Introduction

This document has been designed to support you with your embedding of critical appraisal skills in a unit. It provides specific strategies to enable critical appraisal skills to be written into either a course or unit.

Background

While the contemporary education curriculum is a highly contested arena, there seems to be consensus that it should help students to think well and to think for themselves. National government policy, as well as employers, are demanding that education, no matter in what discipline or at which level, ought to enable graduates to think ‘smarter’ than was the case in the past. (Pithers & Soden, 2000)

The ability to think critically is a skill that is necessary to make good judgements in both a person’s personal and professional life. The university and the workforce need people who are able to make judgements without allowing personal beliefs or ideas to cloud their judgement. An individual’s decision to agree or disagree with an idea is personal, but the ability to justify their beliefs is at the heart of creating a reasoned argument. This is a core academic and professional skill.

Key principles of critical appraisal skills (Taken from the Academic tip sheet)
Elements of critical appraisal are:

- clarifying the goal of the thinking/appraisal (this may require analysing a problem);
- ensuring adequate information is available (locating and organising information);
- determining the validity of that information;
- formulating inferences from the information;
- determining the relevance of the information (applicability); and
- making decisions in relation to the goal.

Embedding Critical Appraisal in Activities

| Development of critical appraisal skills cannot be achieved by merely adding a single activity to a unit; |
| Consider the different elements as outlined above and provide multiple opportunities to develop each of these across different units throughout a course; |
| Ideas below are some suggested activities that can be incorporated into your unit to begin the process of supporting critical appraisal skills. |

One Approach – Problem Based Learning

| Problem Based Learning: |
| Supports the development of critical appraisal skills; |
| Provides students with a real life (industry based) problem and the materials and resources with which the problem can then be tackled; and |
| Students work in groups to solve the problem and then regroup later to share ideas and solutions they have uncovered. |

More information is available on PBL in the “How to Embed PBL into your course” document. It is important to note that this is an approach that will work best when adopted in a systematic way across a course.

Here are ideas about how embed each of the six elements of critical appraisal in a unit. A brief description of the element is included, followed by a practical example of how it might look in practice.

1. Clarify the goal of the thinking/appraisal (this may require analysing a problem)

Students can struggle to determine what it is that they are being asked to do, and what the final product of the question might be. It is important to teach them how to clarify the goal of the task.

Example- Students are presented with the problem of designing a tidal power station to be implemented in a river in the North of the State where the fall and rise of the tide is about 8 metres. Students were firstly asked to define the problem. Is it about catering for the large tidal flow, is it about managing a harsh climate, is it about making a solution that will last 100 years, how efficient does it need to be, how will solutions affect fauna? Some initial brainstorm solutions were presented in this session. In the next session students were taken through the steps in the planning process (planning for the problem solving). These involved:
2.- Ensure adequate information is available (locating and organising information)

Promote the idea of using a wide variety of sources such as interviews, journals or surveys, to best support breadth and depth in research.

Example- Students in a Science unit are asked to investigate an ethical dilemma in science. Students are asked whether the results of medical experiments performed by Nazi scientists should be used, given the circumstances under which they were collected. The lecturer is aware that books on this topic are limited in the library. To prevent students from borrowing all available books, the lecturer places material on e-reserve. In addition to this, he offers an additional session in the computer lab and invites a library assistant to show students how to efficiently research and find information more readily. The lecturer also places the names of reputable journals on the Blackboard site, with a brief explanation about the content of each journal and the types of information that might be found there. He adds appropriate film footage on the Blackboard site that will add to the overall understanding of the topic. Finally, he adds information in the Unit Plan under the Assessment section about reciprocal borrowing rights.

3.- Determining the validity of that information

Students often struggle with being able to determine which sources provide information that is reputable. When students find a reputable source, it can be difficult for them to articulate why it is a valid source. This is a skill that needs to be explicitly taught.

Example- A Communication lecturer implements an assessment where students are to analyse a number of articles about public speaking from various sources and creates an annotated bibliography. From the first tutorial, a small amount of time each tutorial is allocated to teaching students about how to determine the validity of information. Different tutorial sessions examine aspects such as- author expertise, peer review of journals, provision of evidence, explanation of research completed. In each of these sessions the tutor models how to determine whether an article is valid by, for example, looking at the author's expertise and asking questions like “How do we know this author is an expert?” “What can we do to be assured the author is reliable?” Students are then given an opportunity in class to go through their own articles and apply the same process.

4.- Formulating inferences from the information

Some students find it difficult to read information and know what it actually means in relation to the problem they have been set. They need to know how to read the texts with a purpose in mind.

Example – An Education lecturer finds that her students are struggling to make inferences about a student’s poor rate of progress from notes made about the student by a teacher. She creates a mini session for the start of every tutorial- she models how she looks for key information, summarises notes, and looks for the repetition of information and any other supporting clues such as gender, age or family history.
The students work in groups to determine three possible causes behind the student’s lack of progress and then have to justify using the information they have received to make that conclusion. From there they then need to answer some “So what…” questions “So what would you say is this issue?” They then suggest ways to support that student.

5.- Determine the relevance of the information (applicability)

It can be difficult for students to understand whether the information they have found is relevant to the problem. Spending time finding irrelevant information can be frustrating, and it can leave some students with no alternative but to add it in to an answer because they don’t know what else to say. In addition to this, some students add information that they consider interesting and note-worthy, but are marked down because it is not relevant to the topic. Students need specific strategies to help them know whether information is relevant.

Example- Early in the semester a Chemistry lecturer places three short articles – two journal articles and a newspaper article, about use of pesticides in WA that are banned in the EU. Alongside this she places the following question online- “What are the implications of allowing banned pesticides to be used on WA farms?” She asks students to read the articles (one of which is interesting but not relevant to the specifics of the question) and decide which would be most useful for answering the question. They don’t need to answer the question, but need to bring to class their reason for selecting the article that they did. The tutorial group has a discussion based around this- looking for key words, date of the text, purpose of the text, author of the text and so on, and discuss in class how to determine which is the best article. This process is repeated with more articles added each week. The time devoted to this activity in class is minimal as students are completing the readings outside of class. At the end of semester, the students need to submit an annotated bibliography of the four most relevant articles and construct a short essay addressing the problem. The discussion around the text is the key activity that assists in determining relevance.

6.- Making decisions in relation to the goal

Students can struggle with making a clear decision in relation to the learning goal that has been set. Often the more choices that are given, the more difficult it can be to make a decision. The decision making process needs to be scaffolded.

Example- A Psychology lecturer has found that students are finding the decision making process quite difficult. Each week she decides to include a short case study in class. Each case study is placed online. She asks students to work in groups to decide upon a diagnosis and then a possible intervention, for each case. Students need to provide a list of three positive and any possible negative outcomes from the given intervention. After all groups have given the feedback, the class needs to decide as a whole which solution is best. The tutor may provide additional thoughts if there are any major gaps in the students’ thinking. A final assessment asks students to work individually on a case study and provide an appropriate solution. In this assignment students are asked to include the potential positive outcomes as well as any negative outcomes. They are also asked to explain why the solution may appropriate even with the risk of a negative outcome.
Summary

The challenge we face is preparing students for their future. The future is an unknown entity and so rather than filling students with knowledge that may not be relevant now or in the future, we need to give them the skills to be flexible, to judge, manipulate and critique the knowledge they possess. Students need to be able to make decisions and be critical judges of information rather than passive receptors.

Looking for more information?

There are many different places where you can find information about the development of critical thinking skills.

Deakin University has the following site about critical analysis. http://www.deakin.edu.au/current-students/study-support/study-skills/handouts/critical-analysis.php

The University of Canberra has this site which gives some information about critical thinking across the disciplines. http://www.canberra.edu.au/studyskills/learning/critical

The following site provides an example of a webquest that has been developed with tertiary Education students in mind.


References