

Griffith Graduate Attributes

Critical Evaluation Skills Toolkit

(C) Innovative and Creative, with Critical Judgment

1. Ability to use knowledge and skills to devise solutions to unfamiliar problems
- 2. Ability to analyse and critically evaluate arguments and evidence appropriate to their disciplines (e.g. collect analyse and interpret data and information, generate and test hypotheses, synthesise and organise information)**
3. Knowledge of research methodologies in their disciplines and capacity to interpret findings
4. Ability to generate ideas/products/art works/methods/approaches/perspectives as appropriate to the discipline

Table of contents

Purpose of this toolkit.....	3
Why your students need skills in critical evaluation	5
What employers, graduates and students say about critical evaluation.....	7
Teaching tips - How to develop your students' skills in critical evaluation.....	9
Assessing students' critical evaluation skills	25
Principles of effective analysis and critical evaluation skills	31
Where to go for help	33
Additional resources on analysis and critical evaluation skills	34
Appendix A- Student handouts	35

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<http://www.griffith.edu.au/gihe/resources-support/graduate-attributes>

NOTE: The URLs listed in this toolkit were current at the time of retrieval. However, please note these may change with time as websites update.

Purpose of this toolkit

The Toolkits developed by members of the Griffith Graduate Project are intended primarily for academic staff. They offer an overview of some of the main issues related to developing students' graduate skills during their degree studies.

They draw heavily on existing literature and current practice in universities around the world and include numerous references and links to useful web resources.

They are not comprehensive 'guides' or 'how to' booklets. Rather, they incorporate the perspectives of academic staff, students, graduates and employers on the graduate skills adopted by Griffith University in its Griffith Graduate Statement.

Griffith University. (2009). *The Griffith Graduate Attributes*. (Retrieved from the World Wide Web 1st October 2010) <http://www.griffith.edu.au/gihe/teaching-learning-curriculum/graduate-attributes>

This Toolkit, *Critical Evaluation Skills*, focuses on how students can develop these skills at university and apply them in other contexts.

This toolkit, together with others in the series (as shown in the following table) can be accessed via the Griffith Institute for Higher Education webpage, the URL of which is listed on the following page.

GRADUATE ATTRIBUTES	DESCRIPTOR	TOOLKIT
(1) Knowledgeable and Skilled in their Disciplines	Comprehensive knowledge and skills relating to their disciplines	n/a
	An interdisciplinary perspective	Interdisciplinary Skills
	Capacity to find, evaluate and use information	Information Literacy
	Ability to apply discipline/professional skills and knowledge in the workplace	Professional Skills
(2) Effective Communicators and Team Members	Capacity to communicate effectively with others orally	Oral Communication
	Capacity to communicate effectively with others in writing	Written Communication
	Capacity to communicate effectively with others using ICTs, multimedia, visual, musical and other forms appropriate to their disciplines	ICT and Other Discipline-Related Communication Skills
	Capacity to interact and collaborate with others effectively, including in teams, in the workplace, and in culturally or linguistically diverse contexts.	Teamwork Skills

GRADUATE ATTRIBUTES	DESCRIPTOR	TOOLKIT
(3) Innovative and Creative, with Critical Judgement	Ability to use knowledge and skills to devise solutions to unfamiliar problems	Creativity and Innovation*
	Ability to analyse and critically evaluate arguments and evidence appropriate to their disciplines (e.g. collect analyse and interpret data and information, generate and test hypotheses, synthesise and organise information)	Critical Evaluation
	Knowledge of research methodologies in their disciplines and capacity to interpret findings	Research Skills
	Ability to generate ideas/products/art works/methods/approaches/perspectives as appropriate to the discipline.	Creativity and Innovation*
(4) Socially Responsible and Engaged in their Communities	Ethical awareness (professional and personal) and academic integrity	Ethical Behaviour and Social Responsibility*
	Capacity to apply disciplinary knowledge to solving real life problems in relevant communities	Problem Solving
	Understanding of social and civic responsibilities, human rights and sustainability	Ethical Behaviour and Social Responsibility*
	Understanding the value of further learning and professional development	Further Learning
(5) Competent in Culturally Diverse and International Environments	Awareness of and respect for the values and knowledges of Australian Aboriginal and Torres Strait Islander First Peoples	To be developed
	Respect, awareness, knowledge and skills to interact effectively in culturally or linguistically diverse contexts	Global and International Perspective and Awareness*
	A global and international perspective on their disciplines.	Global and International Perspective and Awareness*

NB: * Toolkit covers two sub-attributes. ** Toolkit development in progress

Why your students need skills in critical evaluation

Being able to examine processes, systems, objects, artefacts, issues and ideas in terms of their component parts and to make informed judgements about their worth, as well as the value and relevance of information are essential learning and life skills. Like problem solving, the skills of analysis and critical evaluation are best learned in a discipline context, but can be transferred to other learning contexts.

Definition

Skills in analysis and critical evaluation enable the refinement of problems and issues into their component parts, so that their significance and inter-relationships can be examined before being synthesised back into a whole. Critical evaluation is about proving a point, interpreting information and resolving problems. The ability to make informed judgments or evaluations about the worth, validity and reliability of opinions, ideas and knowledge is crucial in this process.

“When we think critically, we are evaluating the outcomes of our thought processes.”

Halpern, D.F. (1997). *Critical Thinking Across the Curriculum: A Brief Edition of Thought and Knowledge*. Mahwah, NJ: Lawrence Erlbaum & Associates, p. 4

Essential elements of critical evaluation identified by employers

In 2002, a commissioned project documented the changing nature of work and skills required by Australian enterprises to ensure long-term economic growth. Input was sought from small, medium and large enterprises. An employability skills framework was developed in which categories of skills were described. While there were no separate categories for analysis and critical evaluation, they were reflected across various categories. For example:

- Testing assumptions taking the context of data and circumstances into account;
- Predicting – weighing up risk, evaluating alternatives and applying evaluation criteria;
- Collecting, analysing and organising information;
- Evaluating and monitoring own performance;
- Coaching, mentoring and giving feedback; and
- Identifying opportunities not obvious to others.

Business Council of Australia and Australian Chamber of Commerce and Industry. (2002). *Employability Skills for the Future*. Canberra: AGPS. (Retrieved from the World Wide Web on 1 September, 2004)
http://www.dest.gov.au/sectors/training_skills/publications_resources/other_publications/

Academic excellence

At university, students are expected to be able to:

- Evaluate whether information and materials are appropriate for a particular purpose, and up-to-date;
- Evaluate whether the evidence or examples used in materials really proves the point that the author claims;
- Weigh up opinions, arguments or solutions against appropriate criteria;
- Think a line of reasoning through to its logical conclusion;
- Check for hidden bias or assumptions; and
- Check whether the evidence and argument provided really support the conclusions.

Palgrave Macmillan. (n.d.). *Critical/Analytical Skills*. (Retrieved from the World Wide Web on 2 September, 2004) <http://www.palgrave.com/skills4study/html/studyskills/critical.htm>

Characteristics of a ‘critical thinker’

- Inquisitiveness about a wide range of issues;
- Desire to become and remain well-informed;
- Alertness to opportunities to use critical thinking;
- Trust in the processes of reasoned inquiry;
- Self-confidence in own abilities to reason;
- Open-mindedness towards divergent world views;
- Flexibility in considering alternatives and opinions;
- Understanding of the opinions of other people;
- Fair-mindedness in appraising reasoning;
- Honesty in facing own biases, prejudices, stereotypes, etc;
- Discretion in suspending, making or altering judgments; and
- Willingness to reconsider and revise views where necessary.

Facione, P. (2010). *Critical Thinking: What It Is and Why It Counts*. (Retrieved from the World Wide Web on 1 November 2010) http://www.insightassessment.com/pdf_files/what&why98.pdf

What employers, graduates and students say about critical evaluation

Employers' comments

"We have actually started giving a test when we recruit. I give them a scenario, and say, 'Explain to me the process that you would use to analyse the risks in this situation and how you would communicate those risks to me.' I will look for the people who lead up to the whiteboard and conceptualise it by drawing it out."

(Employer of Griffith Criminology and Criminal Justice Graduates, 2001)

"Analysis and critical evaluation would have to be two of the most important skills we look for, because we believe that graduates already have learned the content knowledge. What they then need is the ability to apply that knowledge. If they can analyse and evaluate the knowledge they have, then they can apply it in the workplace."

(Employer of Griffith Engineering Graduates, 2003)

"We have a lot of graduate analyst roles: manufacturing analyst roles, sales analyst roles, etc. And all these roles have an element where they need to analyse data, they need to analyse trends in our business. With some of the roles, they actually need to analyse other business units, other departments – and think outside the box. We're not looking for old styles of thinking. We're looking for graduates with fresh blood and new ways of thinking, so that's where those kind of skills come in."

(Employer of Griffith Graduates, 2004)

"I look for critical evaluation skills within the workplace context because that's the kind of thing that will help take the organisation forward. They [new graduates] represent a new breed of thinking. Also, dealing with the political environment that they work in ...I think that is one of the major things people have to learn."

(Employer of Griffith Criminology and Criminal Justice Graduates, 2002)

"Developing a critical approach to learning is about challenging preconceptions, both those of the learner and the teacher. It is about being able to develop opinions and being able to justify them, to be able to think about knowledge as a process not some 'thing' they tentatively approach and selectively appropriate. A critical approach is about students having the confidence to assess and develop knowledge for themselves rather than submitting packaged chunks to an assessor who will tell them if it is sufficient or 'correct'. It ultimately requires students to self-assess, to be able to decide what is good-quality work and to be confident when they achieve it."

Harvey, L. (1999). *New Realities: The Relationship between Higher Education and Employment*. (Retrieved from the World Wide Web on 2 March, 2002) <http://www.uce.ac.uk/crq/publications/ear99.pdf>

Graduates' comments

"The importance of analysis and critical thinking is apparent in daily life. It can help you avoid the mindset of 'Well, that's the way I've always done it.' Behaviours, habits, tasks and even the way one goes about making decisions can be critically analysed and evaluated. That doesn't mean that each daily decision has to become a laborious analytical nightmare. But it does mean that maybe if you're not happy with certain recurring outcomes, you might need to take a critical approach to the process."

(Griffith Graduate, 2002)

Students' comments

"As an undergraduate, it can be easy to be intimidated by academic discourse. The fear is that you will simply be parroting a standard line or that your inability to deconstruct an argument will be apparent. Developing critical thinking and evaluation skills is definitely a learned quality that needs to be practised."

(Griffith Student, 2003)

"Assignment work at university has really developed my critical thinking and analytical skills. This is because I'm required to analyse and interpret information, filter out information that isn't relevant and use it to form an intelligent argument."

(Griffith Student, 2003)

Teaching tips - How to develop your students' skills in critical evaluation

Teaching approaches to help develop students' critical evaluation skills

Concept maps

Using concept maps in planning a curriculum or instruction on a specific topic helps to make the instruction 'conceptually transparent' to students. Many students have difficulty identifying and constructing powerful concept and propositional frameworks, leading them to see science learning as a blur of myriad facts or equations to be memorized. If concept maps are used in planning instruction and students are required to construct concept maps as they are learning, previously unsuccessful students can become successful in making sense out of science and acquiring a feeling of control over the subject matter.

Novak, J.D., & Canas, A.J. (2008). *The Theory Underlying Concept Maps and How To Construct Them*. (Retrieved from the World Wide Web on 1 November, 2004)
<http://cmap.ihmc.us/Publications/ResearchPapers/TheoryUnderlyingConceptMaps.pdf>

Using concept maps

Concept maps are tools for organising and representing ideas, concepts and information diagrammatically, through a series of interconnected circles, boxes and lines.

The benefits of concept maps are that they enable students to:

- Establish connections between ideas they already have;
- Connect new ideas to existing knowledge; and
- Organise ideas in a logical, but not rigid, structure that can be updated.

How to create a concept map

- Read widely on the subject to identify 10-15 key concepts or ideas and several examples. (Use different colours to distinguish concepts and examples);
- Write ideas on a large sheet of paper with the most abstract ones at the top and the most specific at the bottom. Don't include the examples yet. (Do this step on post-it notes so that you can move the concepts around);
- If possible, arrange the concepts so that ideas go directly under ideas that they are related to (hierarchically). Duplicate the post-its to show overlap. Add concepts that help explain, connect, or expand the ideas;
- Connect the abstract concepts at the top to the specific concepts lower down or on the same level. Rearrange the post-its during this stage;

- On the connecting lines, write words or phrases that explain the relationship between the concepts. Continue to rearrange the pieces of paper until the relationships are clear;
- Put the examples under the concepts they belong with, and connect the concept to the example with a phrase such as 'for example.'

Georgia Perimeter College. (n.d.). *Concept Mapping*. (Retrieved from the World Wide Web on 1 November, 2010)<http://facstaff.gpc.edu/~shale/humanities/composition/handouts/concept.html>

Why not:

Take 15 minutes of a lecture to ask students to break into groups of four and pool their understanding of how your course or subject 'fits' in the overall design of the degree program by concept mapping.

Then draw your own understanding on the board and check students' concept maps against it.

Some further information and software tools for concept mapping

- Safayeni, F., & Derbentseva, N. (n.d.). *Concept Maps: A Theoretical Note on Concepts and the Need for Cyclic Concept Maps*. (Retrieved from the World Wide Web on 1 November, 2010)
<http://cmap.ihmc.us/Publications/ResearchPapers/Cyclic%20Concept%20Maps.pdf>
- Florida State University- Learning Systems Institute. (n.d.). *How Do I Use Concept Maps?* (Retrieved from the World Wide Web on 1 November, 2010)
<http://www.lpg.fsu.edu/charting/InstructionalStrategies/howto-tactics/ht-k3dccmap.asp>

An example of a basic concept map appears below:

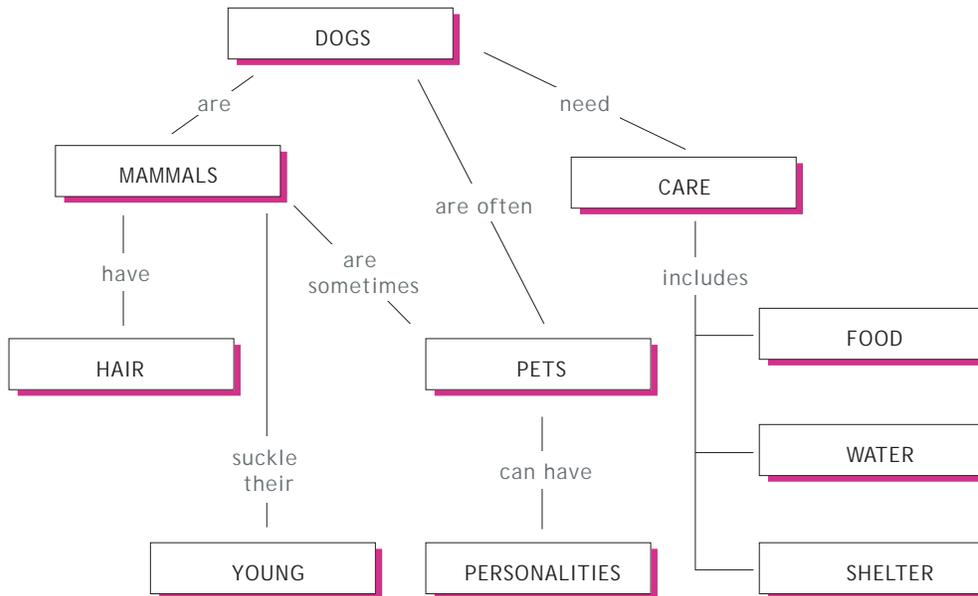


Figure 1. An example of a simple concept map. This map illustrates some of the key characteristics of concept maps.

Fraser, K. (1996). *Student Centred Teaching: The Development and Use of Conceptual Frameworks*. Herdsa Green Guide. ACT, Australia: HERDSA, p.3.

Analysis and critical thinking ‘out loud’

Helping students assess analysis and critical thinking in oral presentations

In a well-designed class, students often engage in oral presentations. They articulate what they are learning: explaining, giving examples, posing problems, interpreting information, tracing assumptions, etc... They need to learn, however, to assess what they are saying, becoming aware of when they are being vague, when they need an example, what explanations are inadequate, etc. Here are three general strategies that have a number of tactical forms.

Students teaching students: One of the best ways to learn is to try to teach someone else. If students have trouble explaining something, it is often because they are not as clear as they need to be about what they are explaining.

Group Problem Solving: By putting students in a group and giving them a problem or issue to work on together, their mutual articulation and exchanges will often help them to think better. They will often help correct each other, and so learn to ‘correct’ themselves.

Oral test on basic (subject-specific) vocabulary: One complex tactic that aids student learning is the oral test. Students are given a vocabulary list. They are put into groups of twos or threes and are asked to take turns explaining what the words mean.

The Critical Thinking Community. (n.d.). *Structures for Student Self-Assessment*. (Retrieved from the World Wide Web on 1 November, 2010)
<http://www.criticalthinking.org/page.cfm?PageID=458&CategoryID=64>

Using debating to analyse and evaluate issues.

Debating is a great way to develop students' skills in critical evaluation, analysis, research, oral presentation and teamwork. Debating can be used in any discipline area to generate critical thinking about controversial issues, challenge assumptions and raise awareness of alternative points-of-view.

Skills developed through debating	
Oral communication	Persuasive verbal arguments. Confidence and clarity in thinking. Language skills.
Structuring an argument	Big picture perspective. Ability to define topic, terms and premise. Stating what is to be proved, providing supporting evidence and examples. Countering opposing arguments.
Logical and analytical thinking	Clear lines of argument. Understanding of valid and faulty reasoning. Ability to think quickly in response to opposing viewpoints.
Teamwork	Collaboration on common task. Understanding of role in order of debate.
Time management skills	Succinct arguments presented in restricted time. Effective use of time to prepare and deliver arguments.
Research skills	Ability to find and utilise relevant and current literature/findings on the topic. Ability to identify key points and summarise.
Reading the audience	Knowing what audience already knows/expects to hear on the topic. Tailoring the content, pace and tone of a presentation to audience. Presenting information in an engaging and entertaining style.

Guidelines for debating

Students form themselves into teams of six – three affirmative and three negative speakers. Each team selects a debate topic from a list of options (or develops their own). Lecturer or tutor checks for potential for controversy and ‘do-ability.’ Teams research background information and plan arguments according to speaker’s roles. Each student has seven minutes (or less) for their presentation. Other class members use feedback sheets to provide peer-assessment. Lecturer’s or tutor’s own assessment is averaged with students’ assessment for final mark.

Speakers’ roles

Affirmative	Negative
Introduces issue; outlines stance.	Outlines opposing stance; attacks.
Justifies with evidence; attacks.	Justifies with evidence; attacks.
Restates stance; justifies; summarises; no new evidence.	Restates stance; justifies; summarises; no new evidence.

Suggestions for debate topics

Science:

The use of embryonic stem cells for any research purposes endangers the sanctity of human life.

Engineering:

Electronic surveillance and its associated technologies should be regarded as a positive way forward for the safety and security of humankind.

Business:

The reality of today's global marketplace is, that for businesses to survive, profit not ethics must be their first priority.

Nursing:

Terminally ill patients have the right to consider euthanasia as a viable option.

Arts, Media and Cultural Studies:

Society benefits from the personal expressions of artists (journalists, film makers, etc).

Education:

The welfare of the child is of more importance than the rights of parents.

Questioning

There's more to questioning students than just checking their understanding. Simple questions require students to define, list, classify, recall or do something. Complex questions ask them to explain, challenge, compare or contrast, analyse, evaluate things, or hypothesise about them.

Bloom's Taxonomy (1956) categorises the way people learn into three domains. One of these is the cognitive domain, which emphasises intellectual outcomes. This domain is further divided into sub-categories or levels. The key words used and the type of questions asked can encourage critical thinking, especially at the higher levels.

Level 1: Knowledge	Exhibits previously learned material by recalling facts, terms, basic concepts and answers.	
Key words	Who, what, why, when, omit, where, which, choose, find, how, define, label, show, spell, list, match, name, relate, tell, recall, select.	
Questions	What is ...? How is ...? Where is ...? When didhappen? How did happen? How would you explain ...? Why did ...? How would you describe?	When did ...? Can you recall ...? How would you show ...? Can you select ...? Who were the main ...? Can you list three ...? Which one ...? Who was ...?

Level 2: Comprehension	Demonstrating understanding of facts and ideas by organising, comparing, translating, interpreting, giving descriptions and stating main ideas.	
Key words	Compare, contrast, demonstrate, interpret, explain, extend, illustrate, infer, outline, relate, rephrase, translate, summarize, show, classify.	
Questions	How would you classify the type of ...? How would you compare ...? contrast ...? Will you state or interpret in your own words ...? How would you rephrase the meaning of...? What facts or ideas show ...? What is the main idea of ...?	Which statements support...? Can you explain what is happening ... what is meant...? What can you say about...? Which is the best answer ...? How would you summarise ...?
Level 3: Application	Solving problems by applying acquired knowledge, facts, techniques and rules in a different way.	
Key words	Apply, build, choose, construct, develop, interview, make use of, organize, experiment with, plan, select, solve, utilize, model, identify.	
Questions	How would you use ...? What examples can you find to ...? How would you solve using what you have learned ...? How would you organise to show ...? How would you show your understanding of ...? What approach would you use to ...?	How would you apply what you learned, to develop ...? What other way would you plan to ...? What would result if ...? Can you made use of the facts to ...? What elements would you choose to change ...? What questions would you ask in an interview with ...?
Level 4: Analysis	Examining and breaking information into parts by identifying motives or causes; making inferences and finding evidence to support generalisations.	
Key words	Analyse, categorise, classify, compare, contrast, discover, dissect, divide, examine, inspect, simplify, survey, take part in, test for, distinguish, list, distinction, theme, relationships, function, motive, inference, assumption, conclusion.	
Questions	What are the parts or features of ...? How is related to ...? Why do you think ...? What is the theme ...? What motive is there ...? Can you list the parts ...? What inference can you make ...? What conclusions can you draw ...?	How would you classify ...? How would you categorise ...? Can you identify the difference parts ...? What evidence can you find ...? What is the relationship between ...? Can you make a distinction between ...? What is the function of ...? What ideas justify ...?

Level 5: Synthesis	Compiling information together in a different way by combining elements in a new pattern or proposing alternative solutions.	
Key words	Build, choose, combine, compile, compose, construct, create, design, develop, estimate, formulate, imagine, invent, make up, originate, plan, predict, propose, solve, solution, suppose, discuss, modify, change, original, improve, adapt, minimise, maximise, delete, theorise, elaborate, test, improve, happen, change.	
Questions	<p>What changes would you make to solve ...?</p> <p>How would you improve ...?</p> <p>What would happen if ...?</p> <p>Can you elaborate on the reason ...?</p> <p>Can you propose an alternative ...?</p> <p>Can you invent ...?</p> <p>How would you adapt..... to create a different ...?</p> <p>How could you change (modify) the plot (plan) ...?</p> <p>What could be done to minimise (maximise) ...?</p> <p>What way would you design ...?</p>	<p>What could be combined to improve (change) ...?</p> <p>Suppose you could what would you do ...?</p> <p>How would you test ...?</p> <p>Can you formulate a theory for ...?</p> <p>Can you predict the outcome if ...?</p> <p>How would you estimate the results for ...?</p> <p>What facts can you compile ...?</p> <p>Can you construct a model that would change ...?</p> <p>Can you think of an original way for the ...?</p>
Level 6: Evaluation	Presenting and defending opinions by making judgements about information, validity of ideas or quality of work based on a set of criteria.	
Key words	Award, choose, conclude, criticise, decide, defend, determine, dispute, evaluate, judge, justify, measure, compare, mark, rate, recommend, rule on, select, agree, interpret, explain, appraise, prioritise, opinion, support, importance, criteria, prove, disprove, assess, influence, perceive, value, estimate, influence, deduct.	
Questions	<p>Do you agree with the actions ...? with the outcomes ...?</p> <p>What is your opinion of ...?</p> <p>How would you prove ...? disprove ...?</p> <p>Can you assess the value or importance of ...?</p> <p>Would it be better if ...?</p> <p>Why did they (the character) choose ...?</p> <p>What would you recommend ...?</p> <p>How would you rate the ...?</p> <p>What would you cite to defend the actions of...?</p> <p>How would you evaluate ...?</p> <p>How could you determine ...?</p>	<p>What choice would you have made ...?</p> <p>What would you select ...?</p> <p>How would you prioritise ...?</p> <p>What judgment would you make about ...?</p> <p>Based on what you know, how would you explain ...?</p> <p>What information would you use to support the view ...?</p> <p>How would you justify ...?</p> <p>What data was used to make the conclusion ...?</p> <p>Why was it better that ...?</p> <p>How would you prioritise the facts ...?</p> <p>How would you compare the ideas ...? people ...?</p>

Metropolitan Community College. (n.d.). *Critical Thinking Across the Curriculum Project*. (Retrieved from the World Wide Web on 2 September, 2004) <http://www.kcmetro.cc.mo.us/longview/ctac/blooms.htm>

Using questions to encourage critical thinking-

Questions can be open or closed (requiring just a simple Yes/No answer), procedural (in laboratories), confrontational, probing, or prompting. The following table outlines some of the more effective ways to ask questions to encourage critical thinking in class.

Questioning Strategy	Example
Ask open questions that have more than one answer.	"How do you think the situation in Iraq will be resolved?"
Ask focused questions.	"Can you give an example of political bias from today's newspaper?"
Ask questions that don't reveal your own bias.	"Why are some politicians more persuasive than others?"
Ask one question at a time.	There are three questions here, the last two of which the student would very likely forget before answering: "Can you explain how the principles of classical rhetoric were manifested in the political speeches made by world leaders during the war with Iraq, and what the likely implications might be for future politicians, giving some examples to illustrate your main points?"
Give students time to think before responding.	"Would you like to take two minutes to write your answer down first?"
Ask students to raise their own questions.	"What questions do you have about...?"
Use questions to change the pace.	"From all the discussion we've had, Karen, can you summarise the main points?"
Use probing questions.	"So, ok, if you've analysed this in some detail, please tell us what you found and explain its significance."

Gross Davis, B. (1993). *Tools for Teaching*. San Francisco: Jossey-Bass, pp. 85-88.

Managing students' questions

Managing students' questions so that everyone has the chance to ask, and be answered, takes some planning and thoughtful facilitation. Some suggestions are given below:

- ask students to prepare their questions before the class and come with them written down;
- ask students to give you an example in their response so you know they understand;
- listen closely to the student's question and test your understanding by seeing if the group agrees or disagrees with it;

- show your attention to the students' questions by eye contact and other non-verbal gestures;
- acknowledge interesting questions and answers;
- be fair in taking questions and answers from the group;
- structure and sequence questions so the whole group is involved in responding;
- involve quieter students by including them in the discussion;
- emphasise the quality of the question or response, not the student who asked or gave it; and
- if certain questions are better dealt with in a later class, or after class, say so.

Gross Davis, B. (1993). *Tools for Teaching*. San Francisco: Jossey-Bass, pp. 85-88.

Using the Socratic questioning approach

The Socratic method 'leads' students from a starting point where they may have considered only one possible explanation, cause, or reason through a network of possible options, towards a considered resolution to an issue or problem. It involves intensive and focused dialogue between lecturer and student/s, so that each question and response builds incrementally on the preceding. This approach encourages self-reflection, analysis and critical evaluation.

Some examples of a 'hierarchy' of Socratic question types, which move from the simple to the more complex, appear below.

A hierarchy of questions to develop critical-thinking skills	
Questions of clarification	What do you mean by...? How doesrelate to.....? Why do you say that?
<i>Questions that probe assumptions</i>	What are you assuming here? What could we assume instead? Why would someone make that assumption?
Questions that probe reasons and evidence	How do you know? What difference does that make? What would you say to someone who said that....?
Questions about viewpoints and perspectives	What are you implying by saying that...? What effect would that have? What might an alternative be?
Questions that probe implications and consequences	So if you say, you'll have to agree that...Is this really what you mean to say? Why is this issue important? Is this the most important question, or is there an underlying question that is really the issue?
Questions about the question	Is this the same issue as ...? Would ...put the question differently? Can we break this question down a little?

Paul, R. (1993). *Critical thinking: How to prepare students for a rapidly changing world*. In *Tutorial on Problem-Based Learning/Taxonomy of Socratic Questioning*. (Retrieved from the World Wide Web on 1 November, 2010) <http://www-ed.fnal.gov/trc/tutorial/taxonomy.html>

Further information on Socratic questioning strategies can be found at:

- Sample, K. (1998). *The Socratic Method*. (Retrieved from the World Wide Web on 1 November, 2004) <http://www.str.org/site/News2?page=NewsArticle&id=5631>
- Coffey, H. (n.d.). *Socratic Method*. (Retrieved from the World Wide Web on 1 November, 2010) <http://www.learnnc.org/lp/pages/4994>

Critical thinking through group collaboration

Opportunities for group collaboration include discussions, case studies, task-related group work, peer review, or debates. Group collaboration is effective for promoting critical thought because:

- An effective team has the potential to produce better results than any individual;
- Students are exposed to different perspectives while clarifying their own ideas; and
- Collaborating on a project or studying with a group for an exam generally stimulates interest and increases the understanding and knowledge of the topic.

University of Waterloo – Centre for Teaching Excellence. (n.d.). *Promoting and Assessing Critical Thinking*. (Retrieved from the World Wide Web on 1 November, 2010)
http://cte.uwaterloo.ca/teaching_resources/tips/promoting_and_assessing_critical_thinking.html

Evaluating ideas and written text

Some suggestions for giving students practice in evaluating ideas and written text are given below.

Why not:

Create some critical thinking writing activities that

- give students raw data and ask them to write an argument or analysis based on the data;
- have students explore and write about unfamiliar points-of-view or ‘what if’ situations;
- think of a controversy in your field, and have the students write a dialogue between characters with different points-of-view. Select important articles in your field and ask the students to write summaries or abstracts of them. Alternately, you could ask students to write an abstract of your lecture; and
- develop a scenario that places students in realistic situations relevant to your discipline, where they must reach a decision to resolve a conflict.

University of Waterloo – Centre for Teaching Excellence. (n.d.). *Promoting and Assessing Critical Thinking*. (Retrieved from the World Wide Web on 1 November, 2010)
http://cte.uwaterloo.ca/teaching_resources/tips/promoting_and_assessing_critical_thinking.html

Why not:

Explore what textual analysis involves. Ask your students to:

- Identify what is being said;
- Distinguish what is relevant from what is not;
- Find connections between different strands of thought;
- Recognise vagueness and ambiguity, then clarify the terms;
- Identify members of a class in terms of likenesses;

- Identify counter instances as different in some respect; and
- Identify analogies.

Lipman, M. (1991). *Thinking in Education*. Cambridge: Cambridge University Press, cited in Slade, C. (1995). Higher order thinking in institutions of higher learning. *Unicorn*, 21(1), pp. 39.

“Evaluation involves:

- *Giving reasons for beliefs and decisions and choosing how to act;*
- *Criticising ideas constructively; and*
- *Modifying ideas in response to criticism.”*

Lipman, M. (1991). *Thinking in Education*. Cambridge: Cambridge University Press, cited in Slade, C. (1995). Higher order thinking in institutions of higher learning. *Unicorn*, 21(1), pp. 39.

Checklists for students to monitor their skills development

Encourage students to ask the following questions each time they read printed or web-based source material for their assignments:

Checklist to develop critical evaluation skills	
How relevant is this text to my research needs?	
What is the author's stance in relation to the topic? Are they for it or against it, or neutral towards it? Is there evidence of the author's personal, political or cultural bias in the text?	
Do I accept or challenge their stance?	
How do I know whether the author has academic credibility?	
Where does the article/text 'fit' in the context of the broad issue? Is it dated or current? Does it present a new perspective or possible solutions?	
What is the author really saying? Can I write it down in one thesis statement? Is it argued consistently throughout the article?	
What are the main issues and the sub-issues dealt with? Can I use a concept map to show how they all fit together?	
Is this article/text convincing or persuasive?	
What are its strengths and weaknesses?	
What else will I need to know before I can make a judgement about this text?	

Checklist for evaluating web sites	
Who is the author – an individual or an organisation? Are their credentials listed? Email address? Is there any bias?	
Do they give references for their source material? If links are provided, do they work and are they current?	
Do the graphics serve a purpose or are they primarily decorative? Are the icons meaningful?	
Does the site download quickly? Does it present problems for older browsers?	
When was it produced, updated or revised?	
Does it seem to give comprehensive information?	

Prompt questions to ask students about course content, concepts, ideas, written material, web sites, etc.

- What point is the author trying to make?
- What is its significance, or what are its implications?
- How will you act on this?

Keep asking students to

- Identify any underlying assumptions or biases in their resource material or their own work;
- Pinpoint what is difficult about doing this;
- Question whether the author is using valid arguments or relying on persuasive means to convince the reader;
- Check other sources to see if the information presented has been validated;
- Monitor how often they question and challenge information, and how often they don't;
- Identify what they think gives an author credibility and authority on the topic; and
- Check their own written work for faulty reasoning.

Developing students' reasoning skills

To make informed judgements, evaluations and analyses, students must know some basic principles of reasoning. A grasp of logic helps to examine the validity of assumptions and opinions. Some basic terms associated with logic and reasoning are:

- **Inductive reasoning:** starts from specific facts or observations to arrive at a general conclusion (e.g., When I stay in the sun too long, I get sunburnt, so if I go to the beach this summer I will get sunburnt). Inductive reasoning relies on

- evidence, which must be accurate, complete, relevant and adequate to prove the point.
- **Deductive reasoning:** makes a general observation and works back to a specific example (e.g., All lengthy exposure to the sun leads to sunburn; I am exposed to the sun for long periods; Therefore I will get sunburnt). Deductive reasoning relies on rules of inference. The difference between deductive and inductive reasoning is in the form in which the argument is expressed – deductive logic works according to a tightly prescribed syllogistic form; inductive logic is ‘looser.’
 - **Syllogism:** a construction such as the one above, in which the various parts (premises and terms), have precise functions within a consistent schema.
 - **Argument:** a rhetorical device in which a claim or proposition is proved by the use of evidence or inference. Argument differs from ‘persuasion,’ in that it does not rely on strategies that affect the emotions.
 - **Assumption:** a belief, that the person making the argument feels is self-evident and does not need to be proved.
 - **Premise:** a statement that directly supports the conclusion of a syllogism (e.g., ‘All lengthy exposure to the sun leads to sunburn.’)
 - **Fallacy:** a premise that is clearly faulty (e.g., ‘All exposure to the sun leads to sunburn’).
 - **Proposition:** the claim that will be considered in the argument (this can either be true or false, and has to be supported by evidence in order to be proved).

Useful resources and interactive tutorial exercises are available at:

- San Jose University – Institute for Teaching and Learning. (n.d.). *Mission Critical*. (Retrieved from the World Wide Web on 1 November, 2010) <http://www2.sjsu.edu/depts/itl/graphics/main.html>

Basic principles of inductive reasoning

Inductive reasoning can be ‘dangerous’ because it relies on generalisations and lends itself to misinterpretation of evidence, e.g., a sample of three or four people’s experience of getting sunburnt after four hours in the sun does not necessarily mean that *all* exposure to the sun leads to sunburn for everyone.

Inductive reasoning is fundamental in science, in which specific observations lead to generalisations after testing the evidence. Inductive reasoning is prone to ‘fallacies,’ such as the ‘floating comparison,’ the ‘loaded question,’ and ‘*post hoc, ergo propter hoc*’ (or false attribution of cause/effect relationships).

Basic principles of deductive reasoning

Deductive reasoning relies on syllogisms, made up of a major and a minor premise and a conclusion. For the conclusion to be valid, the premises have to be true and properly constructed.

The greatest danger in deductive reasoning is not distributing the middle term properly (i.e., the term that appears in both premises). This gives an appearance of sound reasoning, but the conclusion is faulty.

Basic principles of written arguments

A proposition is put forward and supporting evidence provided, and logic is used to develop the proposition and evidence into a case. The introduction raises the topic or subject matter, advances the proposition, defines key terms, makes the thesis statement and indicates the main supporting points. The body of the essay presents and explains the supporting evidence, makes clear transitions between various points, and responds to opposing viewpoints. The conclusion reflects on what has gone before and explains why [and how] the thesis statement has been supported and proved.

Davis, L., & McKay, S. (1996). *Structures and Strategies: An Introduction to Academic Writing*. South Melbourne: Macmillan, pp. 91-104.

Assessing students' critical evaluation skills

What will you assess?

Analysis and critical evaluation are more difficult to assess in students' work than, say, teamwork or oral communication. They are more abstract in nature, with individual values often clouding thinking.

Both skills involve students in thinking reflectively, constructing and deconstructing arguments or ideas and making judgements based on evidence of some kind. It is this part of the learning process that can be assessed – usually in written form, but also in oral presentations or interviews.

What you are looking for, and making a judgement about, is not necessarily the conclusion reached by the student, but evidence in the students' assignment that they:

- have formulated a proposition based on valid premises;
- have gathered and presented supporting evidence to argue their case;
- have challenged underlying assumptions held by others; and
- have reflected on their conclusions and made their own judgement about their value.
- Reflective journals that track developments in the students' thinking are useful, either as non-assessable or assessable components of the course.

Useful resources

- The Australian Scholarship in Teaching Project. (n.d.). *Keeping a Reflective Journal*. (Retrieved from the World Wide Web on 1 November, 2010)
<http://www.clt.uts.edu.au/Scholarship/Reflective.journal.htm>

Questions to ask when assessing students' work

Has the student, when analysing:

- identified the component parts of the task (whether concrete or abstract) and disaggregated them for close examination?
- reconstructed them into a coherent whole based on underlying principles (whether concrete or abstract)? and
- examined the component parts in terms of their inter-relationships and their relationship with the whole (whether concrete or abstract)?

Has the student, when arguing:

- formulated a valid proposition and premises?
- constructed a cogent argument using a logical process of some kind?
- identified and justified any underlying assumptions and biases?
- remained open to other perspectives?
- challenged or contested these perspectives? and
- used relevant and reliable evidence to support their own claims or propositions?

Making judgements on students' assignments

"...we can say that the information we collect on students' capacity to think critically and make judgements is of high quality when it allows us to decide whether the students' thinking processes were justified."

Te Wiata, I. (1996). Thinking critically and making judgments. In Nightingale, P., Te Wiata, I., Toohey, S., Ryan, G., Hughes, C., & Magin, D. *Assessing Learning in Universities*. Sydney: University, p. 36.

Approaches to assessing critical thinking

Many of the descriptions in the section of this Toolkit on 'How to develop students' skills in critical evaluation,' can be readily adapted for assessment.

Some additional ideas are:

The Critical Practice Audit (used in nursing and teaching)

The term 'critical practice' refers "to any work people do that involves analysing situations, reflecting on past experience, making judgements and decisions, and taking actions, all without the benefit of a standard protocol or uniform response that takes care of each and every problem they encounter."

Ask students to write brief descriptions of an incident in the recent past including details of what happened. Then ask them to:

- List assumptions and whether they were accurate and valid;
- What assumptions were challenged by the incident and how was the accuracy of those assumptions checked? and
- What different perspectives could be taken on the incident seen through other eyes and what other responses could have been made to the incident.

Critical debate

Frame an issue as a debate motion. Then ask:

- for volunteers for and against the motion, then appoint volunteers to the group they didn't choose;
- participants to write a reflective paper after the debate listing the assumptions that were clarified or confirmed in the debate, assumptions that were challenged, and new perspectives gained on the issue.

Brookfield, S. (1997). In A. Rose and M. Leahy (eds.). *Assessing Adult Learning in Diverse Settings: Current Issues and Approaches*. San Francisco: Jossey-Bass, pp. 7-9.

Helping students assess their own, and others', writing

The following strategy is useful when giving students the opportunity to peer assess one another's written work.

- Students, in groups of four, choose the best paper, then join with a second group and choose the best of the two. This last paper is read to the class as a whole and a class-wide discussion is held about the strengths and weakness of the papers chosen, leading to the class voting on the best paper of the day;
- Students in groups of three or four write out their recommendations for improvement on three or four papers (from students not in their group). The written recommendations go back to the original writer who does a revised draft for next time;
- Students in groups of three or four take turns reading their papers and discuss the extent to which they have, or have not, fulfilled the performance criteria relevant to the paper;
- One student's paper is read aloud slowly to the class while the instructor leads a class-wide discussion on how the paper might be improved. Then the students work in groups of two or three to try to come up with recommendations for improvement for the students in their group (based on the model established by the instructor).

The Critical Thinking Community. (n.d.). *Structures for Student Self-Assessment*. (Retrieved from the World Wide Web on 1 November, 2010) <http://www.criticalthinking.org/page.cfm?PageID=458&CategoryID=64>

Explain grading standards to students

Students need to know what is expected of them. They need to understand the standards that apply for each grade awarded for assessment items. The skills of analysis and critical evaluation figure prominently in Griffith's policy for the award of grades, as the extract below demonstrates:

Griffith University's policy for the award of grades

"Students' results in courses are recorded using the following grades. The description that accompanies each grade is given as a guideline to assist comparability across the University, but these descriptions must be interpreted within the context of each course.

High Distinction (HD)

Complete and comprehensive understanding of the course content; development of relevant skills to a comprehensive level; demonstration of an extremely high level of interpretive and analytical ability and intellectual initiative; and achievement of all major and minor objectives of the course.

Distinction (D)

Very high level of understanding of the course content; development of relevant skills to a very high level; demonstration of a very high level of interpretive and analytical ability and intellectual initiative; and achievement of all major and minor objectives of the course.

Credit (C)

High level of understanding of course content; development of relevant skills to a high level; demonstration of a high level of interpretive and analytical ability and achievement of all major objectives of the course; some minor objectives not fully achieved.

Pass (P)

Adequate understanding of most of the basic course content; development of relevant skills to a satisfactory level; adequate interpretive and analytical ability and achievement of all major objectives of the course; some minor objectives not achieved.

Non-graded Pass (NGP)

Successful completion of a course assessed on a pass/fail basis, indicating satisfactory understanding of course content; satisfactory development of relevant skills; satisfactory interpretive and analytical ability and achievement in all major objectives of the course.

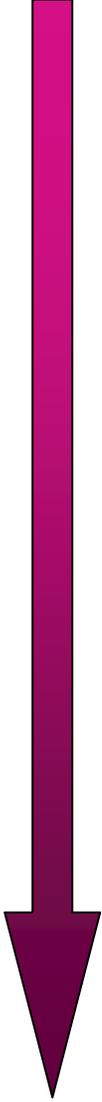
Fail (F)

Inadequate understanding of the basic course content; failure to develop relevant skills; insufficient evidence of interpretive and analytical ability; and failure to achieve some or all major and minor objectives of the course.”

Griffith University. (n.d.). *Assessment Policy*. (Retrieved from the World Wide Web 1 November, 2010). <http://www62.gu.edu.au/policylibrary.nsf/binders/65e95921348eb64c4a256bdd0062f3b0?opendocument>

Comparative grading scheme

The following grading schema has been drawn and adapted from a North American context and provides some detail of the standards required when students' critical thinking is assessed

Analytical and Critical Evaluation skills	
<p>Low level (fail)</p>  <p>High level (High Distinction)</p>	<ul style="list-style-type: none"> • Student is not analysing issues clearly, not formulating information clearly, not accurately distinguishing the relevant from the irrelevant. • Student is not identifying key questionable assumptions or relevant competing points-of-view. • The student's work does not display discernible reasoning and problem-solving skills. • Though critical thinking terms and distinctions are sometimes used effectively, sometimes they are used quite ineffectively. • The student only occasionally analyses issues clearly and precisely; formulates information clearly; recognises key questionable assumptions; identifies relevant competing points-of-view and reasons carefully. • Only occasionally recognises important implications and consequences. • On the whole, student's work shows only modest, weak and inconsistent reasoning and problem-solving skills. • Student's work represents demonstrable achievement in grasping what critical thinking is, along with the clear demonstration of a range of specific critical thinking skills. • On the whole, critical thinking terms and distinctions are used effectively. The work demonstrates a mind beginning to take charge of its own ideas, assumptions, inferences, and intellectual processes. • The student often analyses issues clearly and precisely, recognises key questionable assumptions. • Usually clarifies key concepts effectively. • Frequently identifies relevant competing points-of-view and displays noticeable sensitivity to important implications and consequences. • Student's work demonstrates real achievement in grasping what critical thinking is, along with the clear development of a range of specific critical thinking skills or abilities. • Student's work displays excellent reasoning and problem-solving skills. • Student's work is consistently at a high level of intellectual excellence.

The Critical Thinking Community. (n.d.). *Grading Policies*. (Retrieved from the World Wide Web on 1 November 2010) <http://www.criticalthinking.org/resources/HE/ct-class-grading-policies.cfm>

Principles of effective analysis and critical evaluation skills

In summary

Skills in analysis and critical evaluation are fundamental to learning throughout life, enabling:

- disaggregation and synthesis of parts of systems, processes, tasks, objects, texts, artefacts, problems, ideas, concepts and arguments;
- exploration of alternative ideas or solutions to problems;
- predictions about likely outcomes based on evidence;
- clear thinking using logic (inductive and deductive);
- identification of faulty reasoning, assumptions and biases by thorough testing; and
- informed judgement about the worth of ideas and arguments.

Teaching approaches/strategies for skills development

Critical analysis and evaluation skills can be taught, learned, practised and assessed in any discipline using a number of different strategies, such as:

- concept maps;
- debating;
- questioning;
- evaluating texts and web sites;
- applying inductive and deductive reasoning.

Encourage students to become critical thinkers

Ultimately, the test of a student's skills in analysis and critical evaluation lies in their ability to:

- read widely and read critically;
- make sense of and synthesise findings;
- take a big picture view of ideas and concepts and where they 'fit' in the scheme of things;
- get to the heart of issues by challenging and confronting different points-of-view;
- arrive at their own justifiable position.

When assessing students' analytical and critical thinking skills

Determine whether the student has:

- identified the component parts of the task (whether concrete or abstract) and disaggregated them for close examination;
- reconstructed them into a coherent whole based on underlying principles (whether concrete or abstract);
- examined the component parts in terms of their inter-relationships and their relationship with the whole (whether concrete or abstract);
- formulated a valid proposition and premises;
- constructed a cogent argument using a logical process of some kind;
- identified and justified any underlying assumptions and biases;
- remained open to other perspectives;
- challenged or contested these perspectives; and
- used relevant and reliable evidence to support their own claims or propositions.

Where to go for help

Contact:

- The Griffith Institute for Higher Education.
Griffith University, (n.d.). *Griffith Institute for Higher Education*. Retrieved from the World Wide Web 22 November 2010) <http://www.griffith.edu.au/gihe>
- Information Services, Learning and Teaching.
Griffith University. (n.d.). *Staff Support*. (Retrieved from the World Wide Web 25th October, 2010) <http://www.griffith.edu.au/learning-teaching/whos-who/staff-support>

Information Services

Analysis and critical evaluation is an area where the University has recognised that support is crucial. Information Services, Teaching and Learning has teams of learning advisers here to work with you. They can:

- advise you on teaching, learning and assessment strategies; and
- team teach with you in your lectures and tutorials.

There are also services to which you can refer your students so that they can independently develop their critical evaluation skills. These include:

- individual or small group consultations with a learning adviser;
- workshops;
- self-help resources.

For more information on these services, contact Information Services, Learning and Teaching.

Additional resources on analysis and critical evaluation skills

Print resources

- Bell, Eunice A. (1991). Debate: A Strategy for Teaching Critical Thinking. *Nurse Educator*, 16 (2), 6-7.
- Brookfield, S.D. (1987). *Developing Critical Thinkers: Challenging Adults to Explore Alternative Ways of Thinking and Acting*. San Francisco: Jossey-Bass.
- Hallinan, M. (2000). *Critical Thinking: A Guide to Logical Problem Solving*. Phoenix, Arizona: DeVry Institute of Technology.
- Inch, E. (1998). *Critical Thinking and Communication: The Use of Reason in Argument*. Boston : Allyn and Bacon.
- Nisbett, R. E., Fong, G.T., Lehman, D.R., and Cheng, P.W. (1987). *Teaching reasoning*. *Science*, 238, 625-631.
- Paul, R. (1995). *Critical Thinking: How to Prepare Students for a Rapidly Changing World*. Santa Rosa, California: Foundation for Critical Thinking.
- Wink, Diane M. (1993). Using questioning as a teaching strategy. *Nurse Educator*, 18(5), 11-15.

Web resources

- Cornell University. (2010). *Critically Analysing Information Sources*. (Retrieved from the World Wide Web on 1 November, 2010)
<http://www.library.cornell.edu/olinuris/ref/research/skill26.htm>

Appendix A- Student handouts

Please note: Appendix A contains reproduced information from within this toolkit that may be useful to your students. For ease of reference and printing, this collection of ready-to-use resources associated with various aspects of facilitating, teaching and assessing analysis and critical evaluation skills has been collated in this appendix as follows:

1. **Principles of effective critical evaluation**
2. **What employers, graduates and students say about analysis and critical evaluation**
3. **Checklists—Evaluating text and web resources**
4. **Explaining grading standards**

Principles of effective analysis and critical evaluation skills

In summary

Skills in analysis and critical evaluation are fundamental to learning throughout life, enabling:

- disaggregation and synthesis of parts of systems, processes, tasks, objects, texts, artefacts, problems, ideas, concepts and arguments;
- exploration of alternative ideas or solutions to problems;
- predictions about likely outcomes based on evidence;
- clear thinking using logic (inductive and deductive);
- identification of faulty reasoning, assumptions and biases by thorough testing; and
- informed judgement about the worth of ideas and arguments.

Teaching approaches/strategies for skills development

Critical analysis and evaluation skills can be taught, learned, practised and assessed in any discipline using a number of different strategies, such as:

- concept maps;
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Ultimately, the test of a student's skills in analysis and critical evaluation lies in their ability to:

- read widely and read critically;
- make sense of and synthesise findings;
- take a big picture view of ideas and concepts and where they 'fit' in the scheme of things;
- get to the heart of issues by challenging and confronting different points-of-view;
- arrive at their own justifiable position.

What employers, graduates and students say about critical evaluation

Employers' comments

"We have actually started giving a test when we recruit. I give them a scenario, and say, 'Explain to me the process that you would use to analyse the risks in this situation and how you would communicate those risks to me.' I will look for the people who lead up to the whiteboard and conceptualise it by drawing it out."

(Employer of Griffith Criminology and Criminal Justice Graduates, 2001)

"Analysis and critical evaluation would have to be two of the most important skills we look for, because we believe that graduates already have learned the content knowledge. What they then need is the ability to apply that knowledge. If they can analyse and evaluate the knowledge they have, then they can apply it in the workplace."

(Employer of Griffith Engineering Graduates, 2003)

"We have a lot of graduate analyst roles: manufacturing analyst roles, sales analyst roles, etc. And all these roles have an element where they need to analyse data, they need to analyse trends in our business. With some of the roles, they actually need to analyse other business units, other departments – and think outside the box. We're not looking for old styles of thinking. We're looking for graduates with fresh blood and new ways of thinking, so that's where those kind of skills come in."

(Employer of Griffith Graduates, 2004)

"I look for critical evaluation skills within the workplace context because that's the kind of thing that will help take the organisation forward. They [new graduates] represent a new breed of thinking. Also, dealing with the political environment that they work in ... I think that is one of the major things people have to learn."

(Employer of Griffith Criminology and Criminal Justice Graduates, 2002)

"Developing a critical approach to learning is about challenging preconceptions, both those of the learner and the teacher. It is about being able to develop opinions and being able to justify them, to be able to think about knowledge as a process not some 'thing' they tentatively approach and selectively appropriate. A critical approach is about students having the confidence to assess and develop knowledge for themselves rather than submitting packaged chunks to an assessor who will tell them if it is sufficient or 'correct'. It ultimately requires students to self-assess, to be able to decide what is good-quality work and to be confident when they achieve it."

Harvey, L. (1999). *New Realities: The Relationship between Higher Education and Employment*. (Retrieved from the World Wide Web on 2 March, 2002) <http://www.uce.ac.uk/crq/publications/eair99.pdf>

Graduates' comments

"The importance of analysis and critical thinking is apparent in daily life. It can help you avoid the mindset of 'Well, that's the way I've always done it.' Behaviours, habits, tasks and even the way one goes about making decisions can be critically analysed and evaluated. That doesn't mean that each daily decision has to become a laborious analytical nightmare. But it does mean that maybe if you're not happy with certain recurring outcomes, you might need to take a critical approach to the process."

(Griffith Graduate, 2002)

Students' comments

"As an undergraduate, it can be easy to be intimidated by academic discourse. The fear is that you will simply be parroting a standard line or that your inability to deconstruct an argument will be apparent. Developing critical thinking and evaluation skills is definitely a learned quality that needs to be practised."

(Griffith Student, 2003)

"Assignment work at university has really developed my critical thinking and analytical skills. This is because I'm required to analyse and interpret information, filter out information that isn't relevant and use it to form an intelligent argument."

(Griffith Student, 2003)

Checklists—Developing critical evaluative skills to assess text and web resources

Checklist to develop critical evaluation skills	
How relevant is this text to my research needs?	
What is the author's stance in relation to the topic? Are they for it or against it, or neutral towards it? Is there evidence of the author's personal, political or cultural bias in the text?	
Do I accept or challenge their stance?	
How do I know whether the author has academic credibility?	
Where does the article/text 'fit' in the context of the broad issue? Is it dated or current? Does it present a new perspective or possible solutions?	
What is the author really saying? Can I write it down in one thesis statement? Is it argued consistently throughout the article?	
What are the main issues and the sub-issues dealt with? Can I use a concept map to show how they all fit together?	
Is this article/text convincing or persuasive?	
What are its strengths and weaknesses?	
What else will I need to know before I can make a judgement about this text?	
Checklist for evaluating web sites	
Who is the author – an individual or an organisation? Are their credentials listed? Email address? Is there any bias?	
Do they give references for their source material? If links are provided, do they work and are they current?	
Do the graphics serve a purpose or are they primarily decorative? Are the icons meaningful?	
Does the site download quickly? Does it present problems for older browsers?	
When was it produced, updated or revised?	
Does it seem to give comprehensive information?	

Prompt questions to ask about course content, concepts, ideas, written material, web sites, etc.

- What point is the author trying to make?
- What is its significance, or what are its implications?
- How will you act on this?

Explaining grading standards

Knowing what is expected of you and understanding the standards that apply for each grade awarded for assessment items will be of benefit. The skills of analysis and critical evaluation figure prominently in Griffith's policy for the award of grades, as the extract below demonstrates:

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Complete and comprehensive understanding of the course content; development of relevant skills to a comprehensive level; demonstration of an extremely high level of interpretive and analytical ability and intellectual initiative; and achievement of all major and minor objectives of the course.

Distinction (D)

Very high level of understanding of the course content; development of relevant skills to a very high level; demonstration of a very high level of interpretive and analytical ability and intellectual initiative; and achievement of all major and minor objectives of the course.

Credit (C)

High level of understanding of course content; development of relevant skills to a high level; demonstration of a high level of interpretive and analytical ability and achievement of all major objectives of the course; some minor objectives not fully achieved.

Pass (P)

Adequate understanding of most of the basic course content; development of relevant skills to a satisfactory level; adequate interpretive and analytical ability and achievement of all major objectives of the course; some minor objectives not achieved.

Non-graded Pass (NGP)

Successful completion of a course assessed on a pass/fail basis, indicating satisfactory understanding of course content; satisfactory development of relevant

skills; satisfactory interpretive and analytical ability and achievement in all major objectives of the course.

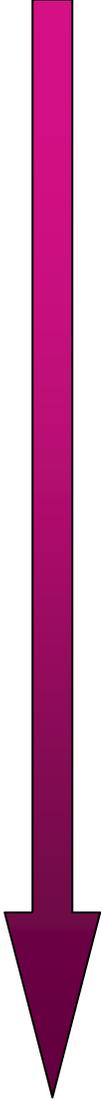
Fail (F)

Inadequate understanding of the basic course content; failure to develop relevant skills; insufficient evidence of interpretive and analytical ability; and failure to achieve some or all major and minor objectives of the course.”

Griffith University. (n.d.). *Assessment Policy*. (Retrieved from the World Wide Web 1 November, 2010). <http://www62.gu.edu.au/policylibrary.nsf/binders/65e95921348eb64c4a256bdd0062f3b0?opendocument>

Comparative grading scheme

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The Critical Thinking Community. (n.d.). *Grading Policies*. (Retrieved from the World Wide Web on 1 November 2010) <http://www.criticalthinking.org/resources/HE/ct-class-grading-policies.cfm>