A framework for designing and evaluating online assessments in business education

Authors: Elaine Huber, Lynne Harris, Sue Wright, Amanda White, Corina Raduescu, Sandris Zeivots, Andrew Cram and Andrew Brodzeli (2024)

Design Considerations

1. Academic Integrity
Academic integrity addresses academic dishonesty and is concerned with the security of an assessment, including assuring against outsourcing, impersonation and other forms of inappropriate assistance.

2. Student Experience
Student assessment experiences are influenced by several factors. Positive experiences are encouraged when online assessments are convenient, maximise comfort and ease of concentration, and minimise student stress and anxiety. Assessments should be designed to reduce cognitive load and increase student motivation. Technical complications should be minimised.

3. Authenticity
Authentic assessments involve tasks that are common to professional settings, performed under conditions that are similar to those professional settings. Authentic assessments generally deal with complexity and inquiry and will optimally involve self-assessment in which students learn to evaluate and improve their workplace performances.

4. Information Integrity
Information integrity refers to the protection of student personal information and data. Well-designed online assessments will minimise the risk of unauthorised access to student personal details such as demographic and biometric data, and content that students have generated during the assessment.
Tension may arise between academic integrity and privacy/security of student information in online assessments, for example some technology (e.g., artificial intelligence used to assure online exam invigilation) requires provision of personal data and identifying information that may be susceptible to security breaches.

5. Quality Feedback
High quality assessment feedback is timely and supports students' understanding of their performance and how to improve in the future. Good feedback practice will encourage formative dialogue between students, their peers and their educators, as well as scaffold students' capacity for self-assessment. Online assessment may be further improved with support for feedback in multiple formats (e.g., annotated, audio or video feedback), and with automation techniques for improved scalability.

6. Equity of Access
Equity of access involves removal of all barriers for students' completion of the online assessment. This enables assessment conditions to be customised to meet individual student needs, and affords both technical and logistical accessibility for all students including provision of live technical support. Potential bias and discrimination also needs to be avoided where automated invigilation, grading or feedback are used.

Broader Contextual Factors

Our original framework included scale of delivery and resource limitations as broader and interrelated contextual factors that influence decisions about assessment design. Through our research we found support for two additional contextual factors, institutional policies and accreditation requirements.

1. Scale of Delivery
Running online assessments with large cohorts requires dedicated attention to improving student experience while reducing teacher time commitments and resourcing. This involves adopting techniques that expedite the collection of assessment data, grading, provision of feedback, and assessment management and administration.

2. Resource Limitations
Resource limitations that impact the design, implementation and marking of online assessments primarily involve the available staff time and budget but may also include provision of physical resources such as technologies and spaces. Educators may adopt techniques to reduce resource requirements, such as recycling assessment strategies and materials or automating some aspects of marking and feedback.
Resources limitations are related to issues of scalability, as there may be increased resource requirements for the introduction of a new form of online assessment within a large cohort relative to a smaller cohort.

3. Institutional Policies
Institutional policies relating to areas such as curriculum design, academic integrity, equity, diversity, access, and technology will shape how online assessments should be designed and adopted. Additionally, the selection and implementation of online assessments may be influenced by the assessment culture in the discipline, unit or faculty.

4. Accreditation Requirements
Programs that are accredited by professional associations or regulatory bodies often have additional conditions on assessment design. For example, these may specify requirements for verifying each students' identity when completing the assessment, or the extent to which the assessments need to directly evaluate students' performances of workplace tasks.
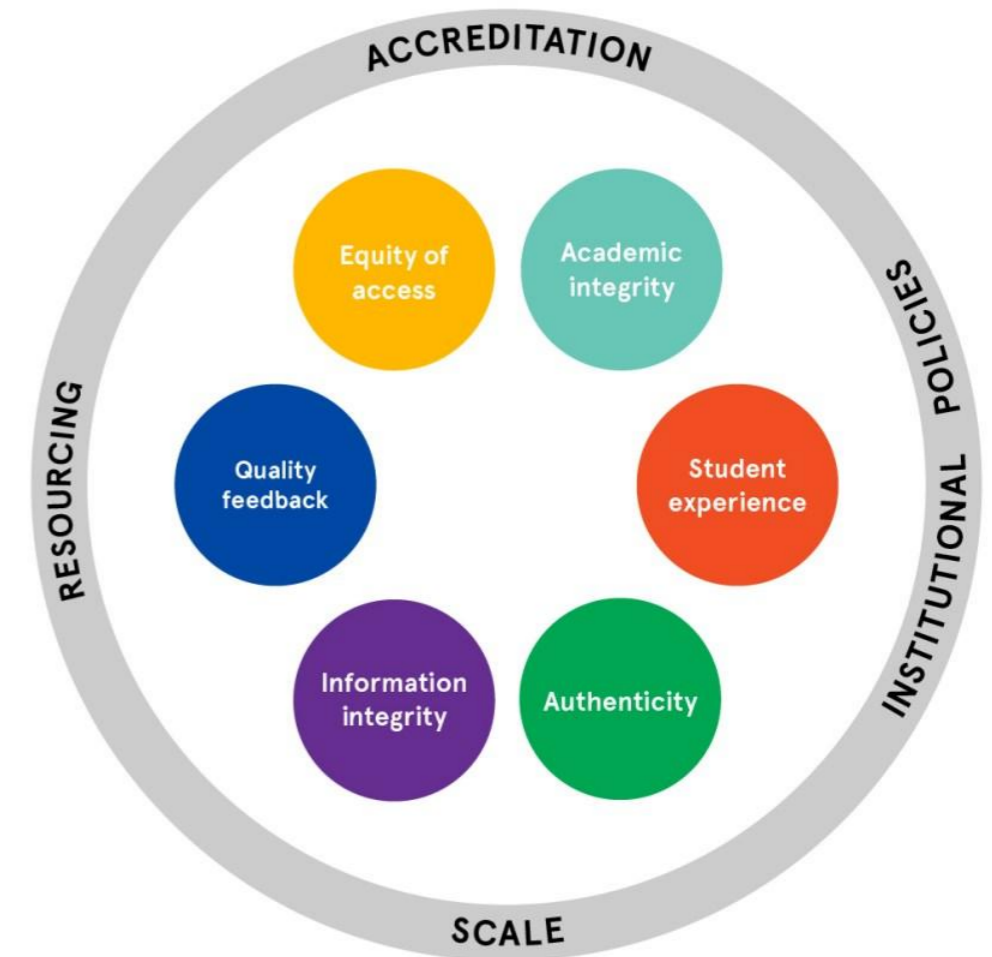
Assessment Design Framework

This framework helps university teachers make good decisions about assessment design. The six categories draw from existing evidence on good assessment, and data from a study of Australian university assessment practices. The framework identifies the key considerations in assessment design, including the effects of assessment on learning.

Purposes of assessment

How can assessment: (1) support student learning; (2) generate grades that will form part of subsequent certification; and (3) equip learners in making future judgements?

Contexts of assessment

Which of the following attributes needs to be considered in assessment design? What specifically about each can be taken into account? How can tensions between different needs be reconciled?

- characteristics of learners/students
- institutional assessment principles and policies
- professional, vocational or employment-related requirements
- departmental, disciplinary and personal norms, expectations and ideas
- overall program and role of the unit/module
- learning environment, e.g. class size or mode (online/face-to-face/blended).

Learner outcomes

How does assessment align with, and promote, desired student outcomes, including: (1) unit/module learning outcomes; (2) overall program learning outcomes; (3) professional requirements; and (4) students' general professional or intellectual development.

Tasks

Students need to engage with a range of tasks to: (1) develop and (2) demonstrate their learning.

- What is the rationale for each task?
- How do the tasks drive learning? What do the tasks specifically require learners to do?
- How will successful completion be judged?
- How are tasks best distributed across the semester?
- How will students contribute?
- Which tasks will be graded?

Feedback processes

- How are multiple feedback opportunities achieved through the distribution and relationship of tasks across the unit/module/overall program?
- What types of feedback information will be provided and by whom?
- How will learner performance be used to influence the (re)design of later tasks?

Interactions

- How will resistance or engagement from learners or colleagues influence assessment processes?
- How will learners understand what is required in the assessment task(s)?
- What information will be needed to improve this assessment for subsequent occasions?
- What associated changes in teaching and learning activities will be required?

Backward design
Authors: Grant Wiggins and Jay McTighe (2005). *Understanding by Design*. **Association for Supervision & Curriculum Development.**
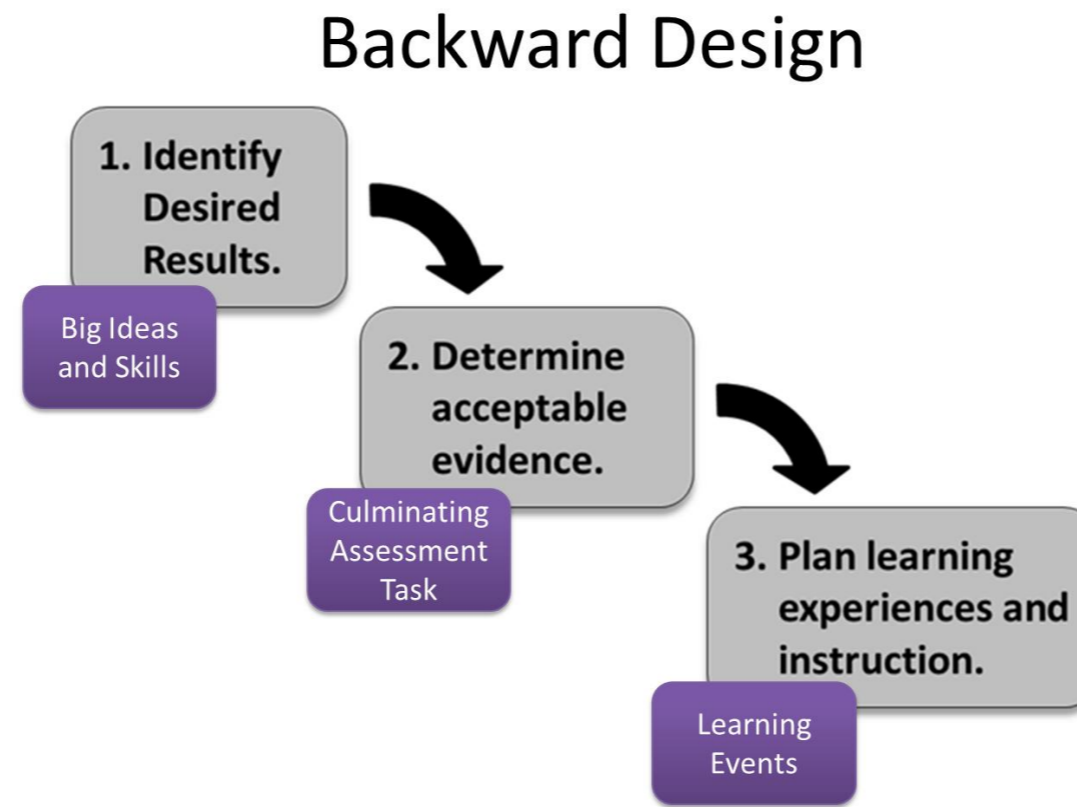
Backward Design

Backward Design

Backward design, also referred to as understanding by design, is a method of designing educational instruction by setting goals before choosing instructional methods and assessments. It's called backward because it starts with the end (i.e. objectives) in mind and works backward from there. This may sound obvious, but it is not typically the way most people design instruction. In other words, most people start with the instructional materials and content, then plan learning activities, then assessments, and maybe define objectives. This common approach is not very efficient or fair to students because it does not always aim in any particular direction and students may end up doing "busy work."
In contrast to this, the backward design process occurs in three phases:

1. Identify the desired results/objectives.
2. Determine which assessments will allow students to properly demonstrate that they can meet those objectives.
3. Design activities that will help students successfully complete the assessments and thus meet the learning objectives of the course.

More info: https://cft.vanderbilt.edu/guides-sub-pages/understanding-by-design

Different types of learning and digital learning technologies that serve them

Author: Diana Laurillard (2012). *Teaching as a Design Science*. Taylor & Francis.

Acquisition

Learning through acquisition is what learners are doing when they are listening to a lecture or podcast, reading from books or websites, and watching demos or videos.

Discussion

Learning through discussion requires the learner to articulate their ideas and questions, and to challenge and respond to the ideas and questions from the teacher and/or their peers.

Practice

Learning through practice enables the learner to adapt their actions to the task goal by using feedback to improve. This may come from self-reflection, peers, their teacher, or from the activity itself.

Production

Learning through production is the way the teacher motivates the learner to consolidate what they have learned by articulating their current conceptual understanding and how they used it in practice.

Collaboration

Learning through collaboration embraces mainly discussion, practice and production. Building on investigations and acquisition, it is about taking part in the process of knowledge building itself.

Investigation

Learning through investigation guides the learner to explore, compare and critique the texts, documents and resources that reflect the concepts and ideas being taught.

Table 6.3 Types of Learning and the Different Types of Conventional and Digital Learning Technologies that Serve Them

Learning through	Conventional technology	Digital technology
Acquisition	Reading books, papers; Listening to teacher presentations face-to-face, lectures; Watching demonstrations, master classes.	Reading multimedia, websites, digital documents and resources; Listening to podcasts, webcasts; Watching animations, videos.
Inquiry	Using text-based study guides; Analyzing the ideas and information in a range of materials and resources; Using conventional methods to collect and analyze data; Comparing texts, searching and evaluating information and ideas.	Using online advice and guidance; Analyzing the ideas and information in a range of digital resources; Using digital tools to collect and analyze data; Comparing digital texts, using digital tools for searching and evaluating information and ideas.
Practice	Practicing exercises; doing practice-based projects, labs, field trips, face-to-face role-play activities.	Using models, simulations, microworlds, virtual labs and field trips, online role-play activities.
Production	Producing articulations using statements, essays, reports, accounts, designs, performances, artifacts, animations, models, videos.	Producing and storing digital documents, representations of designs, performances, artifacts, animations, models, resources, slideshows, photos, videos, blogs, e-portfolios.
Discussion	Tutorials, seminars, email discussions, discussion groups, online discussion forums, class discussions, blog comments.	Online tutorials, seminars, email discussions, discussion groups, discussion forums, web-conferencing tools, synchronous and asynchronous.
Collaboration	Small group project, discussing others' outputs, building joint output.	Small group project, using online forums, wikis, chat rooms, etc. for discussing others' outputs, building a joint digital output.

Connected learning, Learning types and tools V2

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The Quality Assessment Framework

Authors: Jennifer Gore, James Ladwig, Wendy Elsworth, Hywel Ellis (2009). *Quality Assessment Framework: A guide for Assessment Practice in Higher Education*. University of Newcastle.

The Quality Assessment Framework has three dimensions that represent assessment practices that have been linked to improved student outcomes. These three dimensions are:

1. INTELLECTUAL RIGOUR

Intellectual Rigour refers to assessment focused on producing deep understanding of important, substantive concepts, skills and ideas. Assessment tasks high in Intellectual Rigour treat knowledge as something that requires active construction and requires students to engage in higher-order thinking and to communicate substantively about what they are learning.
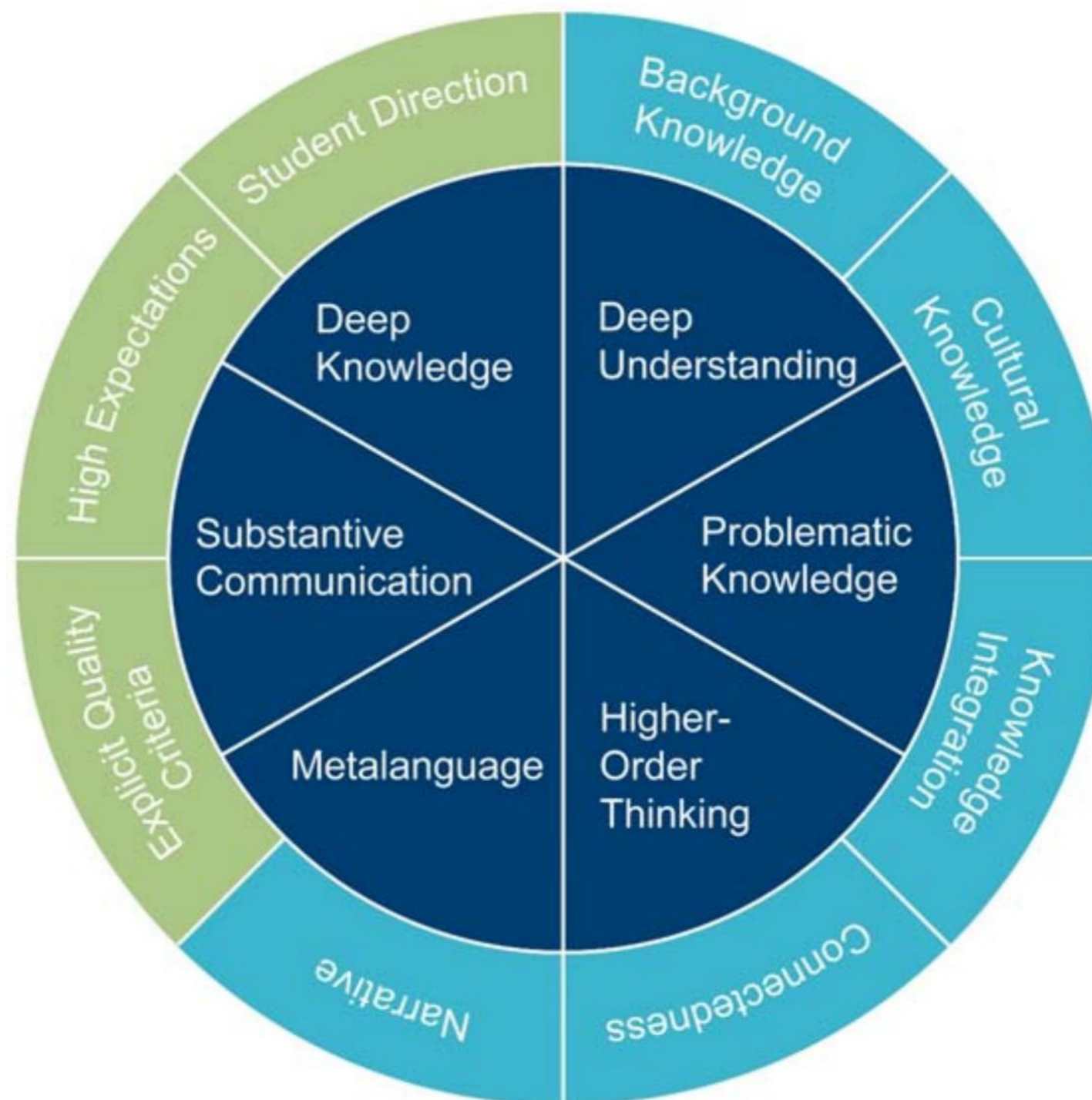
2. SIGNIFICANCE

Significance refers to assessment that helps make learning more meaningful and important to students and connects students with the intellectual demands of their work. Assessment tasks high in Significance draw clear connections with students' prior knowledge and identities, with contexts outside of the university, and with multiple ways of knowing or cultural perspectives.

3. STUDENT SUPPORT

Student Support refers to assessment that sets high and explicit expectations for student work.

Each of the three dimensions of the Quality Assessment Framework is comprised of a number of elements. Figure on the right presents the three dimensions and their elements in an effort to illustrate the centrality of Intellectual Rigour to assessment practice, and to highlight the way in which the dimensions of Student Support and Significance provide scaffolding and highlight connections for students.

Multimodal assessment framework

The four dimensions of our framework are intended to support teachers to develop criteria for assessing multimodal work. These dimensions are criticality, cultivating creativity, taking a holistic approach and valuing multimodality.

1. Form, as well as content, is a vitally important site of *criticality in multimodal work*. We need to consider how to support our students to create a 'multimodal argument'.

2. Fostering students' *creative dispositions and agency* is a key benefit of introducing multimodal assignments, but these must be carefully designed to support such development. There is tension between constraint and creativity that can be developed constructively, and teachers should be attuned to how creative constraints are operating in the assignments students produce.

3. The intra-action of form and content must be recognised in the assessment process, and teachers must seek ways to *look holistically at multimodal assignments* and to explore with students what this means in practice.

4. Teachers have to consider what they are asking students to do, and how to *value it appropriately*. A multimodal assignment is not a throwaway task. It often involves substantial learning, work and creativity and its weighting within the course – in terms of time and assessment – needs to be carefully considered.

Criticality

Digital assignments that include multimodal elements such as sound, image, hyperlinks and navigation need attention to how those different modes, separately and in interaction, contribute to an argument. We need to apply the same level of critical engagement to use of image, sound and other elements as we do to the words in a digital assignment. For students, this means considering their choices on an aesthetic and technical level but also in terms of the 'larger trajectory' of the text they are constructing (DePalma and Alexander, 2015: 196) and the *genres* they are employing (Williams, 2016). Images, for example, do not merely *illustrate* a point made in text but contribute to the overall meaning of the work (Archer, 2010).

Cultivating creativity

Creativity is now recognised as one of the most important skills for contemporary learners, who live in a complex and often unpredictable world (Gibson and Ewing, 2011; Jefferson and Anderson, 2017; Sawyer, 2012). Creativity involves the 'construction of personal meaning' (Runco, 2003) and can be conceptualised as 'a form of knowledge creation' (Craft, 2005). Notably, one of the major aims within the *Melbourne Declaration on Educational Goals for Young Australians* is for students to become 'confident and creative individuals' (Ministerial Council for Education, Employment, Training and Youth Affairs, 2008: 9). Jefferson and Anderson's (2017) 4Cs model of education posits that creativity, critical reflection, communication and collaboration are central to learning experiences. They argue that without these skills, students are ill equipped to survive, let alone thrive. Despite research and policy that supports the centrality of creativity to learning, education agendas that emphasise standardisation and accountability can serve to undermine the cultivation of creativity in formal learning contexts.

Holism

Form and content intra-act to deliver the impact of multimodal work. The various elements of multimodal work (for example, images, music, voice and written words) combine to form a total effect that has an impact on the assessor and/or audience. We encourage educators to consider how to preserve the aesthetic judgment inherent in multimodal composition. Rubrics, especially where they specify technical elements, can easily tend towards 'multimodal decomposition' (Bateman, 2012). For students, this can mean an inclination to focus on each element within the rubric – 'following a recipe' – without enough consideration of the overall piece of work. While this unintended consequence of providing students with a rubric is not unique to multimodal work, it is perhaps writ large when students are grappling to make sense of a complex assessment task that involves several modes.

Valuing multimodality

Designing, supporting and assessing multimodal work, and understanding and creating multimodal assessments, is complex for both educators and students. Such complexity needs to be valued accordingly in the curriculum and in workload models. Multimodal assessments are sometimes viewed by students as relatively small and inconsequential parts of the class, particularly if the assessment value is low in comparison to more traditional assessment forms, such as essays or exams. This led us to ask: Would students value multimodal assessments more highly if they were more central to how they are evaluated on content knowledge? And how can university teachers build iteration into multimodal assessment, so that students can learn from and expand on their multimodal work?

The TLA Framework process integrates the core components of the fourth pillar (Ensure Students Are Learning) of the Guided Pathways model. Campuses and practitioners will be guided through the five phases of the TLA Framework: (1) Conceptualize, (2) Formalize, (3) Implement, (4) Analyze & Revise, and (5) Scale. Each phase includes a series of guiding questions, resources, campus spotlights, team activities, and key takeaways to help prepare campuses for recreating the process at their own institutions. The TLA Framework process centers student success and equity, and recommends measurable steps that faculty, staff, and institutional leaders can take to address persisting gaps in student learning outcomes.

Phase 1: Conceptualize
In this first phase of the TLA Framework, campuses will assess institutional readiness, consider campus context, and identify focused pathways to prepare for planning and implementation. In preparation for the next phases of the framework, campuses will consider guiding questions and utilize self-assessment tools to take inventory of existing practices related to pedagogy, student learning outcomes, equity-consciousness, professional development, and assessment.

Phase 2: Formalize
In this next phase of the TLA Framework, campuses utilize components of the Conceptualize phase to inform the next steps for planning. Using guiding questions, campus examples, and team recommendations, campuses work to develop a preliminary plan of action for enhancing their high-impact, applied learning practices for students.

Phase 3: Implement
In this third phase of the TLA Framework, campuses begin to implement concrete project actions to achieve the long-term goals and outcomes defined in earlier phases of the framework. Though implementation can take many forms, starting with intentional efforts that directly affect student learning outcomes is an effective and sustainable method of operationalizing a large-scale project.

Phase 4: Analyze & Revise
This fourth phase of the TLA Framework focuses on analyzing and reviewing data on student outcomes after the implementation of enhanced teaching and learning strategies within the designated pathway(s). Campuses analyze their disaggregated data, determine where gaps persist in student outcomes, and identify strategies to revise course and program-level practices, in preparation for scaling their efforts.

Phase 5: Scale
This fifth and final stage of the TLA Framework allows campuses to be intentional and aspirational about scaling their project efforts across additional pathways. Campuses will explore different factors that may affect scaling, including, but not limited to, obtaining support (financial and human resources) from leaders and senior administrators, garnering interest from faculty in other disciplines, and intentionally thinking about how to prioritize and sustain equity-centered practices.
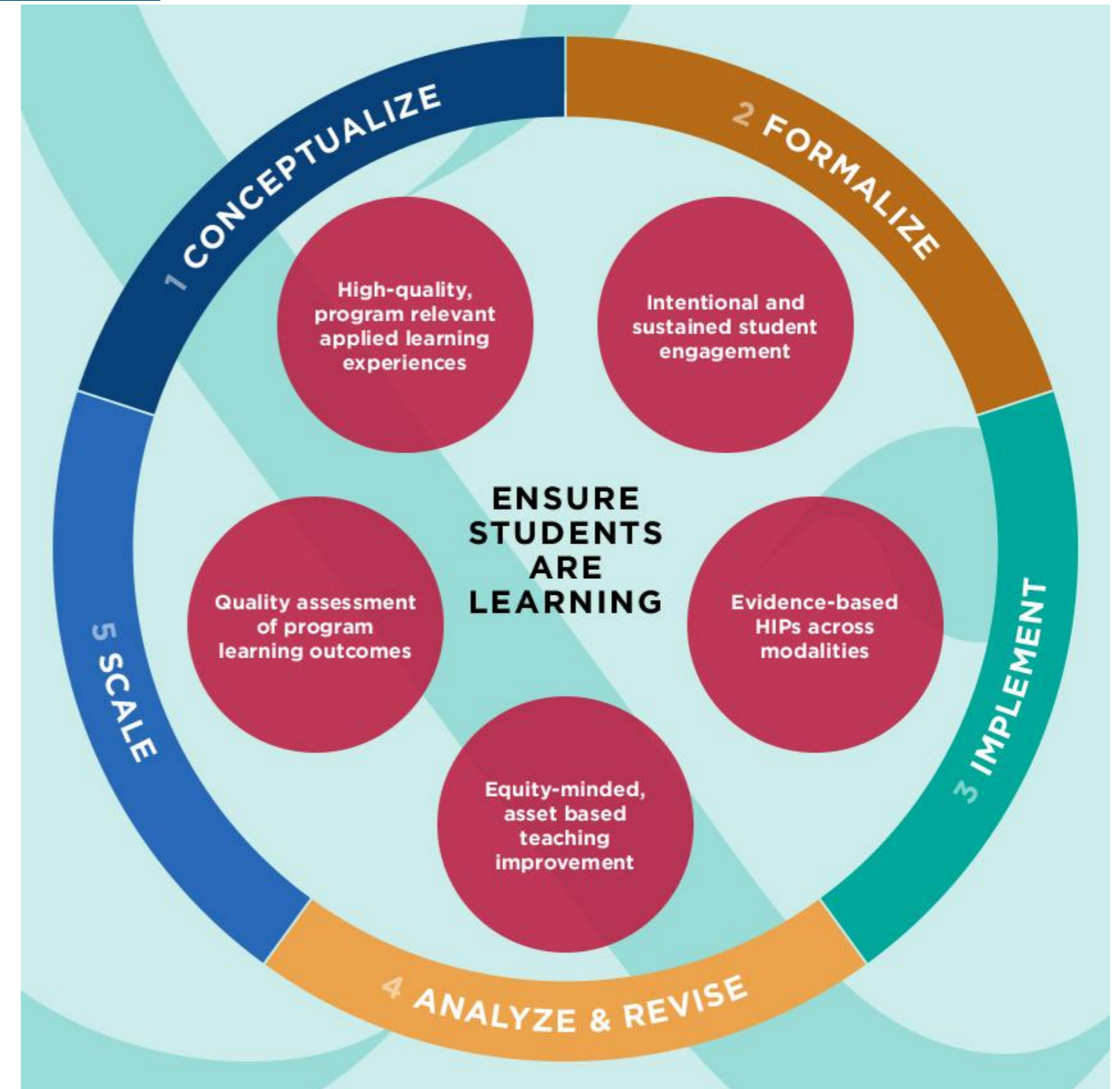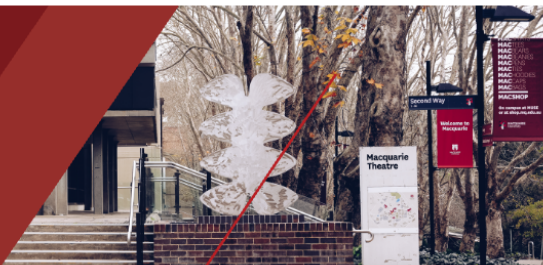
Programmatic assessment establishes a wholistic picture of student performance against course level learning outcomes by gathering triangulated evidence from multiple points throughout the student's learning journey.

A WHOLISTIC VIEW

A programme of assessment goes beyond unit level assessment grades, instead it creates a detailed picture of knowledge, reasoning, problem solving and skills throughout each student's entire learning journey.

Heeneman et.al (2021) outlines a set of principles for programmatic assessment:

1. Every (part of an) assessment is but a data-point.
2. Every data-point is optimised for learning by giving meaningful feedback to the learner.
3. Pass/fail decisions are not given on a single data-point.
4. There is a mix of methods used for assessment.
5. The method chosen should depend on the educational justification for using that method.
6. The distinction between summative and formative is replaced by a continuum of stakes.
7. Decision-making on learner progress is proportionally related to the stakes.
8. Assessment information is triangulated across data-points towards an appropriate framework.
9. High-stakes decisions (promotion, graduation) are made by in a credible and transparent manner, using a holistic approach.
10. Intermediate review is made to discuss and decide with the learner on their progression.
11. Learners have recurrent learning meetings with educators using a self-analysis of all assessment data.
12. Programmatic assessment seeks to gradually increase the learner's agency and accountability for their own learning through the learning being tailored to support individual learning priorities.

KEY FEATURES:

Triangulation and constructive alignment

Assessment of student competence triangulates evidence from multiple sources and assessment events. Building a learning journey and a comprehensive view of competence requires curriculum mapping and clear constructive alignment of the course (degree) learning outcomes down to assessment and learning activities in each unit.

Coaching and evaluative judgement

Coaching and mentoring play a key role in this student-centred approach. The learning program is a journey that is focused on each student's growth, encouraging them to become self-directed, lifelong learners. It is important to develop each student's evaluative judgement with assessment transparency and feedback loops. In this context, competence is best represented as rich qualitative descriptions instead of just numbers.

Assessment diversity

Recognising that a given assessment task cannot do all things, a balance of the competing elements of authenticity, integrity and scalability is needed across the programme of study. A mix of assessment *as, for* and *of* learning is used with a focus on the former. This provides greater insight into processes rather than product and enables feedback loops to occur. Authentic and integrative assessments are more frequently used compared to traditional program structures.

Types of assessment may include:

- Portfolio and learning logs.
- Interactive oral assessments or group presentations
- Written tasks such as essay, reports and case studies
- Invigilated assessments
- Scenarios and role plays
- Workplace based assessment
- Literature review and research projects
- Practical and skills assessments.

CHALLENGES

Programmatic assessment is easier to implement in tightly structured programs like medicine or audiology and especially with smaller groups of students. It is harder to enact programmatic assessment in broad programs such as arts or business, or with larger groups.

Challenges to overcome include existing administrative structures, staff-to-student ratios, a casualised workforce, regulation, uniform unit sizes and workloads for staff and students. Program level support systems, stability of mentoring for students and team cohesion are important ingredients in enabling a cohesive programme of assessment and coaching across areas of competence and over the duration of the program of study.

EXAMPLE

At Macquarie University the Medical program (Macquarie MD) has implemented a form of programmatic assessment with a capability framework and portfolio. See Dean et.al. (2024).

Explore this topic further …

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- Other L&T Quick Guides: https://goto.mq/qg-lt

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