information and ideas from different sources to create something new. To create, you must be familiar with existing knowledge and practices in your field and be able to take parts of them to combine in new ways. Consider education students designing lesson plans based on educational theories and combining techniques from different sources with their own ideas. Even if no single part of the plan is original, the 'mix' is unique.

\* Adapted from Krathwohl D. (2002) *A revision of Bloom's taxonomy: An overview*. In *Theory into Practice*, Vol 41, No.4, College of Education; Ohio State University.

### Research is a conversation

Textbooks and study guides often present knowledge as absolute and unchanging. However, at university knowledge is

continually discussed and re-evaluated through considering ideas, evidence and consequences. In fact, all disciplines of study-such as economics, arts, education, engineering, medicine, science or law-are constantly under review in academic journals, laboratories and faculties. Researchers discuss each other's work and build on it to develop new insights in their fields. This process of research, evaluation, reflection and feedback is like a conversation, and your university courses are an opportunity for you to join in. You will not only gain knowledge but will also create knowledge.

### **What are you thinking?**

Before you start a course or an assignment, consider these questions:

- What do I already know?
- What do I want to learn about this subject?
- What assumptions, attitudes, values or beliefs do I have that may influence my thinking?

Working out what you do not know is also an important part of critical thinking. You may not yet be an expert on the topic, but you will have unique perspectives and experiences to contribute to the research conversation.

### **Being critical is good**

In everyday language, criticise has a negative meaning-pointing out weaknesses or finding fault. However, not all criticism is negative in an academic context. As a student, you may not feel you have the right to 'criticise' the published work of researchers and practitioners. At University, criticism or critique is the practice of examining and evaluating the reasons and evidence for claims on any topic. Critiques usually include strengths as well as limitations. This is a positive activity that updates and builds knowledge.

### **What is the current thinking on this topic?**

When you read in your discipline or listen to a lecture, ask yourself:

- Where do these ideas come from?
- Does your experience or current knowledge support these ideas?
- Is the information the same or different from claims made by others?
- What criteria can I use to test or verify this information?

## **Tips and resources**

Tips and resources for developing your critical thinking.

### **Tips for critical thinking**

Critical thinking is a skill, so develop the following habits to help develop your critical thinking skills:

#### **Check the requirements of your courses**

What are the lecturers' expectations of their students? What types of assessment are used? What grading criteria are used? What are the learning outcomes of each course? For more on understanding the task see -**Answering assignment questions**.

#### **Read strategically**

Look at the title, abstract, summary, introduction, and conclusion of your readings to decide whether you need to read all of the text, only some of it, or whether you can skip it altogether. For more on critical reading strategies see -**Effective reading**.

#### **Make notes as you read**

Make notes as you read, using your own words. Always note the source of the text: by whom, where and when it was

published. Write down any questions you have, or possible problems with the writer's ideas. For more on note-making see - [Notemaking written text](#).

### Work with classmates to discuss ideas

You should always write your own assignments, but you can improve your understanding by discussing ideas and information with your peers and your tutors. For more information see - [Group work](#).

### Write regularly about your own ideas

Write regularly about your own ideas, thoughts and feelings on a topic. Writing helps you clarify your thinking in terms of relevance, reasoning, and accuracy. Some professional courses may also require reflective writing assignments, such as built environment, education, engineering, medicine and social work. For more on reflective writing see - [Reflective writing](#).

### Find your voice

Express your ideas and do not be afraid to take risks. The best assignments show original thought, even if your ideas differ from the marker's ideas. Remember to support your views with valid reasons and solid evidence. For more on analysing and evaluating texts see - [Some general criteria for evaluating texts](#).

### Example from a student essay

Here is an example paragraph from the body of a student's essay (reproduced with permission). The assignment required the student to visit a museum exhibition and then critically discuss it. [Note that use of personal pronouns was accepted for this assignment] What levels of thinking can we see in the text?

The current debates circling public modes of history underlie the critique of the changing nature of Australian museum exhibitions.	Knowledge
Due to the extensive range of artistic mediums that the curators employed for The Barracks 'Convict Sydney' exhibit, when I visited the museum there was an initial sense of confusion rather than understanding.	Evaluation
As Gregory reports, critics of the Barracks have argued that "material remnants of the past are not being interpreted but rather are being used as props in a larger artwork". These critics of Emmetts' use of artistic methods claimed that this approach had "sidelined the political implication of historical interpretation" because the issues surrounding colonisation and reconciliation have only been dealt with "obliquely". <sup>2</sup> This is evident where "convict shadows" are displayed on the level three aside windows, and are accompanied by the sounds of voices.	Analysis
Interestingly only life-size male silhouettes were displayed in the exhibition despite the significant presence of female residents (convicts and infirmed) throughout the Barracks' history. Accompanying the convict shadows are lists of actual criminal justice documents, recording what crimes the convicts had committed.	Application
It is clear that the Barracks Museum exhibition attempts to create empathy so that visitors might feel some kind of connection or understanding with past characters.	Evaluation
However the combination of contemporary art and historical evidence to create a new means of engaging with history assumes that anyone can empathise with the Barracks' "colourful past". <sup>3</sup>	Creating

### Recommended reading

- [The Critical Thinking Community](#)
- [Bridge8-Exploring how science informs our world](#) (Critical thinking animations)

- Critical and creative thinking program

## **Critical Thinking Guide**

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