WESTERN SYDNEY
UNIVERSITY

Curriculum Mapping Tool
Pedagogical Framework

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1. Overview

1.1 Introduction

Pilots of the Western Sydney University Curriculum Mapping Tool (CMT) have shown that it will be used differently in different disciplines. This can be because of varying needs of Schools or Courses, accreditation requirements or the resources available to support the curriculum review processes.

Academic colleagues have asked for guidance on how the CMT graphs/reports should look, based on relevant literature and pedagogical approaches.

This document has been collaboratively produced by a cross-discipline group of educational support staff. It is intended as a framework that can be tailored for each discipline; to support CMT use in curriculum design and to clarify evidence for course and unit variations.

It is anticipated that the pedagogical framework components will mainly be used by discipline-based educational support staff working with academic teams and using the CMT for curriculum review and redesign. This document should be read in conjunction with the CMT User Guide.

1.2 Acknowledgements

The CMT Pedagogical Framework was developed in 2015 by the Office of the PVC Education under the leadership of:

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2. Curriculum Mapping

2.1   Recommended process for data collection

It is recommended that the Curriculum Mapping Tool be used as a part of curriculum review and redesign, in academic colleague teams with the guidance and input from professional educational support staff. Staff collaborating in the process benefit from having their input and voice heard which gives ownership of the new curriculum. In turn, the curriculum benefits by having a valid and rounded view formed from the collective expertise of those teaching it.

2.2   Curriculum Connections

There is a strong connection between unit, course and University level outcomes. This relationship forms the basis of curriculum mapping and is illustrated in Figure 1.

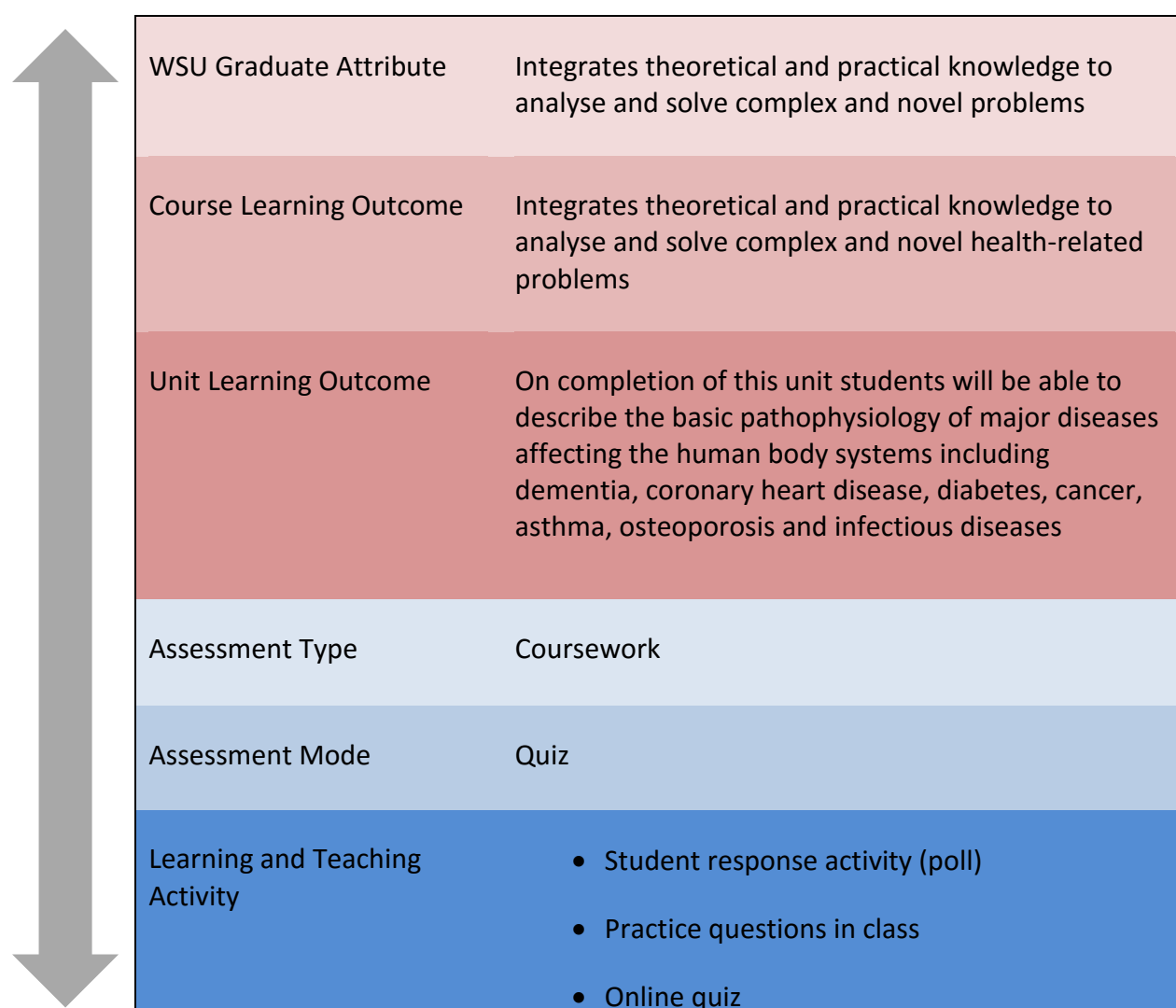| WSU Graduate Attribute	Integrates theoretical and practical knowledge to analyse and solve complex and novel problems
Course Learning Outcome	Integrates theoretical and practical knowledge to analyse and solve complex and novel health-related problems
Unit Learning Outcome	On completion of this unit students will be able to describe the basic pathophysiology of major diseases affecting the human body systems including dementia, coronary heart disease, diabetes, cancer, asthma, osteoporosis and infectious diseases
Assessment Type	Coursework
Assessment Mode	Quiz
Learning and Teaching Activity	• Student response activity (poll) • Practice questions in class • Online quiz

Figure 1. Illustration of the alignment and assurance of a contextualised Western Sydney University Graduate Attribute Example taken from: Bachelor of Health Science 4656.1/ 300361 Introduction to Human Biology

2.3   Curriculum Mapping Process

The Curriculum Mapping Process is complex, driven by the state of the curriculum being reviewed and the point in the curriculum's lifecycle at which a review is undertaken. The diagram below gives an overview of how curriculum mapping can support curriculum review and redesign, either for a brand new course or review of an existing course. It demonstrates the importance of a collaborative approach between academic staff and educational support staff to achieve a high quality outcome (Figure 2).
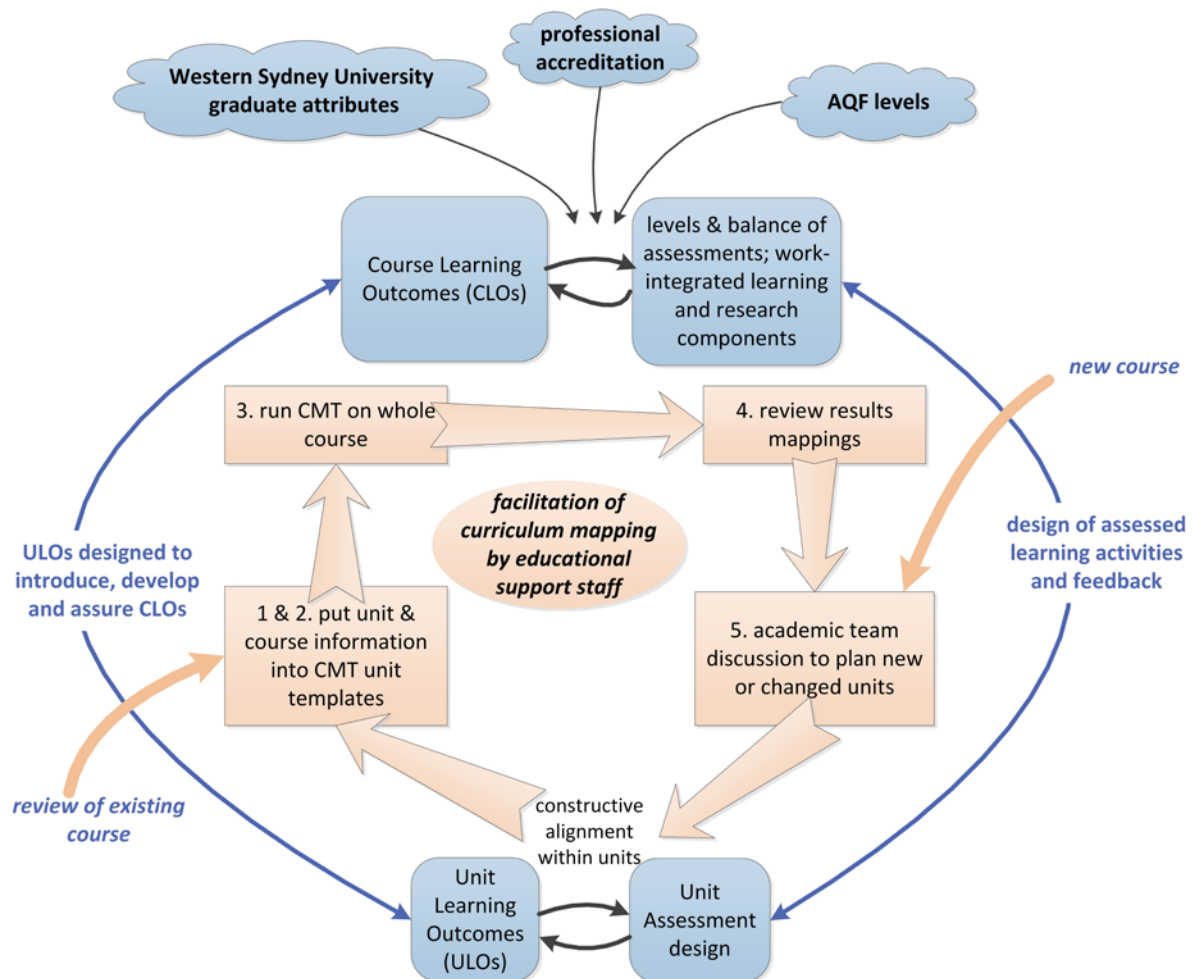

Figure 2. Facilitation of curriculum mapping by educational support staff

3. Pedagogical Frameworks

The purpose of the following frameworks is to guide the interpretation of the CMT graphs. Each framework offers an introduction to what the graph displays, key questions (discussion points, considerations) that can be used to facilitate group discussion pre and post curriculum mapping for that particular area, and references to further reading on the topic.

3.1   Assessment Modes and Types

3.1.1   Introduction

One of the purposes of assessment is to provide evidence on how well the learning outcomes have been achieved by students. We select an assessment mode and then design a task that is appropriate to the learning outcomes of that unit. Methods of assessment must be capable of validly and reliably confirming that specified learning outcomes are achieved in a unit and course of study.

An assessment can be classified as one of the following types: coursework, mid-semester exam or final exam. Each type has within it several modes that can be chosen, to help describe the assessment and expectations further. Refer to the CMT User Guide pages 16-20 for definitions of Assessment Modes and Types, as well as examples of each.

3.1.2 Selecting assessment modes and types

Analysing a unit's learning outcomes in terms of the skills, knowledge and attributes they represent will allow you to determine which modes/tasks are suitable to measure student attainment of them. Table 1 groups learning outcomes into eight domains of generic skills and attributes, and lists a range of tasks and methods that might be useful in achieving each outcome (Dunn, 2010, adapted from Nightingale et al., 1996). The third column shows how this might be represented in the CMT.

Table 1. Learning outcome domains, tasks and CMT representation

Generic domains of learning outcomes	Suitable tasks or methods to engender learning in these domains	Potential CMT Mode
Thinking critically and making judgments (Developing arguments, reflecting, evaluating, assessing, judging)	1. Essay 2. Report 3. Journal 4. Letter of advice to... 5. Present a case for an interest group 6. Prepare a committee briefing paper for a specific meeting 7. Book review (or article) for a particular journal 8. Write a newspaper article for a foreign newspaper 9. Comment on an article's theoretical perspective	Essay Report Log/Workbook Professional Task Professional Task Professional Task Critical Review Professional Task Reflection

Generic domains of learning outcomes	Suitable tasks or methods to engender learning in these domains	Potential CMT Mode
Solving problems and developing plans (Identifying problems, posing problems, defining problems, analysing data, reviewing, designing experiments, planning, applying information)	1. Problem scenario 2. Group work 3. Work-based problem 4. Prepare a committee of enquiry report 5. Draft a research bid to a realistic brief 6. Analyse a case 7. Conference paper (or notes for a conference paper plus annotated bibliography)	Short Answer Professional Task Professional Task Professional Task Professional Task Case Study Essay/Lit Review
Performing procedures and demonstrating techniques (Computation, taking readings, using equipment, following laboratory procedures, following protocols, carrying out instructions	1. Demonstration 2. Role play 3. Make a video (write script and produce/make a video) 4. Produce a poster 5. Lab report 6. Prepare an illustrated manual on using the equipment, for a particular audience 7. Observation of real or simulated professional practice	Practical Simulation Presentation Poster Log/Workbook Professional Task Professional placement performance
Managing and developing oneself (Working co-operatively, working independently, learning independently, being self-directed, managing time, managing tasks, organising)	1. Journal 2. Portfolio 3. Learning contract 4. Group work	Log/Workbook Portfolio Learning Contract Professional Task
Accessing and managing information (Researching, investigating, interpreting, organising information, reviewing and paraphrasing information, collecting data, searching and managing information sources, observing and interpreting)	1. Annotated bibliography 2. Project 3. Dissertation 4. Applied task 5. Applied problem	Annotated Biblio Applied Project Essay Professional task Professional task

Generic domains of learning outcomes	Suitable tasks or methods to engender learning in these domains	Potential CMT Mode
Demonstrating knowledge and understanding (Recalling, describing, reporting, recounting, recognising, identifying, relating and interrelating)	1. Written examination 2. Oral examination 3. Essay 4. Report 5. Comment on the accuracy of a set of records 6. Devise an encyclopaedia entry 7. Produce an A–Z of ... 8. Write an answer to a client's question 9. Short answer questions: True/False/ Multiple Choice Questions (paper-based or computer-aided assessment)	Short Answer Viva Voce Essay Report Professional task Professional task Professional task Professional Task Short Answer
Designing, creating, performing (Imagining, visualising, designing, producing, creating, innovating, performing)	1. Portfolio 2. Performance 3. Presentation 4. Hypothetical 5. Projects	Portfolio Presentation Presentation Proposal Applied Project
Communicating (One and two-way communication, communication within a group, verbal, written and non-verbal communication. Arguing, describing, advocating, interviewing, negotiating, presenting, using specific written forms)	1. Written presentation (essay, report, reflective paper, etc.) 2. Oral presentation 3. Group work 4. Discussion/debate/role play 5. Participate in a "Court of Enquiry" 6. Presentation to camera 7. Observation of real or simulated professional practice	Essay Presentation Professional Task Simulation Simulation Presentation Case Study

3.1.3   Key Questions

- Do the assessment tasks from the first to final year of the course steadily progress in complexity and demands?
- Is there appropriate scaffolding of assessment tasks to support an appropriate increase in difficulty and student independence both within a unit and across a course?
- Have the task's modes of assessments been informed by periodic review and/or student feedback?
- Do the assessment tasks connect and build upon the previous task(s)? This is especially desirable within a unit, but is also encouraged across units in the same or next session(s).

- When considering the learning outcomes, are the assessment modes valid? That is, can they effectively confirm that the specified learning outcomes are achieved?
- How closely do the assessment tasks resemble the sort of work the graduate will be doing in an intended professional field? How closely should they?
- Are students exposed to an appropriate variety of assessment modes and types across the course? How much variety is appropriate to be accessible and fair to students with different learning styles, and to allow all students to be familiar with requirements yet remain sufficiently challenged?
- Does the variety of assessment modes offer suitable challenge across a session without being too onerous on students? For example, if they are expected to learn how to write 3 different professional texts in one semester, this might be unreasonable.
- Assessment practices make a task formative or summative, eg timing, feedback and feed forward to the next task. Therefore, is there an appropriate balance between assessment types and practices to allow for formative and summative feedback? For example, coursework and mid-semester exams are often formative whereas final exams are summative.

3.1.4 Further Reading

John Biggs 2003. Information sheet on Aligning Teaching and Assessment to Curriculum Objectives, Higher Education Academy online guide, https://www.heacademy.ac.uk/system/files/biggs-aligning-teaching-and-assessment.pdf [accessed 23 March 2017]

University of NSW. 2015. *Aligning Assessment with Outcomes*. [ONLINE] Available at: https://teaching.unsw.edu.au/aligning-assessment-learning-outcomes. [Accessed 23 March 2017].

3.2 Assessment task and marking structure

3.2.1 Introduction

Within a unit, the assessment tasks can mix various task structures, marking and feedback methods. The curriculum mapping tool allows for combinations of the options listed in Table 2, for each piece of assessed work.

Table 2. Options for tasks, marking and feedback

Task structure	Marking structure	Marked by	Feedback type
Individual Group	individual group	instructor only industry only peer only self only instructor /industry instructor /peer(s) instructor /self other	whole class in person in class returned work peer

This section of the framework outlines why and how you might use these options. Although traditional types of university assessment such as essays and final exams are often structured and marked individually, any assessment task can be run and/or marked as a group activity. Similarly, the feedback on an assessment task can be provided in a number of ways. The following examples, questions and suggestions may be useful in optimising the balance of individual and group assessment tasks, and how they are marked.

3.2.2 Individual or group?

The task structure

Some of the component skills required for effective teamwork, such as the ability to communicate effectively, may be assessed individually. However, to demonstrate their application in a complex and demanding professional team context requires an authentic group task.

In curriculum mapping, we are mainly concerned with groups that are formally accountable for producing an assessed learning outcome, whether this is assessed through a piece of writing, a performance, a design or a physical artefact. If several people need to collaborate and plan their actions together to produce the work, it is a group task. If each individual works alone on a predetermined part of the work, then it is a collection of individual tasks.

Students will often collaborate informally as part of the learning process. For example, a small group of students might get together to rehearse procedures and skills before a practical exam, or meet in a campus café to debrief after an exam, or set up a Facebook group to swap tips and tricks. While self-organised activities like these can support deeper learning and contribute to development of teamwork skills, they are not part of the assessment task structure as recorded in the curriculum mapping tool.

The questions listed in Table 3 might help to clarify what mix of individual and group tasks best suits each study unit or course.

Table 3. Questions to determine suitable assessment tasks

Question	Comment
1. What type of group work or team role should every graduate in your discipline be able to perform? • Working as a specialist with other specialists (e.g. multidisciplinary medical casework) • Collaborative production of something (creating products or establishing processes) • Being an effective team member (working adaptively with others to achieve a common purpose) • Coordination of teams (taking responsibility for the effective functioning of a team and achievement of outcomes)	This question is intended to clarify the overall reasons for learning in groups and assessing skills through individual and team assessments.
2. In this unit, do you want the students to reflect upon and articulate group and team processes – what worked, what didn't work, why and what could be done differently?	Explicit reflection on team processes can be individual or done as a team exercise.
3. Are there particular group work skills that are important for each student to learn and demonstrate in this unit? Some examples: • active listening • constructive peer feedback • clearly communicating one's own ideas to others • self-awareness in group interactions • flexibility in taking on different team roles • reflection and analysis of group processes • coordinating and organising the group's activities.	Some of the basic skills might be better assessed individually in 1st year, so that students can work on them if they need to. Other skills, such as flexibility, require some basic skills to be in place, and could reasonably be embedded in a group assessment at a higher level.

Question	Comment
4. Are there any particular models of team/group work that would be relevant for students to know at this level of their study? E.g.: • group processes • team roles • types and definitions of team leadership.	Offering explicit models will help students develop self-awareness and ability to reflect objectively on their own contribution to group processes.
5. In each group assessment task, how much of the intended learning is about the group process and how much is about demonstrating application of knowledge in context?	If the task is done in a group for authenticity rather than for developing group skills, then 100% group assessment may be appropriate.

The purpose of group or team tasks and marking is to demonstrate graduates' competence in working with others in a professional team context. Each academic program will have its own requirements for developing teamwork skills, in some cases linked to accreditation standards. Below and overleaf are two examples for Nursing and Engineering.

Australian Registered Nurse Standards for Practice

Standard 2 in the Australian Registered Nurse Standards for Practice on entry to practice is "**Engages in therapeutic and professional relationships**", which is further defined as:

2.1 *establishes, sustains and concludes relationships in a way that differentiates the boundaries between professional and personal relationships*

2.2 *communicates effectively, and is respectful of a person's dignity, culture, values, beliefs and rights*

2.3 *recognises that people are the experts in the experience of their life*

2.4 *provides support and directs people to resources to optimise health-related decisions*

2.5 *advocates on behalf of people in a manner that respects the person's autonomy and legal capacity*

2.6 *uses delegation, supervision, coordination, consultation and referrals in professional relationships to achieve improved health outcomes*

2.7 *actively fosters a culture of safety and learning that includes engaging with health professionals and others, to share knowledge and practice that supports person-centred care*

2.8 *participates in and/or leads collaborative practice*

2.9 *reports notifiable conduct of health professionals, health workers and others.*

Registered Nurse standards for practice. June 2016 [accessed March 2017]

The marking structure

The marking structure may also be individual or group. Individual marking gives each student explicit feedback on their own learning. Examples of individual marking in a group task:

- Members of a mixed-discipline health team take part in a simulated patient scenario, where each individual is assessed by how well they perform their respective professional skills in the team setting.
- Engineering students work on a group project where they design and build an artefact that is tested for performance. Each student then submits a reflective report on how the design decisions were made, with analyses of how the team's work influenced the final product. The performance results for the artefact are not marked.

Alternatively, it may be appropriate to allocate marks to team performance. For example, individual skills may already have been assured, and the key learning outcome is the ability to communicate and deploy these skills effectively to achieve a team result. Then each individual in the team is given the same mark. Or the group task could be assessed in two parts, one individually and one as a group.

While individual tasks are generally marked individually, there might be reasons for setting individual tasks that are marked as a group. For example, the class is divided into groups of four, with each group member taking on one of four predetermined tasks that contributes to an assessed group product. The purpose might be to introduce and scaffold work in cross-discipline teams, or to reduce marking effort in a large class.

3.2.3   Marking and feedback

Peers or industry professionals can give feedback instead of, or alongside, the teacher. Where ability to assess and improve one's own professional performance and demonstrate independent learning skills is required, a study unit might also include some self-assessed tasks. Peer marking develops students' ability to give and receive constructive professional critique. Figure 3 maps out some example pathways (colour-coded) through decisions about the task structure, marking structure, markers and feedback type. Table 4 describes the corresponding examples.
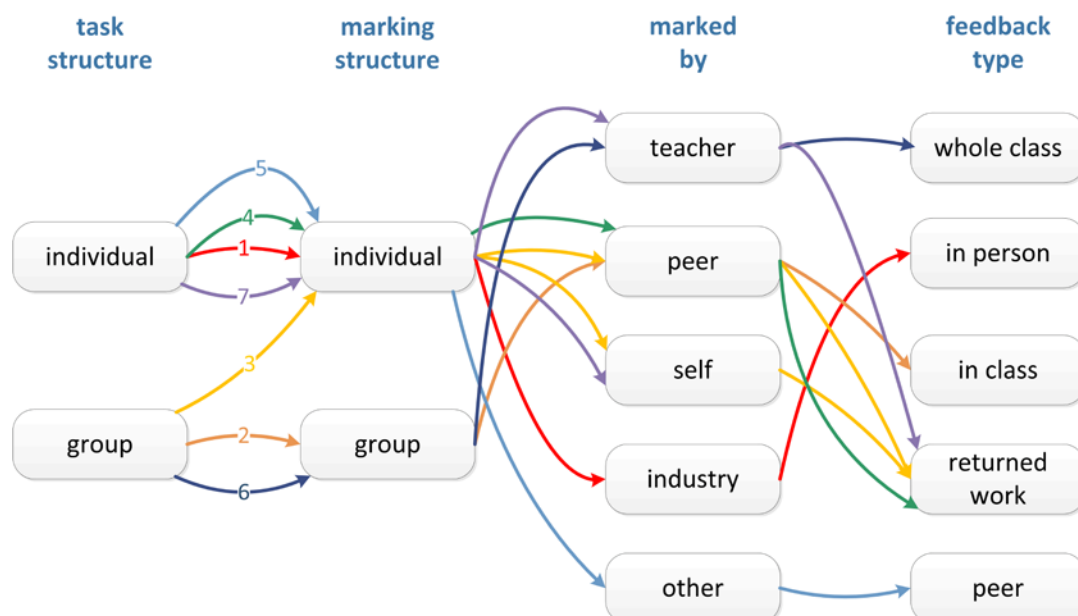
Figure 3. Mapped examples of the variety of options for assessment tasks, marking and feedback

Table 4. Examples of the task, marking and feedback combinations in Figure 3

Example	Marker	Feedback type
1. The supervisor of a law student working in a community legal advice centre uses guidelines provided by the unit coordinator to debrief the student in person at the end of the placement. ■	industry only	in person
2. Groups of 4 students present their group projects to their class and are marked by the class using an online voting system. ■	peer only	in class
3. Students use the SPARK web-based self and peer assessment kit to confidentially rate their own and their peers' contributions to a team task or individual submissions. ■	peer and self	returned work
4. Rubrics with criteria and standards for academic writing, along with examples are used to support peer marking of a 'conference paper'. Each student marks 4 others anonymously and the marks are aggregated. ■	peer only	returned work
5. Journalism students create blog sites and are marked on the number of public hits on their postings. ■	other	peer
6. The teacher summarises an engineering class's work on team design and build tasks; commenting generally on what helped to create the best designs and what went wrong with those that didn't work as required. ■	instructor only	whole class
7. Students are allowed multiple attempts at a quiz with randomly generated questions and automated feedback. They submit their best attempt for ratification by the teacher. ■	instructor/self	returned work

3.2.4 Options and decisions (pros and cons)

Tools and tips

For efficiency, consistency and reliability: use rubrics, calibrated peer review methods, Bb analytics, comment banks.

To keep students on board: explain purpose to students and contextualise; provide mechanisms for identifying and fixing problems.

Pros and cons

Table 5. lists a few suggested advantages and disadvantages for each option. You may be able to think of others that apply in your own context.

Table 5. Options for assessment tasks and marking,

Decision	Pros	Cons
individual task	easy to set up	often not authentic
group task	fun, authentic, social, contextualised	freeloaders?, frustrating if group doesn't work well
individual marking	perceived as fair	time-consuming
group marking	authentic, saves marking time	can be unfair to individuals
marked by teacher(s)	perceived as reliable	may not engage students with criteria
marked by peers	engages students with applying criteria and standards; develops skills in giving and receiving feedback from peers	perceived as unreliable
marked by industry	authentic and contextualised	may be hard to implement reliably
marked by self	encourages reflection on learning; develops independent learning skills	students may not take seriously or use reliably
marked by other or mixed method	authentic, increases reliability	may be complex to set up and run
whole class feedback	avoids picking out individuals	individuals may ignore
feedback in person	confidential and customised	time-consuming, requires skill in constructive verbal feedback
feedback in class	whole class learns from each case; encourages healthy peer competition/comparison and discussion	may be embarrassing or discouraging for some students
returned work	confidential and customised; all on record	time-consuming; requires skill in constructive written feedback; students focus only on marks
peer feedback	develops skills in giving and receiving feedback from peers; models professional peer critique	needs scaffolding, guidelines and/or facilitation

3.2.5 Further reading

Jacques, D. and Salmon, G (2007), *Learning in Groups*, 4th edition, Routledge.

3.3 Assurance of Learning

3.3.1 Introduction

What is it?

Assurance of learning involves making explicit expectations of what students will be able to do on completion of a course. Once Course Learning Outcomes have been agreed, next steps in Assurance of Learning include: mapping where the CLOs will be taught, practised and assessed in the course; setting criteria and standards, actively facilitating learning towards attainment of the outcomes and systematically gathering, analysing and interpreting the evidence to determine how well performance matches those expectations.

It is important to recognise that in this process, the learning outcomes, standards and the academic program are being assured, NOT the student, teacher or the institution per se.

Levels of Assurance

Assurance of learning occurs at three points in a course: Introducing, Developing, and Assuring. At the Introducing level, students engage with the CLO for the first time in a formal unit context. The unit will teach the CLO or its components, students will have opportunities to practise the CLO or its components, and they will complete an assessment task in which they demonstrate their achievement of the CLO at Introduction level. At the Developing level, students engage with the CLO for the second time in a formal unit context. There will likely be some teaching of the CLO or its components, some practising by students, and students will complete an assessment task pitched at a somewhat higher level of complexity than the Introducing task. At the Assuring level, students engage with the CLO for a 3rd and final time in a formal unit context. There may or may not be some teaching of the CLO and may be some further practising. The Assured level assessment task tests and measures whether students are able to perform the CLO in an appropriate disciplinary context.

Table 6. Assurance of learning levels

Level of Assurance	CMT Current Description	Alternative Description
Introduced	The Unit Learning Outcome is introducing concepts and/or skills associated with and contributing to Course Learning Outcome recognition.	Typically, a unit that Introduces a course learning outcome occurs early in the course. A particular assessment task in the unit will be designated as the task to Introduce the CLO. Student work in that task will be measured against relevant CLO criteria and standards, plus any other required criteria (and standards) for the task. Data on student achievement of the designated CLO could be captured and reported, if appropriate/required.

Level of Assurance	CMT Current Description	Alternative Description
Developed	Further development of concepts and/or skills which have already been introduced and contribute to Course Learning Outcome recognition.	Typically, a unit that Develops a course learning outcome occurs mid-way through the course. A particular assessment task in the unit will be designated as the task to Develop the CLO. Student work in that task will be measured against relevant CLO criteria and standards, plus any other required criteria (and standards) for the task. Data on student achievement of the designated CLO could be captured and reported, if appropriate/required.
Assured	The Course Learning Outcome or component part is assessed at the level expected of a graduate, thus assured.	Typically, a unit that Assures a course learning outcome occurs late in the course. A particular assessment task in the unit will be designated as the task to Assure the CLO. Student work in that task will be measured against relevant CLO criteria and standards, plus any other required criteria (and standards) for the task. Data on student achievement of the designated CLO could be captured and reported, if appropriate/required.

3.3.2 Key Questions

- Do the Course Learning Outcomes appropriately reflect the Western Sydney University Graduate Attributes and relevant professional accreditation?
- What are the expectations for each CLO? Has a rubric been developed to articulate the criteria and performance standards for each CLO?
- What evidence will be accepted for each of the CLO's at each of the three levels? What does Introduce, Develop and Assure mean in your context of your School?
- How many times in the course is the appropriate number of times to Introduce, Develop and Assure each CLO? This objective may be set based on the discipline, accreditation requirements and/or the nature of the CLOs.
- Are the assurance of learning levels reasonably scaffolded across the degree i.e. a CLO is first introduced, then developed, then assured towards the end of the degree?
- How many times are your CLOs Introduced, Developed or Assured? Which units are responsible for these CLOs?
- Have all CLO's been covered across the three levels of assurance? If there are gaps is this because your CLOs are too specific? If there is over coverage is this because your CLOs are too broad? Do you need to reconsider any CLOs, ULOs or assessment tasks?
- Is there a heavy focus on some CLO's more than others? Why is that? How can this be fixed?
- Does the assessment type as well as the assessment marking criteria support the assurance of the CLO? Ie. Unless a group assessment task specifically assesses the group work/group dynamics component it is not enough evidence to support a CLO that deals with team work.

3.3.3 Further Reading

Hunters & Gatherers: Strategies for Curriculum Mapping and Data Collection for Assurance of Learning (An OLT Funded Project)- http://assuringlearning.com/index.html

3.4 Work Integrated Learning (WIL)

3.4.1 Introduction

WIL refers to a range of approaches and strategies that involve using the workplace and community as a site and/or source for learning. As a site of learning, students undertake a work/community related project or a placement in a work/community environment as part of their study program. As a source of learning, students engage with work, work-like and community experiences to learn about the professional work, the community, possible careers, and themselves.

WIL can be incorporated into the curriculum at different levels: (a) whole units being designated for WIL experience; and (b) WIL components being incorporated into units to prepare students for WIL experience.

Whole WIL units may be classified into: Service-learning; Industry projects; Work placement – observational; Work placement – experiential; Structured practicum.

WIL components as part of units may include: Simulations (Moot court, Business case, Objective Structured Clinical Examination), Guest lectures, Site visits or Field trips.

1. Service learning: Service learning involves students engaging in not-for-profit or philanthropic activities/projects with a community partner to experience WIL and civic engagement. Service learning reflects the twin dynamics of experiential learning and service to the community.

2. Industry projects: involve students engaging in projects as individuals or within a team to meet the needs from the industry. These projects require students to integrate their multiple aspects of learning with the practice of work in addressing the industry's needs. Examples may include: Capstone projects, Industry-driven research projects, or Projects for internal/external clients.

3. Work placement – observational: requires students to be physically attending a professional workplace for a substantial period of time, observe everyday practice of the profession and learn from reflecting on that experience.

4. Work placement – experiential: is a direct work experience where students perform everyday practice of the profession in the professional workplace and learn from reflecting on that experience.

5. Structured Practicum: requires students to perform a prescribed list of professional activities and achieve competencies that are determined by professional or industry bodies.

Note: Cadetship, internship, placement, practicum or equivalent types of WIL can be categorised as Work placement-observational, Work placement-experiential, or Structured practicum depending on the nature of the experience planned for the students

3.4.2 Key Questions

- How do students encounter WIL experience in this unit?
- Are there any learning resources, learning activities or assessment tasks in the unit using work or work-related examples, scenarios, standards and frameworks, or input from industry professionals?
- Does the unit make students aware of ways in which the unit contributes to preparing them for their designated profession?
- How does the unit connect students with the community or the world of work?
- Does the unit provide students with opportunities to practise essential activities of the designated profession either in a simulated environment, on campus or in a work place?

- Does the unit create a space for students to encounter ways of being skilful professionals and through that develop their skills?
- How does the unit support their learning in that direction?

3.4.3   Further Reading

http://www.griffith.edu.au/learning-teaching/teaching-and-learning/service-learning

http://mq.edu.au/about_us/offices_and_units/professional_and_community_engagement/

3.5   Research in the curriculum

3.5.1   Introduction

Typically units taught at Western Sydney University are informed by existing research. Students may engage with disciplinary research as part of learning about topics/concepts taught in the unit; they may engage with research in required readings and as they prepare for assessment tasks, etc. Students are an audience for relevant contemporary research, learning about the theories and concepts underpinning research as well as learning about the outcomes and implications of such research. Through being exposed to disciplinary research in classes and learning/assessment activities, students can learn to think in disciplinary-specific ways. Because of the centrality of this dimension to a University education, it is explicitly identified in the CMT, with units specifically related to developing student research knowledge, skills and understanding to be mapped according to the following framework.

When students encounter research done by others or learn about the outcomes of research, this is known as '**Research informed learning'**. In any given unit this might include:

- Placing the latest research in the field in its historical context
- Drawing on your own and colleagues' research in designing and teaching lessons
- Designing learning activities around contemporary research issues

In some units, students may learn explicitly how to use the research tools of the discipline, learning research techniques, methods, skills, ethical practices, etc. This is called '**Learning to do research**' and might include students being involved in: Research design, qualitative and quantitative research, identification of sources of data, data collection procedures, measurement strategies, questionnaire design, interviewing techniques, content analysis, literature surveys, information databases, statistical techniques, evaluation and writing of research reports, papers and theses, development of a research program, or writing a research grant application.

When students undertake learning activities designed around contemporary research issues, this is known as '**Learning in research mode**'. A unit coordinator can facilitate this approach by:

- Building a small-scale research activity into assignments
- Assessing students in ways that mirror research processes, eg use peer review processes
- Creating opportunities for students and lecturers to co-produce knowledge in enquiry-based settings.
- Designing learning activities around 'real world' research applications.
- Linking students' experiences with research to departmental knowledge transfer and community/industry engagement.
- Developing students' abilities to communicate the results of their research in ways that are appropriate to the disciplinary community.

3.5.2 Key Questions

- How will students engage with research in this unit?
  - o Will they be learning about research done by others, perhaps about the outcomes of research? (Research informed learning)
  - o Will they be learning how to use the research techniques/methods/skills of your discipline? (Learning to do research)
  - o Will they be undertaking learning activities designed to focus on contemporary research issues such as undertaking a small scale research project, co-producing knowledge in an inquiry-based setting, communicating the results of research, etc.? (Learning in research mode)
- If learning to do research or learning in research mode is an important component of the unit, should there be a unit learning outcome associated with this?
- If there will be a learning outcome associated with research in this unit, how will it be assessed?
- What learning activities will students need to do in order to develop the required research knowledge/skills?
- How will the unit make students aware of the ways in which research skills can be used in professional practice? (emphasising relevance)

3.5.3 Further Reading

Knight, P. & Yorke, M. (2004) *Learning, curriculum and employability in higher education*. London: Routledge

Price, M., Handley, K., Millar, J. & O'Donovan, B. (2010) Feedback: all that effort, but what is the effect? In *Assessment & Evaluation in Higher Education*, 35(3): 277-289.

ALTC (2008), The Teaching Research Nexus: A guide for academics and policy-makers in higher education *http://trnexus.edu.au/index.php?page=trn-in-the-curriculum*

Teaching Research – Evaluation and Assessment Strategies for Undergraduate Research Experiences (TREASURE), Final Report, 2014 (An OLT funded project) http://www.treasure.edu.au/project/files/2013/07/TREASURE_Final-Report-ph64k3.pdf

3.6 Timing, assessment and feedback

3.6.1 Introduction

The timing of assessments and subsequent feedback is an important part of the learning process of students. The timing allows students to reflect on their learning and make improvements prior to undertaking the next learning task. Feedback, when provided in an appropriate time frame, allows students to make conscious improvements to successfully achieve the learning outcomes of a unit.

Thinking critically about the assessment timing and feedback of your unit is important to ensure that your students gain the required skills and knowledge to progress in your unit, and their course. It is also important for identifying students at –risk and directing them to the appropriate support and resources available.

3.6.2 Key Questions

- How will you ensure that the assessment load of your unit is fair and reasonable for students? (i.e. Is there appropriate time between assessments to allow for student improvement and reflection?)
- Will you incorporate purposely built low-risk assessments due in first few weeks of your unit to identify students lacking required skills and knowledge for successful completion of your unit

and the course? This is particularly important when the unit is offered in the first few sessions of a course. Moreover, low risk-assessments in first year first session units, particularly before census date, may also help students to make better and informed decisions about choosing a course or reducing their study load.

- Will the format and language of feedback be clear enough to highlight strengths and identify weaknesses in your student's work, particularly in a way that will help them improve performance? Feedback should also articulate clearly how the deficient knowledge/skill can be improved?
- Will there be an opportunity for your students to receive feedback in a variety of forms throughout the semester to suit different learning styles and the nature of assessment? (i.e. Informal (verbal) vs. formal (in writing), in-class vs. in person, self vs. peer, online, via returned work etc). (Note: Some forms may also reduce marking load and provide more timely feedback to students)
- Will the feedback provided on one task be relevant to the successful completion of the next task? Are the assessments designed or staged in such a manner that your students can make the best use of the feedback?
- Does the assessment map portray a fair and reasonable picture of student workload **across multiple (core) subjects in a session**? Are the deadlines concentrated in certain weeks? Is there a possibility of shifting due dates in a manner that may help your students to focus (and possibly perform) better with fewer tasks required at the same time? This is particularly important in early sessions (1st year) when students are transitioning to university and still developing time management skills and as independent learners.
- Is the feedback provided early enough to enable recuperation when the work is still fresh in your students' minds? (preferably in the next class, if possible or on an average of two weeks)
- Is the feedback provided more frequently for early year units, where students are not yet independent learners?
- Are there enough early low-risk assessments embedded in the session so at-risk students be directed to appropriate support available at the university in time.

3.6.3   Further Reading

Gill, B.I. (2015) Talking about the elephant in the room: Improving fundamental assessment practices, *Student Success, 6* (2), 53-63. Doi: 10.5204/ssj/v6i2.291
https://studentsuccessjournal.org/article/view/291/304
Western Sydney University (2013) *Assuring Best Practice in 1st Year 1st Session Assessment: Report on Tier 1 and Tier 2 Course Reports*, Available at:
https://www.westernsydney.edu.au/__data/assets/pdf_file/0011/752609/Report_Assuring_Best_Practice_in_First_Year_Assessment-SEEC_final_.pdf

3.7   Level of thinking

3.7.1   Introduction

Level of thinking refers to the level of cognitive complexity that students perform in a unit. Level of thinking is embedded in the curriculum in the form of the verbs used in unit learning outcomes (ie what students will be able to do on completion of a unit) and associated learning activities and assessment tasks.

Two commonly used frameworks for understanding level of thinking in the curriculum are:

- Bloom's taxonomy (1969) revised by Anderson & Krathwohl (2001); and
- Biggs' SOLO (Structure of the Observed Learning Outcome) taxonomy.

Table 6

Level No.	Level of Thinking	Cognitive Process
1	Remember	Retrieve relevant knowledge from long-term memory.
2	Understand	Construct meaning from instructional messages, including oral, written and graphic communication.
3	Apply	Carry out or use a procedure in a given situation.
4	Analyse	Break material into constituent parts and determine how parts relate to one another and to an overall structure or purpose.
5	Evaluate	Make judgments based on criteria and standards.
6	Create	Put elements together to form a coherent or functional whole; reorganise elements into a new pattern or structure.

Bloom's (1969) taxonomy, revised by Anderson and Krathwohl (2001)

In Anderson & Krathwohl's revised taxonomy above, the cognitive process categories at Level 1 (Remember) include recognising and recalling. Level 2 (Understand) categories include verbs such as interpreting, exemplifying, classifying, summarising, inferring, comparing and explaining. Level 3 (Apply) includes executing and implementing. An example of a learning outcome written at level 3 is: [students will be able to]*"Determine the investment risk tolerance of a client."* Level 4 (Analyse) includes differentiating, organising and attributing. Level 5 (Evaluate) includes checking and critiquing. Level 6 (Create) includes generating, planning and producing. An example of a learning outcome written at level 6 is: [students will be able to]*"Generate hypotheses to account for an observed phenomenon".*

Biggs' SOLO taxonomy describes five levels of understanding in a hierarchy of ascending cognitive complexity. Lower levels of complexity involve students mastering a single conceptual issue or task but not necessarily understanding other essential elements (unistructural), or demonstrating adequate understanding of two or more concepts or aspects of a task, without relating these to broader concepts or systems (multistructural). Higher levels of complexity in SOLO involve students integrating parts into a coherent whole or theoretical framework (relational), or going beyond a relational level of understanding, applying their understanding to novel contexts (extended abstract).

While there is no one 'best model' of Level of Thinking in a well-structured curriculum (course), a traditional curriculum model will typically scaffold Level of Thinking from the most relevant lower end of the scale to the most relevant higher end of the scale through a careful and creative sequencing of units over the period of study. Other models of structuring curriculum include enquiry-based, problem-based and project-based curricula.

The CMT allows the mapping of levels of thinking using the Anderson & Krathwohl (2001) model.

3.7.2   Key Questions
* Is the course/unit undergraduate or postgraduate, and what are the implications for the Level of Thinking?
* What is the sequencing of the Unit in the overall degree (e.g. (i) first year/introductory/ foundational, (ii) second year/developmental, or (iii) final year/capstone/extension) and what are the implications for the Level of Thinking for this unit?
* What Level of Thinking verbs are most applicable given responses to the above two questions?

- How much higher-level thinking (i.e. create, evaluate) is appropriate for a student at the sequencing level identified for your unit? For example, is it always appropriate that first year students must first acquire a wide spread of content and thus be required to operate mostly at lower-levels (i.e. remember, understand)?
- What learning activities will students need to do in order to develop the levels of thinking embedded in learning outcomes and assessment tasks?

3.8   Authenticity

3.8.1   Introduction

Authenticity in assessment is determined by the degree to which the task connects learning at university with what graduates would be doing in the workplace. Tasks with higher levels of authenticity are typically open-ended, require a component of reflection on practice, and involve collaboration with people beyond university settings.

It is expected that a range of assessment tasks will (appropriately) be constructed at lower levels of authenticity and that students will have opportunities to work on tasks with higher levels of authenticity as they progress through their program of study and one would expect to see this reflected in the CMT maps of assessment authenticity.

Table 6.

Level of authenticity	Definition	Examples
Low	Assesses theoretical knowledge and/or skills, at remembering/ comprehending levels Task assesses theoretical knowledge and/or skills, independent of professional or real world context. At beginning level of intellectual engagement, focusing on remembering and comprehending. Does not require self-reflection or peer input.	Theoretical knowledge recall; Well-structured lab experiment; Mathematical calculation; Decontextualised essay; Recall facts or Answer comprehension questions (e.g. MCQs and Short answers in an exam); Label parts of a diagram (e.g. of a microscope or the human digestive system); Conduct a laboratory experiment by following instructions; Summarise information; Write an essay independent of professional or real world context; Do a mathematical calculation; Identify part(s) of a given process or procedure.

Level of authenticity	Definition	Examples
Medium	Assesses theoretical knowledge and skills at applying/analysing levels, in contextualised settings. Task assesses theoretical knowledge and skills as used in professional or real world contexts. Medium to beginning level of intellectual engagement focused on comprehending, applying, analysing. May involve self-reflection, peer feedback or peer assessment.	Report to a defined client; Open-structured laboratory experiment; Presentation to a defined audience; Conduct a clinical examination in a controlled situation; Write a report or case study on a given topic or observed scenario to a defined client; Design and conduct a laboratory experiment, using instructions; Solve a problem (e.g. by doing a mathematical calculation); Present a topic / case to the class and interact with audience; Use industry-standard software or equipment (e.g. use SolidWorks to produce a 3D rendered model);
High	Assesses applied knowledge and skills contextualised in real-world or professional settings; involves self-reflection Task assesses applied knowledge and skills contextualised in real-world or professional settings. High to medium level of intellectual engagement focused on analysing evaluating, creating. Involves self-reflection and collaboration with peers, industry, professionals.	Treatment plan; Business proposal; Fieldwork; Design, deliver and evaluate a lesson to peers; Propose and evaluate a treatment plan for a virtual or simulated patient/client; Design, conduct and evaluate an experiment; Write a report / essay / case study drawing on a real-world or professional issue and your own reflection; Write and evaluate a legal document that meets professional standards; Design/prepare and defend a creative work to peers; Prepare a business proposal that meet the requirements of virtual or simulated clients; Conduct a fieldwork project using a pre-determined protocol;

Level of authenticity	Definition	Examples
Very high	Assesses professional activity in context or for real world audience; requires critical self-reflection	Practicum teaching; Treat patient; Creative work for external audience Design, deliver and evaluate a lesson in a school; Diagnose, treat and follow up a patient/client; Design, conduct and evaluate an experiment in an industrial/professional context or the results of which will inform practice in the real world; Write and evaluate a legal document that can be used in a legal transaction; Design and produce a creative work and defend to an external audience; Prepare and defend a business proposal to a client/consumer group; Design and conduct a fieldwork project;
	Task assesses professional or real world activity in a workplace setting or for a professional/real world audience. High level of intellectual engagement focused on evaluating, creating, synthesising. requires critical self-reflection and collaboration with professionals / real world context	

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3.8.2   Key Questions

- Do the tasks aim to assess application of theories and concepts in real-world or professional contexts?
- Do the tasks require self-reflection and/or peer input?
- Do the tasks encourage higher levels of thinking and self-directed learning such as synthesising, evaluating and creating?
- Do the tasks provide an opportunity for students to interact with other people, such as team members, clients and supervisors in a real-world or professional setting?
- Do the tasks encourage students to apply theories, concepts and/or current developments in the field in conducting a real-world or professional activity in a real-world or professional setting?
- Do the tasks require students to exercise higher levels of thinking and professional autonomy in a way that contributes to real-world or professional practice?
- Do the tasks create spaces for students to learn from their reflections for their personal and professional development?

3.8.3   Further Reading

https://ctl.curtin.edu.au/teaching_learning_practice/student_centred/authentic.cfm

http://uq.edu.au/tediteach/assessment/docs/brief-40-mar2014.pdf

http://www.uwex.edu/disted/conference/Resource_library/proceedings/03_03.pdf

3.9   Literacy

3.9.1 Introduction

Academic literacy is defined as "the capacity to undertake study and research, and to communicate findings and knowledge, in a manner appropriate to the particular disciplinary conventions and scholarly standards expected at university level" (UWA University Policy). In particular, academic

literacy covers the skills of academic reading, critical thinking and the application of discipline specific language to communicate ideas and knowledge, in both oral and written forms.

English language proficiency covers both spoken and written language. The term refers to the ability to comprehend and communicate in different settings, such as daily life, in a work place or at university.

The ability to demonstrate understanding of disciplinary knowledge through well-reasoned and substantiated writing needs to be developed throughout a student's candidature. The explicit teaching of writing is critical to the realisation of the Western Sydney University mission to strengthen the intellectual capacity of Greater Western Sydney (63% of domestic students) and also to attain WSU's internal goals related to retention, student satisfaction, equity and graduate outcomes.

Academic literacy permeates curriculum mapping and design. Discipline content, assessments and standards are all construed in language. It is therefore important that students are introduced to the language that is important for their discipline and the texts types expected of them as graduates are able to be understood and reproduced throughout their course. Thus academic literacy needs to be **introduced**, **developed** and **assured** at appropriate stages of a degree program. A developed skill is one that has been introduced in an earlier unit and has explicit links between the stages to show how the developed skill is at a higher order than the introduced skill. A developed skill requires both a step up in level of difficulty (that is, not just a repetition of content from the introduced level) and also scaffolding within the teaching activities to meet the increase in difficulty. Academic literacy will show itself in the CMT particularly through the assessment tasks, criteria and standards. Language oriented marking criteria should make the language outcomes of the assessment clear.

3.9.2   Key Questions
- Do the assessment descriptors match the CMT definitions? Is there agreement in your school on how these are structured and the language required?
- When you are introducing an academic literacy feature have you thought of all the constituent skills necessary, ie researching, reading, summarising, etc ?
- When you are developing an academic literacy skill have you made explicit the links to the unit in which you introduced it?
- Have you ensured that the terminology you are using to describe features of language are the same in the support materials you are using and are consistent within your faculty?

3.9.3   Further Reading

Devereux, L., & Wilson, K. (2008). Scaffolding literacies across the Bachelor of Education program: an argument for a course-wide approach. *Asia-Pacific Journal of Teacher Education*, *36*(2), 121-134.

Hendry, G. D., Armstrong, S., & Bromberger, N. (2012). Implementing standards-based assessment effectively: Incorporating discussion of exemplars into classroom teaching. *Assessment & Evaluation in Higher Education*, *37*(2), 149-161.

Tribble, C., & Wingate, U. (2013). From text to corpus–A genre-based approach to academic literacy instruction. *System*, *41*(2), 307-321.