Blended Learning @ JCU
A guide for staff

James Cook University
AUSTRALIA

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Contents

Tables

Figures

About this guide

The aim of this guide is to present an introduction to blended learning design for higher education, and to briefly take you through the process of integrating technology into your learning and teaching practice.

We have structured this guide around the notion of engaging in a systematic process of planning, designing and developing, implementing and reviewing; good practice for any curriculum design endeavour.

For each stage in this process, we have attempted to provide guidance, key principles to underpin practice, and an overview of the commonly used tools and technologies for use with subject content and resources, student activity and collaboration, assessment, communication, and the management and administration of learning and teaching.

Throughout this guide we refer you to online resources, help guides, and further reading.

At JCU there are Academic Developers and Educational Designers in Learning Teaching & Student Engagement (LTSE) who can assist you.

Most importantly, we also encourage you to talk to colleagues, share your own ideas and experiences, and learn from each other; after all, that is what we encourage our students to do!

1

Definition, Rationale and Possibilities

1.1 What Is Blended Learning?

"Blended learning" refers to learning design that strategically, systematically and effectively integrates a range of face-to-face, online, mobile, distance, open, social and other technology enhanced learning across physical and virtual environments, as informed and driven by student needs and support for desired learning activities and learning outcomes (JCU Blended Learning Policy, 2014).

Blended Learning covers a wide range of activities across a continuum spanning conventional and face-to-face interactions to those that are online. Blended learning courses use a mix of face-to-face and online delivery (between 30-79%).

1.2 Why Blend?

Blended learning is the purposeful use of technologies to enhance student learning and outcomes. It is the purposeful use of technologies in subject design to enhance the learning and teaching experience for teachers and students by enabling them to engage in ways not previously available to them.

Blended learning design can:

- Broaden the spaces and opportunities available for learning;
- Support subject management activities (eg. communication, assessment, submission, marking and feedback);
- Support the provision of information and resources to students;
- Engage and motivate students through interactivity and collaboration.

It is not about using the technology because it is available; it is about finding better ways to support student achievement of learning outcomes and providing them with the best possible learning and teaching experiences, as well as supporting teachers.

The integration of blended learning will vary greatly depending on your subject context.

1.2.1 Blended Learning Possibilites

Taking a blended learning approach to your subject can be used to support face to face teaching, large and small group learning, self-directed learning, and communication with and between students. You can blend 'time', (ie. Face to face v. recorded lectures), 'place' (tutorials v. discussion, virtual field trips), 'people' (podcast of guest lecturers) and resources and activities.

The figure (1-1) on the following page, courtesy of Griffith University (2010), illustrates the possibilities for blended learning.

Figure 1-2 titled "Possibilities for Blended Learning within the LearnJCU environment" shows Learn JCU supported technologies, according to the following purposes: (1) delivery of course content; (2) communication and collaboration; (3) tracking student activity; and (4) assessment and feedback. When designing for blended learning, this diagram provides a way to consider which technologies can support the planned activity designed to enhance student learning.

Table 1.1. Relationship between course type and percentage of content delivered online.

Proportion of Content Delivered Online	Type of Course	Typical Description
0%	Traditional	Course with no online technology used – content is delivered in writing orally.
1 to 29%	Web Facilitated	Course which uses web-based technology to facilitate what is essentially a face-to-face course. Uses a course management system (CMS) or web pages to post the syllabus and assignments, for example.
30 to 79%	Blended/Hybrid	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online. Typically uses online discussions, and typically has some face-to-face meetings.
80+%	Online	A course where most or all of the content is delivered online. Typically have no face-to-face meetings.

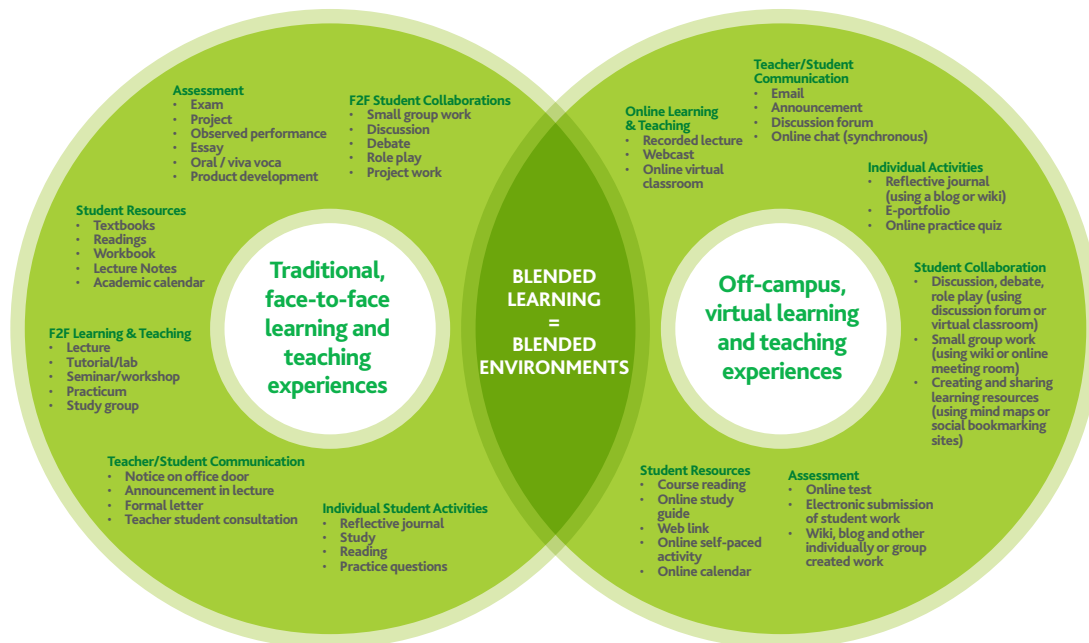Source: Allen, Seaman & Garrett, 2007, p. 12

Figure 1.1. Possibilities for blended learning

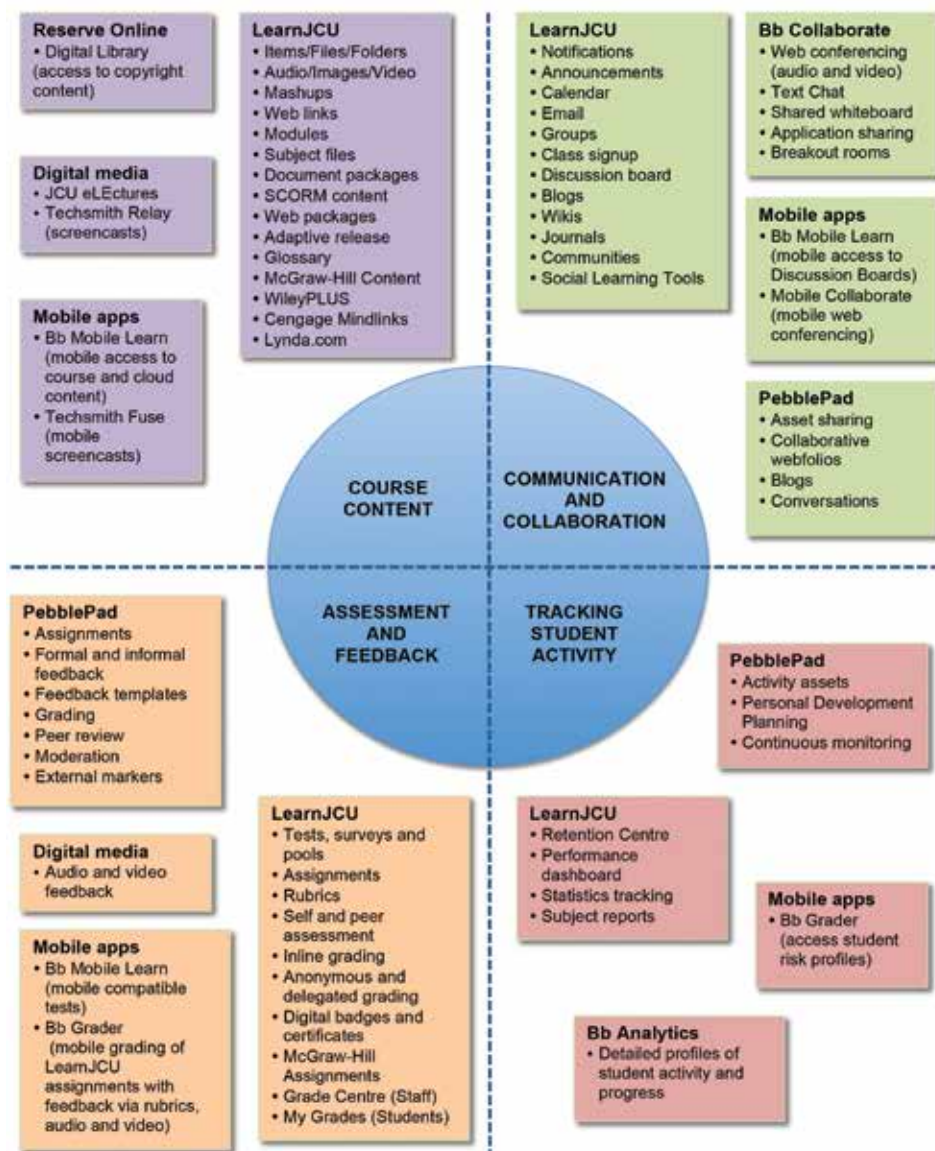## Teaching with Technology at JCU

Figure 1.2. Possibilities for blended learning within the LearnJCU environment

2

Designing for
Blended Learning

2.1 The Design Process

Taking a deliberate approach to the design of technology-enhanced learning experiences is crucial for the success of blended learning. The JCU Learning, Teaching and Assessment Policy states, that **approaches to teaching are varied and adaptive to new demands in learning and will include effective use of appropriate technologies and innovation. www.jcu.edu.au/policy/allitoz/JCU_076643.html**.

Quality blended learning design exhibits the following features:

- Participative, not just interactive (Wild, 2007)
  - Processes of cognition & collaboration enhanced through students being actively engaged in their own learning.
- "Thinking and working together creates learning" (Allen, 2010 cited in Griffiths University, 2010, p. 7).

Good preparation and decision making is essential not only for efficient use of your time, but also the creation of quality learning experiences for your students.

2.2 The Process Explained

The following questions can serve as effective prompts for designing your blended learning programs:

Planning

- Who are my learners? (Profile your learners)
- What are my learners expected to achieve and to what standard? (Subject Learning Outcomes)
- What assessment tasks have been designed to enable my learners to demonstrate they have met the learning outcomes?
- What feedback has there been about this subject?
- What are consistent learning issues in my subject? Make a start by disrupting current ways of doing. How can a purposeful blend:
  - clarify confusing concepts?
  - provide fundamental concepts?
  - invigorate potentially dull aspects of your subject?

Designing

- What teaching and learning activities will I design to support student learning?
- What frameworks can be used to support the implementation of blended Learning?
- How can a purposeful blend support the student experience and student learning?
- What active learning strategies should be used and how can a deeper approach to learning be encouraged?
- What resources are available to support students and staff?

Implementing

- How will I track my learners' activity and provide feedback to them?

Reviewing

- How do I know it is a useful blend?
- What feedback has there been from my learners, from staff or from industry partners?

Improving

- What changes need to be made for the next delivery of this subject?

Blended Learning Design Cycle

Improving
- What changes will be made for the next delivery of this subject

Planning
- Who are my learners?
- What skills/knowledge will they demonstrate (learning outcomes)?
- How will they demonstrate the outcomes (assessment)?
- What is the current feedback about this subject?
- What content is confusing/boring/fundamental?

Reviewing
- How have learners engaged with the re-design?
- What worked well?
- What has been the response of other staff and stakeholders

Designing
- What framework supports blended learning in my context?
- What active learning strategies could support deeper learning?
- What learning activities will support learning?
- What resources are available?

Implementation
- How will I track learner activity and provide feedback?
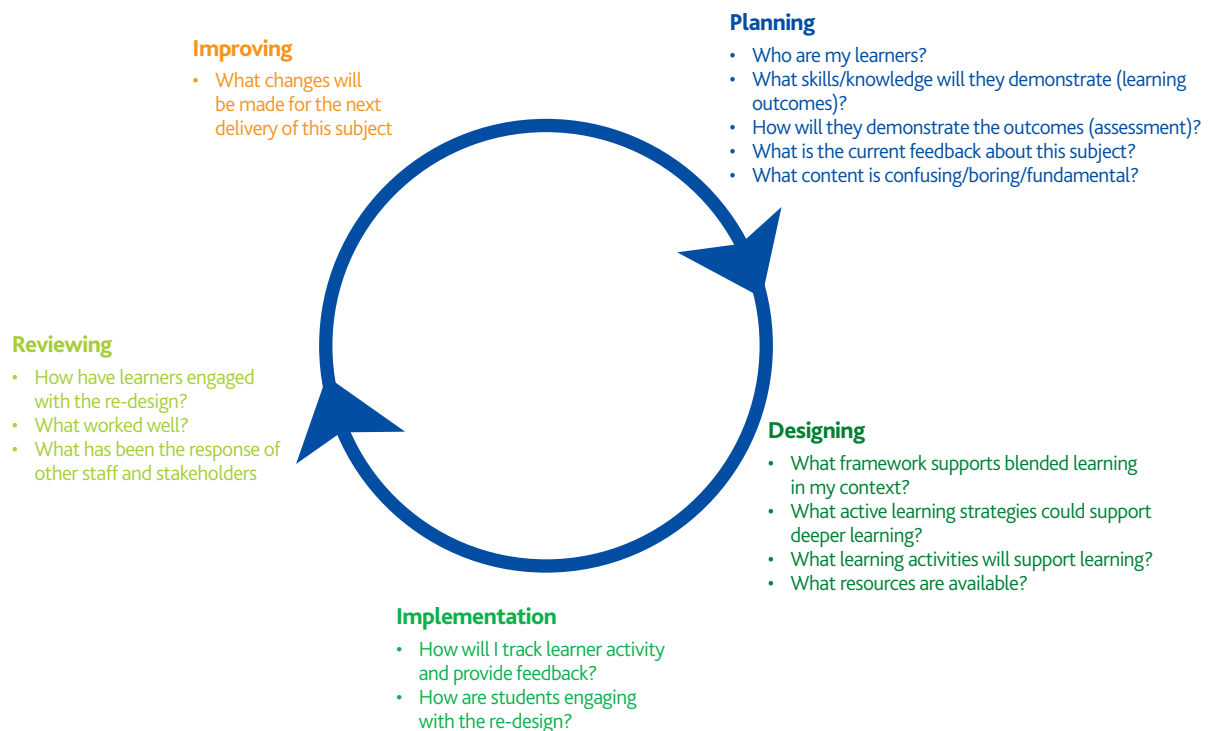- How are students engaging with the re-design?

Figure 2.1. Designing blended learning at JCU

2.3 Five Steps to Blended Learning Design

The following infographic (Figure 4) incorporates these principles and considerations in five steps:

1. Know your students
2. What will students learn?
3. What is the current student experience?
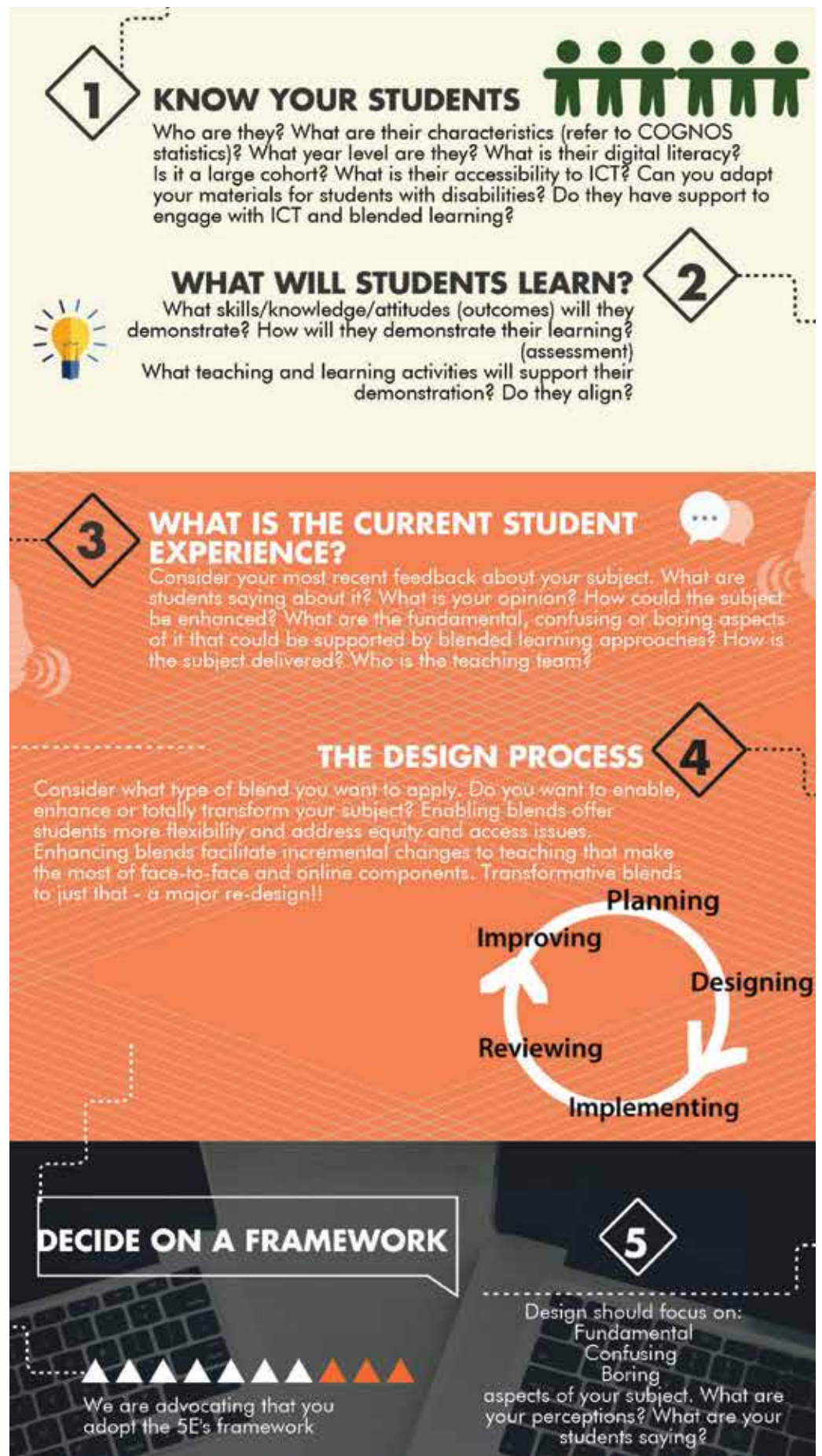4. The design process
5. Decide on a framework

1 KNOW YOUR STUDENTS

Who are they? What are their characteristics (refer to COGNOS statistics)? What year level are they? What is their digital literacy? Is it a large cohort? What is their accessibility to ICT? Can you adapt your materials for students with disabilities? Do they have support to engage with ICT and blended learning?

2 WHAT WILL STUDENTS LEARN?

What skills/knowledge/attitudes (outcomes) will they demonstrate? How will they demonstrate their learning? (assessment)
What teaching and learning activities will support their demonstration? Do they align?

3 WHAT IS THE CURRENT STUDENT EXPERIENCE?

Consider your most recent feedback about your subject. What are students saying about it? What is your opinion? How could the subject be enhanced? What are the fundamental, confusing or boring aspects of it that could be supported by blended learning approaches? How is the subject delivered? Who is the teaching team?

4 THE DESIGN PROCESS

Consider what type of blend you want to apply. Do you want to enable, enhance or totally transform your subject? Enabling blends offer students more flexibility and address equity and access issues. Enhancing blends facilitate incremental changes to teaching that make the most of face-to-face and online components. Transformative blends to just that - a major re-design!!

Planning

Improving

Designing

Reviewing

Implementing

5 DECIDE ON A FRAMEWORK

We are advocating that you adopt the 5E's framework

Design should focus on:
Fundamental
Confusing
Boring
aspects of your subject. What are your perceptions? What are your students saying?

Figure 2.2. Five steps to blended learning design

3

Blended Learning Frameworks

3.1 Blending for Active Student Engagement

Active engagement with subject material is vital for effective learning. Research overwhelming supports the idea that student achievement is enhanced when students go beyond the passive tasks of listening and reading or viewing. Active engagement can be facilitated through individual or collaborative work. Within your subject student activity should ideally include **a combination of individual and collaborative work** as well as **formative** and **summative tasks** to support students in attaining the subject learning outcomes.

Figure 3-1 outlines the range of outcomes from Bloom's Taxonomy that are possible when using active learning strategies in your teaching.

3.1.1 Blended Learning and Bloom's Taxonomy

The following table aligns different types of blended learning activities with cognitive processes organised according to Bloom's Taxonomy. If you are interested in applications related to active learning and Bloom's Taxonomy please follow these links: **www.schrockguide.net/bloomin-apps. html** and **www.unity.net.au/padwheel/ padwheelposter.pdf**
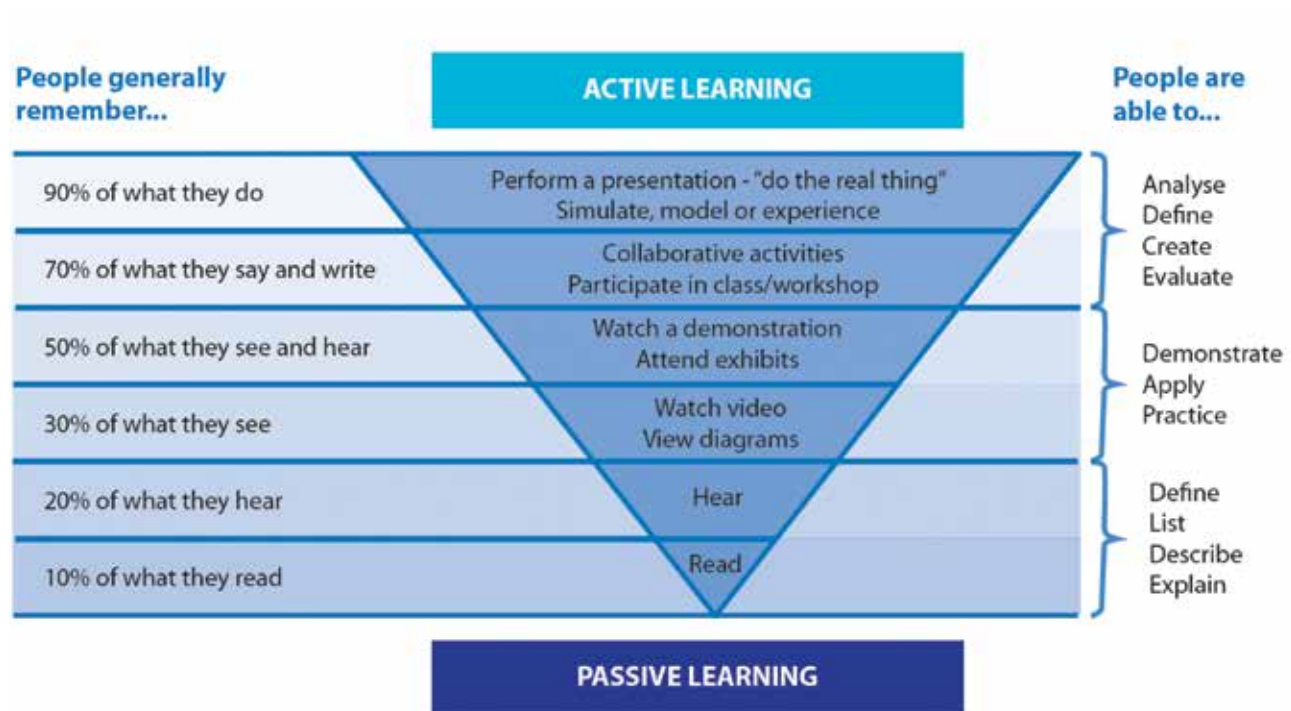

Figure 3.1. Interactions between active and passive learning strategies and the degree to which learners are engaged with their learning through various activities.

(Source: Griffith University, 2010, p. 25)

Level of learning	Types of blended learning activities
Creating Designing, constructing, planning, producing, inventing	Programming, filming, animating, video/blogging, mixing/re-mixing, web publishing, webcasting, directing or producing, – used to create a film, presentation, story, program, projects, media product, graphic art, podcast, advertisement, model.
Evaluating Checking, hypothesising, critiquing, experimenting, judging, testing	Debate or panel (using webcasting, web conferencing, online chat or discussion), investigating, (online tools) and reporting (blog, wiki, presentation), persuasive speech (webcast, web document, mind document, mind map-presentation mode), commenting/moderating/reviewing/posting (discussion forums, blogs, wiki, chat room, twitter) as well as collaborating and networking.
Analysing Comparing, organising, deconstructing, interrogating, structuring	Surveying/polling, using databases, relationship mind maps, online SWOT analysis, reporting (online charts, graphing, presentation or web publishing), mashing, meta-tagging.
Applying Implementing, carrying out, using, executing, editing	Simulation games or tasks, editing or developing shared documents (wiki, video and sound tools), interviews (e.g. making podcast), presentation or demonstration tasks (using web conferencing or online presentation tools), illustration (using online graphic, creative tools).
Understanding Interpreting, summarising, paraphrasing, classifying, explaining, comparing	Building mind maps, blog journaling, wiki (simple page construction), categorising and tagging, advanced internet (Boolean) searches, tagging with comments or annotations, discussion forums, show and tell (with audio, video webcasting).
Remembering Recognising, listing, describing, identifying, retrieving, naming, locating	Simple mind maps, flash cards, online quizzes, basic internet searches (fact finding, defining), social bookmarking, Q&A discussion forums, chat, presentations.

Table 3.1. Bloom's Digital Taxonomy

Source: Adapted from Churches, 2008: retrieved http://www.scribd.com/doc/8000050/Blooms-Digital-Taxonomy-v2-12

3.2 The 5Es Framework

A useful model for constructing blended learning is the 5 E's model. The model emanated from science curriculum moves to promote inquiry and more student-centred learning. The 5 E's model is derived from the concept that students learn and retain knowledge when they have had the opportunity for discovery through a variety of experiences purposefully designed by the teacher or learning facilitator. Student use their prior knowledge to make connections between new information/experiences and prior knowledge. To help students make these connections learning facilitators structure experiences that are organised into five phases:

Engage

- Focus is to mentally engage student by capturing their interest and giving them an opportunity to demonstrate their prior knowledge.
- Helps them make connections between prior knowledge and new ideas.
- **Active learning approaches**
  - Background knowledge probes; topical/controversial video & associated focus question(s); focussed listing; pre-quiz; dialogue journal/work log book; mind mapping; questions, establishing learning goals/rubrics; blank slides; question slides, Graphic organiser ;KWL chart.

Explore

- Focus is to facilitate activities that give students the opportunity to explore the concept/skill. This should allow them to engage with problems and describe them in their own words.
- Helps them acquire a common set of experiences to share with their peers.
- **Active learning approaches**
  - Brainstorming; buzz groups; corner strategy; jigsaw; muddiest point; problems; questions; information search; directed questioning; test-taking teams; think-pair-share; simulations; 3-step interviews; creating academic notes; summary templates; non-linguistic representations; direct vocab instruction; discussion forum; blog; wiki; workstations; problem of the day.

Explain

- Focus is for facilitator to provide the concepts and terms already used by the students to develop explanations for the phenomenon they have already experienced.
- Explanation follows experience.
- **Active learning approaches**
  - Brainstorming; buzz groups; debate; academic note taking; jeopardy; who wants to be a millionaire; questions; ten-two strategy; roundtable; think-pair-share; 3-step interviews; discussion forum; online quiz; blog; wiki; blackboard work; problem of the day; text reading; step-by-step.

Elaborate

- Focus is for students to apply knowledge/skills to develop a deeper understanding or better demonstration of skill.
- Students need to discuss and compare ideas.
- **Active learning approaches**
  - Identifying similarities and differences; identifying patterns; perspective analysis; analysing errors; academic portfolio; question and answer pairs; brainstorming; cases; critical debate; jigsaw; presentations; breakout rooms; collaborative projects; problems; questions; roundtable; simulations; 3-step interviews; problem posing; critiques; concepts to pictures; pictures to algebra; multiple representations; application problems; student generated quiz/test questions; problem of the day.

Evaluate

- Focus is to review and reflect on their learning, new understandings/skills.
- Students provide evidence of learning.
- **Active learning approaches**
  - Self evaluation rubric; analysing errors; problem solving; closing summary; dialogue journal/ work log book; focussed listing; mind mapping; muddiest point; one-minute paper/free write; post-quiz; questions; directed questioning; reflection templates.

3.2.1 Engage

The purpose of 'Engage' is to focus students' attention on the lesson/topic, create an organising framework for the ideas, principles, or information that is to follow (teaching strategy called "advanced organisers"), to extend the understanding and the application of abstract ideas through the use of example or analogy. The "hook" can be used any time a different activity or new concept is to be introduced.

Strategy	Purpose	Description of strategy	Examples	Implementation suggestions and variations
Topical/controversial video & associated focus question(s)	Students focus their attention on important material	Topical/ controversial video engages students in watching a multimedia clip that will 'start them thinking' or 'shock their thinking' regarding a topic to create academic interest around this and front end the further learning.	Instructor poses 1-3 focus question, and shows a short video clip to address these. Such as • TED talk • Khan Academy • YouTube • Vimeo Or try any of the links associated with this site **http://edtechreview. in/e-learning/170-free-online-educational-videos-resources**	1. Clickers could be used if questions are multiple choice 2. If questions require an opinion statement, students could place themselves on a continuum and share responses. 3. Students could write and display their answers on mobile whiteboards (white paper in a plastic sleeve) to promote engagement 4. Think, pair, share: students share responses with a partner and then larger group. 5. Students write answers on 'post – its', these are handed around and students report back on the post its they have received (non- threatening) or post them on the walls of the teaching space
Focussed listing; pre-quiz	Instructor identifies students' prior knowledge or attitudes Students recall what they have learned about a topic	Students recall what they know about a subject by creating a list of terms or ideas related to it. 1. To begin, the instructor asks students to take out a sheet of paper and generate a list based on a given or chosen topic. 2. Instructors ask students to share their lists. Note: Can be used before or after instruction. Focused listing need not take more than a few minutes.	1. In an educational psychology course, students provide examples of defining characteristics of Piaget's stages of cognitive development. 2. In a political science course, students identify the pros and cons of a government's proposed course of action currently in the news.	1. Impose a time limit and inform students. 2. Students share their lists in small groups. 3. Students make a focused list prior to the discussion and then add to the list (correcting any prior misconceptions) at the end of the class period. 4. May be used in conjunction with the "Roundtable"strategy. 5. Students share their lists in small groups and identify the mtwo to three most important points, which they then share with the class. 6. Students brainstorm in small groups, typing their lists. Can also be combined with "write around the room" strategy. 7. Students can project their list using the screen sharing facilities.
Mind mapping (conclude in Evaluate)	Instructor gains an sense of students understanding so far Students can organise and make links between knowledge	Mind mapping is a simple technique for drawing information in diagrams, instead of writing it in sentences. The diagrams always take the same basic format of a tree, with a single starting point in the middle that branches out, and divides again and again. The tree is made up of words or short sentences connected by lines. The lines that connect the words are part of the meaning	Students are exploring the concept of human rights. Students place this concept in the centre of the map. Students then identify the related content within this concept ie. Social and civil rights, the UN and draw branches to these. These are expanded upon in the next lecture.	Students could construct these using software such as mindomo **www.mindomo.com** Students compare mind maps and thinking behind them in a group discussion or one a discussion forum. Students electronically display their mind maps and these are used as a teaching resource These mind maps are added to progressively over the semester to accommodate new learnings and to form a more complete picture of the concept.

3.2.2 Explore

The purpose of explore strategies to have students deepen their understanding of key content and skills presented in your subject.

- Focus is to facilitate activities that give students the opportunity to explore the concept/skill. This should allow them to engage with problems and describe them in their own words.
- Helps them acquire a common set of experiences to share with their peers.

Strategy	Purpose	Description of strategy	Examples	Implementation Suggestions and Variations
Brainstorming	Students generate a large number of ideas for potential solutions to a problem. Students develop team learning skills	State the issue and generate ideas regarding the issue having agreed upon a time limit. Categorise, combine, refine and condense ideas Assess potential solutions	Ask students to suggest potential courses of action for a world leader in regards to a current issue. Given constraints are established by the instructor.	Ask students to not only brainstorm, but also to verbalise the relationships between the ideas. May be used in conjunction with strategies such as: Mind mapping, round table, think pair share, etc.
Think: Pair: Share	Students organise prior knowledge. Students, summarize, apply, or integrate new information. Students build individual accountability and contribution: each student reports to a partner, and partners summarise in a short report to the class.	1. Individuals reflect on (and perhaps jot down notes) in response to a question. 2. Participants pair up with someone sitting near them and share responses / thoughts verbally, or they may choose to work together to create a synthesis of ideas or come to a consensus. 3. The discussion leader randomly chooses a few pairs to give summaries of ideas	1. In a medical course, students offer potential diagnoses and treatments based on photographs of conditions and case histories. 2. In a classroom management course, ask students how they would respond to an off-task student's interruptive behaviour. Have students come up with a solution individually, then pair with a classmate, justify it and come to a consensus on an appropriate approach to this scenario.	1. Intentionally choose different pairs to give summaries of their ideas each time this activity is carried out. 2. After the pairs have discussed their responses, have two pairs discuss together, in lieu of randomly choosing pairs to report out to the entire class. 3. Pairs can give summaries to their larger table groups, thereby giving all students more time to present. 4. Instructor can circulate through the classroom to hear students' thoughts. 5. Whole group sharing (depending on goal) can use the screen sharing facilities)
Problems	Students develop communication, problem solving, and self-directed learning skills.	Students individually or collaboratively solve problems, apply what they have learned in the course and reflect on their experiences. Teachers take on the role as "facilitators" of learning.	In a plant science course: Numerous farmers in the Eastern Townships report that their tomato plants are stunted and withered. What would you propose as the cause of this unhealthy appearance? What would you suggest that the farmers do to approach this problem? Using the resources, find background context, discuss in your team, and justify your response.	1. For collaborative problem solving, groups should be chosen carefully, to facilitate students' interactions and promote a productive group dynamic. 2. Have students create their own problem-based learning prompts, vet them then re-distribute amongst their classmates. 3. Students reflect upon how different conditions might affect their response, or approach the same problem from a different point of view. (For instance, in the example given at the right, they might propose solutions from the perspective of an organic farmer, a pesticides company, and a community-supported agriculture organisation.) 4. Students can use the table computers to create their prompts and submit to a common resource's page (e.g.WebCT) where other students can download and work on. 5. Different tables can work on different aspects of the problem. If they work on the same problem, you can use the dual-source projection to show different approaches.
Direct vocab instruction	Vocabulary instruction and comprehension strategy instruction can combine to create depth and breadth in understanding words, concepts, topics, and themes.	Instructional strategies that bring new vocabulary into a student's existing conceptual framework are effective in teaching vocabulary meaning and conceptual understanding	1. Provide a description, explanation, or example of the new term. 2. Ask students to restate the description, explanation, or example in their own words. 3. Ask students to construct a picture, symbol, or graphic representing the word.	1. Students create a glossary of terms for subjects 2. Students create definitions and representations in groups.

3.2.3 Explain

The purpose of explain strategies is for students to make explicit links between content and experience
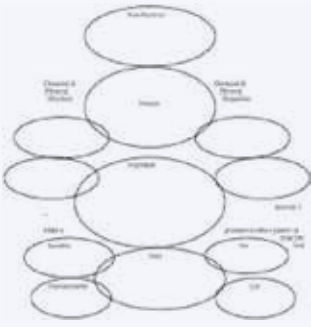
- Focus is for facilitator to provide the concepts and terms already used by the students to develop explanations for the phenomenon they have already experienced.
- Explanation follows experience

Strategy	Purpose	Description of Strategy	Examples	Implementation suggestions and variations
Peer Tutoring	Instructor determines students' comprehension of course content Students improve communication, paraphrasing and small-group presentation skills Students learn from and about their classmates	Students work in groups to solve problems, work through scenarios, deepen understandings	1. Instructor devises students into peer groups based on diverse groupings (potentially using LearnJCU data) 2. Instructor provides cases study, problem, scenario etc. 3. Students work through answers in a collaborative setting.	1. You may wish to establish group roles (timekeeper, facilitator, etc) 2. Students could use a wiki or blog to support this.
Ten Two/ Interactive Lecture Strategy	Students process information presented. Instructor and students fill in any gaps or misunderstandings. Students clarify information for one another; build on peers' knowledge	Presenter shares information for ten minutes and then stops for two minutes to encourage listeners to pair up with a partner and share their ideas.	In an U.S. History of the 20th Century course, the instructor asks students to summarize the economic impact of the Great Depression on the North American labour market in the 1930s and 1940s.	1. Encourage students to pair up with different classmates each time this activity is carried out. 2. At the end of the information-sharing time, pairs can pair up (making groups of 4 students) to summarise the 3-5 key points or "take-aways" from the session. 3. This activity may be used when students are watching classmates' presentations. This can be effective in maintaining audience focus and provides helpful feedback to the presenter in determining whether he or she successfully communicated the points intended.
Quick Writes	Students activate their existing cognitive structures or construct new ones to subsume the new input	Quick writes ask for an instant response to a concept that has just been presented. Typically, students would be asked to do a quick write in the middle of a lecture, video, or demonstration of a mathematical procedure. The instructor chooses a suitable spot for a quick write by considering where students in previous classes have often gone wrong.	For example, during a tax lecture, a professor might pause after the initial description of the difference between a standard deduction and a personal exemption and ask students to explain the difference in their own words. Used well, the quick write provokes discussion. When two or three students read their responses aloud, it often becomes apparent that there has been no meeting of the minds on this topic and the instructor has the opportunity to probe for further misunderstanding and to help students reach a clear conception of the content.	Have students share their responses electronically in the collaborative teaching spaces
Step-by-step	Students demonstrate the strategies that they need to undertake to solve a problem	Using a 'blackboard' problem instructor asks the students to break the problem into short steps then the students fill in the steps themselves	**EQUATION TO SOLVE** $8*x - 2 = 6$ **SOLUTION STEPS** 1. SIMPLIFY MULTIPLY TERMS $8x - 2 = 6$ 2. MOVE CONSTANTS TO RIGHT $8x - 6 + 2$ 3. ADD CONSTANTS $8x = 8$ 4. DIVIDE BOTH SIDES BY TERM $x = \frac{8}{8}$ 5. SIMPLIFY TERM DIVISION $x = 1$	

3.2.4 Elaborate

The purpose of elaborate strategies is for students to apply knowledge/skills to develop a deeper understanding or better demonstration of skill.

- Students need to discuss and compare ideas in order to engage with higher order thinking skills and be able to develop a depth understanding of skills and content.

Strategy	Purpose	Description of Strategy	Example	Implementation Suggestions and Variations
Student generated test/ quiz problems	Students are asked to think up exam questions to encourage them to think more deeply about the subject material and to explore major themes, comparison of views presented, applications, and other higher-order thinking skills.	Students are asked to become actively involved in creating quizzes and tests by constructing some (or all) of the questions for the exams. This exercise may be a piece of assessment or an extra task.	Once suggested questions are collected, the instructor may use them as the basis of review sessions, and/or to model the most effective questions. Further, you may ask students to discuss the merits of a sample of questions submitted; in discussing questions, they will significantly increase their engagement of the material to supply answers. Students might be asked to discuss several aspects of two different questions on the same material including degree of difficulty, effectiveness in assessing their learning, proper scope of questions, etc.	
Analysing Errors	Students develop communication, problem solving, analytical thinking and self-directed learning skills.	Students individually or collaboratively identify errors in piece of work to clarify and deepen their understandings	Instructor provides a worked example on the board/ net etc. Instructor provides criteria for success in example or states what the example is. Students work to identify the errors made and then rewrite to provide a correct exemplar. 	Use students' screens to project the prompt for the activity. 1. Room layout facilitates the use of small groups. 2. For follow-up, project both the round-table papers and the prompt using the dual-source projectors. 3. Students at the same table can be split into two groups, which can share their responses to different questions/topics. 4. Students can use the computers to write down each person's answer, creating a file that can be saved and emailed to the whole class. Or they can use the writable walls to respond to the instructor' prompt.
Identifying Patterns	Students deepen their understanding through making evaluative decisions around links between knowledge.	Students make links between content process and the knowledge.	Students are provided a task to research polymers and compile findings using visual representation	

3.2.5. Evaluate

The purpose of evaluation is to review and reflect on their learning, new understandings/skills.

• Students provide evidence of learning.

Strategy	Purpose	Description of Strategy	Examples	Implementation Suggestion and Variations
Muddiest point	Students reflect upon which aspects of the course material are the least clear to them.	Ask students to write down what seemed most confusing to them. Feedback from students can be used to create new ways to discuss those points that multiple students found to be unclear.	1. What was the "muddiest point" of the material discussed today? 2. Write one thing that wasn't clear to you from today's course material. Why do you think this was confusing?	1. Encourage students to be very specific in identifying the source of confusion. 2. The instructor can begin the next class by reviewing selected "muddiest points". 3. Students attempt to answer one another's "muddiest point" questions. 4. Students indicate what information they would need to understand the course material, 5. Use the writable wall spaces for students to write down questions that they still have. Then, have students circulate and provide responses clarifying one another's questions.
Self Evaluation Rubric	Students increase ownership of learning through reflecting explicitly on their progress towards learning goals and standards	Throughout lecture, subject, staff ask students to reflect on their progress.	This could use a scale of **4 Expert Exceeds** • I understand completely! • I can do it without making mistakes! **3 Master Proficient** • I understand the important ideas! • I can do it by myself! • Once in a while, I make a little or careless mistakes. **2 Apprentice Developing** • I'm getting there! • My mistakes show I understand most of the important ideas. • Sometimes I need help. **1 Novice Beginning** • I don't understand yet. • I can't do it by myself. • My mistakes show that I have trouble with the important ideas.	
Closing Summary	Instructor ascertains if students have grasped key concepts. Students reflect on learning	Students write a closing or exit summary individually or in pairs about the main ideas in the session. Students could compare answers to build on understanding.	1. What were three key points from today's class? 2. What did you find interesting? 3. If you were to write two exam questions from today's material, what would they be and how would you answer the questions?	Provide sufficient time at the end of the class for this. Ask students to summarise the previous session at the start of a lecture. Display answers electronically.

Full copies of the **Active Teaching and Learning Guide** which contain significantly more strategies for active teaching approaches are available from an educational designer or through the Blended Learning and Innovation unit of Learning Teaching and Student Engagement.

3.2.6 Examples of Blended Learning at JCU using the 5Es framework

- The following learning plans represent best practice of staff using the 5E's Framework to design and implement blended learning experiences

3.2.6.1 Blended learning design for Geology

Topic: Magma and Igneous rocks and their classification

Learning objectives:

- Identify and describe the general characteristics of igneous rocks using the location in which they are found, their texture and other diagnostic features;
- Apply an understanding of the characteristics of igneous rocks to correctly identify unfamiliar rocks.

Engage: (pre-lecture activity)

1. Watch the video that you can find at this link – **https://vimeo.com/34726137**

    Consider and note your answers to these questions and bring them to discuss at lecture:

    1. Where are most volcanoes located? Why?
    2. The narrator describes two types of lava flow.
        a. How does he describe them?
        b. Use your text to identify and classify the two different types of lava.
        c. How do they differ in viscosity?
    3. What is a pyroclastic flow?
        a. What type of magma does it produce?
    4. What is a hot spot? Where do they occur?

Explore: (pre-lecture activity)

1. Watch the video located at this link - **https://vimeo.com/34724400**
   What are two key points about volcanoes that you learnt from watching this video?
2. Read Chapter 6 of your Text "Earth: Portrait of a Planet"
   As you read, note down any new words and their meanings in your Glossary of Terms.
3. What are your big questions about igneous rocks and their classification?

   Note them down to share at lecture.

Explain: (Lecture)

Engage students with initial discussions (you can do this in a variety of ways group sharing and lecturer-led discussion)

1. Answers to Engage video questions (can do as a quick quiz)
2. Two key points from Explore video
   What are your big questions? (make note and make sure that you cover)
   Three key concepts for the week (across two lectures)

- How are igneous rocks formed? (slides 1 – 12 & 28 – 34 Lecture 8 slides)
- What are the key characteristics of igneous rocks? (slides 13 – 28 Lecture 8 slides)
- How do you identify igneous rocks? (slides 1 – 16 Lecture 9)

Evaluate: (useful for both lectures – post and bring to tute & prac sessions)

Muddiest point – pose questions "What was the muddiest point of today's discussion for you?"

- Write one thing down
- Why is this point "muddy" for you?

Elaborate: (tute and prac)

Tute:

- Apply principles of igneous rock classification
- Guided discovery – resources
- Castle Hill granite & igneous rock classification sheet
- Group work – What is this rock? Why? Students problem solve in small groups and share with wider group after activity finishes

Prac:

- Apply principles of igneous rock classification
- Introduce: Study guide for rock/mineral classification
- Students work to identify a range of previously unseen igneous rocks

Evaluate:

Mind/concept map: Igneous rocks and their classification

Use week's learning outcomes as focus points as well as glossary of terms

3.2.6.2 Blended Learning Design for Education

Topic: The Australian Teaching Professional Standards

Learning objectives

- Explain how the professional standards shape teacher practice.
- Relate their knowledge about the professional standards to their practicum experience.

Engage (pre-lecture activity)

1. Watch the video Unpacking the Professional Standards **www.aitsl.edu.au/australian-professional-standards-for-teachers/resources/unpacking-the-standards**

Consider this and complete the professional standards self-assessment tool
www.selfassessment.aitsl.edu.au

Collect evidence from your prac placement that relates to the professional standards. Be prepared to discuss:

- Which standard does the evidence relate to?

- How does your practice demonstrate attainment of the standard?
- How do you plan to transform your practice to support improved demonstration of the standard?

Explore (pre-lecture activity)

1. Read the Professional Standards by Career Stage document **www.aitsl.edu.au/australian-professional-standards-for-teachers/standards/list?c=graduate**

Focus questions:

What are the key differences in the characteristics of professional practice across the domains of graduate, proficient, competent and highly skilled?

What are your big questions relating to the professional standards?

Explain (face-to-face teaching)

Engage students with initial discussions (you can do this in a variety of ways – group sharing and lecturer-led discussion)

1. Answers to Engage questions
2. What are your big questions? (make note and make sure that you cover)

Three key concepts for the week (across three lectures)

- What are the professional standards for teaching?
- What key values and beliefs drive these standards?
- How can I ensure that I attain the required standard?

Active learning opportunities are presented by using:

Think, Pair, Share: How do the Professional Standards shape teacher practice?

Elaborate

Jigsaw Activity: Students are organised in groups. Each group is assigned a particular standard and given the elaborations of these. Students create a definition of 'best practice' of this standard and compile a list of possible evidence that could be used to demonstrate this standard.

Evaluate

Students preview the Standards Support Resources and discuss the ways in which the resources could further develop understanding of the Standards or support professional learning. Complete the Learning Pathways Activity table to map the use of these.

3.2.6.3 Blended Learning Design for Occupational Therapy

Topic: Introduction to occupational therapy

Engage

Post OT vs PT You tube link (this is a trigger that problematises the work of OT)

Question: What do you notice about the differences in the perspectives of the client Mrs. Smith outlined by the OT when compared with the PT?

Students to read associated reading for the week and bring to lecture their big questions

Student's to record their definition of occupation

Explore

Show PT vs OT YouTube – engage with student responses to it (this sets the scene for situating their learning in this subject and facilitates a discussion about the focus on occupation that the JCU B. OT has)

Record some student's working definitions of occupation

Link big questions to content for week's learning

Explain

Engage with concepts:

1. What is occupation? (slides 10 – 14)
   - Revisit personal definitions of OT (think, pair, share)
2. The nature of occupation
   - Personal descriptions of occupation (list activity slide 16 extend to typical day)
   - Buzz groups – characteristics of occupations (take personal list to groups and brainstorm)
   - Record group findings
   - Engage with Molineux (2010) characteristics (comments?)
   - Introduce framework (What, why, where, when & how) (slides 20 – 23)
     a. Link with ssessment
   - Engage with Homeless man YouTube clip
     a. Student perspectives – occupations of man in clip
     b. Links with slides 24 & 25

Elaborate

Case study – examine the Case study with respect to the framework (what is your rationale for the choice of the Children of the Tundra documentary?) if you have a rationale (perhaps because it presents a context that is unfamiliar to the students to that they notice the difference in the children's occupations?) You need to articulate this because in the midst of your clear contextualisation in the lecture this is out of place.

(cut the case study into a smaller piece – approximately 8 – 10 mins)

Think, pair, share – occupations of the children in the case study

Share time – list student responses

Make links with initial part of lecture time content (what is occupation and the nature of occupation) to lead to discussions about the nature of research in an OT's work – you need to have an inquiry and problem solving mind.

Workshop

Continue with Elaborate (case studies and discussion)

Evaluate

Muddiest point – pose questions "What was the muddiest point of today's discussion for you?"

- Write one thing down
- Why is this point "muddy" for you?

Mind map of the key concepts from this week's learning

Appendices

Appendix A
Ensuring alignment in blended learning design

This worksheet is designed to help you map and align outcomes, assessment, learning and teaching activities and support resources.

Subject Learning outcome	Ways of assessing this Outcomes (How do students demonstrate the outcome?)	Face to Face activities	Online activities	Resources
LO1				
LO2				
LO3				
LO4				
LO5				

Appendix B
Audit of current practice

The learning intent drives the selection of technological tools. Audit your current use of online tools using the following:

Function	Activity	✔ Currently used
Online Learning and teaching	Recorded lecture	
	Webcast	
	Online virtual classroom (Collaborate)	
Teacher/student communication	Email	
	Announcement	
	Discussion forum	
	Online chat (synchronous)	
Individual activities	Reflective journal (blog or wiki)	
	ePortfolio	
	Online practise quiz (formative)	
Student collaboration	Discussion, debate, role play (using discussion forum or collaborate)	
	Small group work (using wiki or online meeting room)	
	Creating and sharing learning resources (using mind maps of social bookmarking sites)	
Assessment	Online tests	
	Electronic submission of student work	
	Wiki, blog and other individually created or group created work	
Student resources	Course reading	
	Online study guide	
	Web link	
	Online self-paced activity	
	Online calendar	

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