Strategic blueprint for support of technology-enhanced learning

September 2012
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Working Party

Development of this document has been commissioned by the UQ eLearning Strategy Committee.
The working party appointed to develop this initial draft comprised:

• Professor Bob Hendy (Director, CIPL)
• Professor Phil Long (Director, CEIT)
• Associate Professor Gordon Joughin (acting Director of TEDI)
• Associate Professor Deborah Brown (Associate Dean Academic, Faculty of Arts)
• Ms Jodi Philips (Associate Director for Academic Services, ITS)
• Mr Bill Beach (Associate Director Teaching and Learning, UQ Library)

The working party received invaluable assistance from:

• Mr Rob Moffatt (Director, Information Technology Services)
• Mr Chris Taylor (Executive Manager, Library Resources and Technology Service, UQ Library)

Abbreviations

CEIT Centre for Education Innovation and Technology
CIPL Centre for Innovation in Professional Learning
DVCA Deputy Vice-Chancellor (Academic)
eLSC eLearning Strategy Committee
ITS Information Technology Services
MOOCs massive open online courses
TEDI Teaching and Education Development Institute
TEDI HERS TEDI Higher Education Research and Scholarship
Executive Summary

The UQ teaching and learning community is committed to developing and providing educational experiences that will challenge our students and engage them in research, global issues, and development of 21st century learning patterns and skills.

From a UQ perspective, good educational design will draw on the best our physical and online environments have to offer.

For this goal to be achieved, UQ must commit to a culture of educational design supporting individual academics and program teams to create best practice approaches and, via a variety of collaborative mechanics, to share effective practice with colleagues. The blueprint anticipates that UQ will need to continue to innovate as well to become more effective at translating successful experiments and pilots of new ideas into shared practice.

With a variety of experiments into new educational practices, particularly large-scale online education programs and their related business models, currently underway internationally by tertiary institutions, the possibility exists that UQ may need to re-think its approach to course and program design and delivery over the next five years.

This blueprint provides the underpinning framework to develop an academic workforce capable of implementing innovative educational course and program designs, and embracing a rapidly changing competitive educational environment.

The eLearning Strategy Committee has developed nine (9) initiatives with corresponding recommendations to implement this strategic blueprint.

1. **Leverage existing points of change:** Centres and institutes that are focused on best practice in pedagogy (TEDI, CEIT, CIPL and relevant others) should systemically engage with academic units (programs, schools or faculties) that are in the early conceptualisation stage of either new course/program or redesign efforts.

2. **T&L Design Flying Squad:** Leverage selected members of the Learning Designers Forum, TEDI, CIPL, CEIT, ITS, Library, School/Faculty support units, and external experts to assist specific academic programs to define and implement best practice for learning activities. The T&L Design Flying Squad engagements should have specific goals, timelines, and sunset dates for each project.

3. **Embedded support:** Provide additional direct support to teaching academics to implement improved education designs via the provision of additional learning designers and related staff within the faculties and schools.

4. **eLearning initiatives pipeline:** Establish and communicate a community process, the Gated Pipeline for eLearning Proposals, to solicit, review, assess and prioritise new or improved digital learning programs or processes.

5. **Mass customisation for teaching academics:** Provide systemic support and incentives for programs or school focused curriculum redesign efforts that seek to implement large-class personalised learning design patterns (e.g., inverted classroom designs, build or experiment focused activities, project/problem-based activities, inquiry-based learning, peer learning, etc.).

6. **Collaboratives:** Engage and support UQ Teaching Fellows along with those having recognised expertise among UQ academic staff to support ad hoc sharing of best practices in learning communities.

7. **Proactive engagement with online learning focused on UQ hybrid course designs:** Nominate one course or portion (module or section) of course from each of the six faculties as development candidates for scaled delivery of online learning to a wide audience (UQ students
and beyond) to investigate how they might enhance campus-based UQ students as well as those distributed around the world.

8. Learning Analytics – the digital footprints of technology mediated learning interactions: Conduct a learning data audit to identify data that are useful to understanding student learning with digital material, identify best practices and research directions among our elite peer institutions, conduct a summer learning analytics camp to promote understanding of, and approaches to, the uses for learning analytics by academic staff, and conduct trials using learning analytic tools in defined pilot projects to develop practical experience with either open source systems or commercial offerings.

9. Personalised learning environments: Develop a transition program/module for UQ students about to become life-long learning UQ alumni that orients them to the tools that they may find valuable as part of their on-going personal learning environment.
Why a strategic blueprint?

This document has been developed in the context of a rapidly changing environment. There are, and will continue to be, significant driving forces for UQ to change its teaching practice. These forces derive from the evolving nature of our student body, a better understanding of effective educational practice, the rapid development of computational tools, and the potential changes in the positioning of universities as providers of education relative to other organisations.

The focus here is on how we can equip the University with the ability to improve its educational practice as the context changes in rapid and unpredictable ways.

Context for this strategic blueprint (environmental scan)

The external view

The context within which the University is placed as a provider of education has probably never been more fluid, with many teaching and learning issues needing to be addressed.

The challenge is to define an approach which will enable the institution to refine its direction as individual issues become clear and appropriate responses are developed, even though timeframes for action become ever shorter.

Some of these issues can be characterised as a need to embrace innovative pedagogies or new business models. Recently, the Open University set out to characterise just such a list (see Figure 1). Almost invariably, these lists use a language that is foreign and challenging but are genuine attempts to identify the issues to which we might need to respond. (Appendix A provides further explanation of the Open University list).

A range of other issues and challenges confront UQ:

• Development of graduate attributes, in particular those that are foundational for future professional success and essential to an open, intellectually engaged society
• Supporting an international experience for our students
• Internships and work integrated learning
• Research capacity, both in ability to perform world-class research and to understand the process and methodologies employed
• Intentional life-long learners
• Professional formation
• Staff/student ratios (or how do we deliver maximum ‘bang for buck’?)
• Redeveloping physical space for the labs, and other experiences delivered in-house to support authentic learning
• Bootstrapping - there will never be ‘enough money’ to both do what has always been done and embark on new initiatives. We must reframe our approach into something self-sustaining and self-initiated focused on what we need to do now.

INNOVATING PEDAGOGY 2012

1 New pedagogy for e-books
2 Publisher-led short courses
3 Assessment for learning
4 Badges to accredit learning
5 MOOCs: Massive open online courses
6 Rebirth of academic publishing
7 Seamless learning
8 Learning analytics
9 Personal inquiry learning
10 Rhizomatic learning


Figure 1 Innovating Pedagogy 2012, Open University
• Rapidly changing context within which learners have opportunities for tertiary education from both other providers (new, reconfigured, non-profit, commercial) and through multiple channels
• Universities as the sole source of certification for learning outcomes
• Optimising learning by offering more efficient, potentially 12 month learning opportunities, coupled with more granular, competency-based learning modules

The internal view

The diverse student body

The individuals seeking to pursue some form of education at UQ are increasingly diverse. The vast majority of incoming first year students are no longer mainly school leavers graduating from local Queensland high schools, although this community remains an important and integral component of the UQ incoming student population. With this increasing diversity come new challenges as well as opportunities to leverage the heterogeneous nature of our student population.

There are five identifiable student audiences:

• High school leaver (and other first degree) students who can reasonably be expected to be full time students
• High school leaver students who seek to pursue tertiary educational opportunities, but whose status as full-time students is constrained by their requirement to work
• High school leavers who wish to pursue enrolment in UQ but not as full-time students (either by economic necessity, life style choices, or other factors)
• International students attending UQ in person
• Second degree (and postgraduate coursework) students who can reasonably be expected to be in the full-time or near full-time workforce

It is reasonable to expect that:

• Many students participating in undergraduate and other entry-level programs will expect programs to have a significant campus-delivered component. One of the cornerstone attributes of UQ is the calibre of its physical facilities. A fundamental tenet of this blueprint embraces this distinguishing characteristic of the UQ Advantage
• Emerging student cohorts will be happy to access offerings more online
• Students who have had to bear the significant expense of living away from home (particularly international students) will also value the campus-delivered experience
• Students participating in postgraduate coursework programs will desire campus-based activity to be minimised or to be concentrated so that time spent away from work and other commitments is minimised

Figure 2. Commencing Students 2011
How should we think of the academic workforce as educators?

While there are many examples of excellent education practice within UQ, in general, the academic community have not embraced a culture of educational design. There is relatively little characterisation and sharing of successful practice, particularly where good education design intersects with the use of educational technology.

- One way of thinking about the essential characteristics of a vibrant community of teaching academics is as follows:
  A. Committed to improving practice
  B. Using procedures for designing and implementing good practice
  C. Using communities of practice to build on the work of others, rather than being a solo practitioner
  D. Contributing to formal mechanisms for representing and sharing one’s own practice, the outcomes they have achieved, and how these practices are related to the elements of their intended design

For this blueprint to be successful, we need to have a significant majority of UQ teaching academics embrace A, B, and C above.

Ease of use of technology-enhanced learning

A constant refrain from the academic community is that there continue to be challenges in using technology. These seem to relate to

- how individual pedagogical and assessment designs might be implemented in the most straightforward way using the variety of tools that are now available;
- the challenge of acquiring the skills to use each individual tool; and
- confidence that the required tool will always reliably be available

Technical underpinning for our teaching and learning infrastructure

The University has made and continues to make a significant investment in teaching and learning environments. Does this infrastructure provide the required digital foundation for our future technology-enabled learning environment? This is particularly critical in an environment where the capabilities of Blackboard as a learning management system will always be enhanced by a variety of specialist tools and products.

Three areas stand out as potential areas of concern:

1. the need for a more sophisticated authentication and authorisation system that accommodates both the variety of different types of student that are now part of the UQ environment as well as mechanisms for academics to share. This authentication and authorisation system should inter alia enable a student, from a single sign-on, to seamlessly navigate through a variety of tools and systems for which they have permission.
2. a shared data model and data management approach underpinning the interoperability of various tools.
3. a design enabling the various tools and products to interoperate in a seamless way.

The approach to innovation

There is a need to ensure that the University obtains the maximum return from any innovation initiative whether it is:
• trialling new approaches to teaching and learning practice
• use of tools to implement new education approaches
• the investigation of new eLearning products
• any other experiment, trial or innovation

In this context, current planning approaches do not provide a transparent model for identifying new ideas and ensuring funding is applied to those ideas that have the most significant potential. Nor are there appropriate metrics that value scholarly implications on the dimensions that the institution asserts are central to its mission.

Goals for Technology Enabled Learning

UQ needs to design programs in the full knowledge that activities will be delivered in a number of different contexts:

• On campus
• Off campus related to work integrated learning including internships, community-based episodes of professional practice, components delivered by partner institutions, and international placements/experiences
• Online
• In thoughtful combinations of these three

We anticipate that each educational activity (whether it is on campus, off campus or online) will potentially have an online manifestation and that student participation in each activity will leave a ‘footprint’ that will enable academic/teaching staff to monitor individual and cohort progress. We also encourage the university to embrace one of its core values, that of research, and to apply these same practices to itself, to proactively develop research programs on the data derived from digitally mediated learning interactions to improve the design and conduct of learning activities.

Where does technologically delivered education give us an advantage?

• It provides a mechanism for personal reflection, meta-cognition and an electronic manifestation of physical events
• Support for a distributed “teaching body” (in contrast to a student body), providing new points of engagement for teachers to mentor and guide students from beyond any physical proximity to UQ campuses
• It can provide support for the development of key graduate attributes including
  o Group work
  o Peer interaction and learning
  o Project activity
  o Development and storage of personal work products such as
    ▪ Documents, drawings etc.
    ▪ Personal reflections on academic work/learning diary
    ▪ Publication via blogs, wikis
    ▪ Demonstrable rich media evidence of learning (video, audio, animation, models, etc.)
• It provides support for specialised environments such as
  o Database and analysis tools
  o Design
  o Remote labs
  o Simulation/scenario-based environments
• Scalable feedback and assessment
allows the capture and demonstration of assessable work as digital artefacts
demonstrating articulated competencies

• Support for non-campus student body
  o work integrated learning
  o internships/practicums
  o UQ abroad

• Analytics about student performance which will aid our understanding of how students learn and
give students actionable information to aid their understanding of their own learning

• Monitoring of student progress and, ideally, programmatic intervention if progress or projected
  progress does not meet expectation

**What does that mean in terms of program design?**

UQ will continue to have a significant component of campus-based experiences. Best practice
program and course designs will emphasise the physical experience for educational outcomes that
can only be achieved by students participating or working with the instructor/tutor or each other in
person.

Designed into each physical experience will be a digitally mediated activity, where appropriate, which
at a minimum creates a digital footprint of the physical event.

Designed into each program, where educationally valuable, will be a virtual experience that leverages
the value of digital content interactions in both asynchronous and distributed synchronous educational
settings.

UQ postgraduate coursework programs will have two primary objectives:

• formation of the next generation of researchers, leaders, and entrepreneurs generating new
  knowledge and new economic and social structures
• enrichment of current professional leaders and researchers seeking knowledge updates,
  refreshing and re-positioning their learning within the continually evolving knowledge
  landscape

**Strategic approach**

Our strategic approach is based on assisting academics to embrace a design-focused view of change
that is pointedly neutral in terms of technology or any other physical aspect of how it operates.

It advocates that we will be able to deliver better education to our students if we focus on enabling
UQ’s teaching academics to embrace and implement good educational design which is supported by
appropriate technology via:

• professional development
• toolkits, templates, design patterns
• opportunities to participate in topic-focused collaboratives

It presumes an adoption of open scholarship, grounded in ensuring that best practices are visible,
findable, understandable, and adaptable by others.

The strategic approach will work best in a budgetary environment where there is differentiation
between:
• base budget funding to support the availability of the agreed tools and toolkit and core infrastructure development to implement essential services accessible through well-defined APIs (Application Programming Interfaces)
• innovation funding to
  o explore new models of course and program delivery
  o new/improved ways of technologically supporting good educational practice
  o evaluation, assessment, provisioning and implementation of specific products
  o updates/upgrades to existing products
• program development funding to support significant programs to be re-designed using best practice technology-enhanced models
The approach also advocates:

- providing direct support to teaching academics through educational design staff located organisationally as close as possible to the design, development and delivery of courses and programs
- providing funding and central support to schools and/or programs that are re-engineering their program and course designs, particularly through the implementation of technology enhanced approaches
- characterising good/best practice in learning, assessment and administration of courses and develop and implement approaches to promulgate these across the teaching academic community
- providing a supported environment based on an IT architecture of layered services with tools that support
  o learning
  o analytics (collection, analysis and visualisation of data to assist learners)
  o assessment
  o administration of courses
- focussing on making these tools scalable, sustainable, interoperable and easy to use
- recognising that this supported environment must continually evolve and, as a result, there is a need to have a well-defined process for managing change and prioritising new initiatives
- promulgating open learning and scholarship practices by
  o promoting/supporting open access repositories
    ▪ funding eSpace to encourage the capture and sharing of the intellectual output of UQ academics using CC (creative commons) licensing where possible
    ▪ encouraging the creation and sharing of federated repositories of learning materials (course content) by Faculty or School
  o encouraging open scholarship
    ▪ enable learners anywhere to selectively participate in UQ courses, programs, and activities
    ▪ create simple, reliable and sustainable mechanisms that bring academics from other locations digitally “into” UQ courses and events, as teachers, discussants, or expert participants
  o supporting the use of open content
    ▪ recognise and reward academics who reuse/remix/republish open learning materials
    ▪ capture, interpret and disseminate the analytics associated with the use of openly licensed content
Design of technologically enhanced courses and programs

There are many facets to the challenge of supporting the education design process and, in particular, a design process that attempts to apply proven practice in digital learning environments. Figure 2 illustrates the relationship between the design of a course, its delivery and the array of tools to assist the teacher academic with delivery.

Figure 3 An approach to supporting educational design

In this context, the teaching academic has a rich array of tools to support course delivery.

The physical tools include:

- whiteboards
- venues including conventional lecture theatres, performance spaces, special purpose collaborative spaces, laboratories
- a variety of off-campus locations

The technology toolkit includes:

- elearning products that have either been purchased and provided by the University or can be accessed as ‘cloud’ services
- elearning services which have been developed by the University (by individual schools, faculties and other organisations such as CEIT)
The environment often appears more complicated for the teaching academic/course designer in that most of the elearning products and services provide multiple tools and those tools can be used for a variety of educational purposes.

Whilst many teaching academics focus on the direct use of these tools, the model of design advocated here focuses on defining course designs in terms of standard learning activities and re-usable pedagogical patterns. A standard learning activity may be something as simple as "providing didactic material/lecture". More sophisticated re-usable educational patterns include approaches such as:

- project-based pedagogies
- inverted classroom pedagogies
- lab-based pedagogies

Guidelines and templates can and should be developed to assist academics and education designers to implement these standard learning activities and pedagogical patterns using the rich array of tools that are available.

These standard approaches, guidelines, exemplars and templates constitute a 'shareable knowledgebase' that can assist the individual academic to implement their educational and assessment designs with the minimum possible effort.

Moreover, the shareable knowledgebase could become a repository to which individuals contribute their reflections on the use of particular design approaches and their implementation using specific toolkits. As a result, it could be the starting point for a vibrant community of practice.

Figure 3 captures some initial work done by TEDI and ITS on the link between the tools available within Blackboard and their potential use in education design. However, many other tools are in common use across the university and there is a need to identify them and the standard educational design approaches that they support.

Support for good design

There are a number of individuals and organisations whose role is to address specific parts of the support structure for good technologically-assisted educational design and delivery. The following list is an incomplete representation:

- The faculty educational designers and other educational designers have a direct role in supporting individual academics and program teaching teams in the design and implementation of their course and program designs. They also have a role in defining signature pedagogies that relate to the standard approaches used in particular faculties and with particular professional formation programs.
• TEDI Educational Technology Unit, faculty educational designers, CEIT and ITS assist with the task of mainstreaming the definition of standard educational activities, patterns and the way these are implemented with the available tool sets
• CEIT is responsible for applying emerging as well as existing technologies to augment learning and address current challenges in the design and effective use of digital tools integrated into physical and virtual learning environments. This includes
  o Development of bespoke education software or sophisticated customisations of standard products (e.g. Blackboard Building Blocks)
  o Tracking the emergence of new technologies with the potential to impact teaching, learning and creative expression relevant to UQ
• CEIT, TEDI HERS group and other education innovators are responsible for wrestling with improved pedagogy and improved support for implementing a particular pedagogical approach and establishing the evidence base that would inform the mainstreaming activity
• ITS eLearning Support is positioned as the product support organisation. It focuses on ongoing provision, improving ‘ease of use’ and monitoring product development plans for their potential impact on UQ of implementation of products and their related tools. This potentially includes bespoke developed solutions where these have become part of the agreed mainstream.

Management/governance of technologically-enhanced learning

As the point of reference for the teaching and learning community in relation to eLearning, the eLearning Strategy Committee advises and makes recommendations in support of the UQ Strategic Plan and the UQ Learning Plan to the Teaching and Learning Committee on the following matters:

• Institutional, strategies, objectives, policies and standards to enhance teaching and learning through the use of technologies
• Strategies to identify and disseminate high quality pedagogical practices in the use of technologies to enhance teaching and learning
• Principles, strategies and direction for learning technologies, including applications, systems, infrastructure and support that enhance the student experience and/or enables and supports high quality pedagogical practices in technology-enhanced teaching and learning
• Institutional approaches to the evaluation, development, implementation and maintenance of learning technologies and their potential university-wide usage in learning and teaching

The eLearning Strategy Committee will achieve this by:

• Sponsoring investigation, discussion, roadmaps and support for a forward looking agenda with regard to technology-enhanced learning
• Focussing on strategies that improve the intersection between good-practice technology-assisted pedagogy and its application
• Monitor relevant operational goals, as actioned by the eLearning Operational Forum, in terms of the UQ Strategic Plan and UQ Learning Plan
• Considering initiatives from other UQ groups and committees which have either a parent relationship or a concurrent interest, such as the Teaching and Learning Committee and The Teaching and Learning Space Committee, to determine the implications of any recommended technologies and their impact on the eLearning Strategy and operational activities

In particular, the eLearning Strategy Committee (eLSC) is responsible for developing, managing and prioritising the list of prospective initiatives related to technologically-enhanced learning. Through this prioritised list of initiatives, the eLSC provides budgetary advice to the DVCA, other senior managers, and significant projects such as the Student Lifecycle Project.
Key Initiatives and Recommendations

1. **Leverage existing points of change**

   The potential for change is most pre-disposed where programs, schools and faculties are already committed to and engaged in self-reflection and future planning. These occur continually across the University through a raft of program reviews, accreditation, and licensing processes. The DVCA has invested in a set of centres and institutes that are focused on best practice in pedagogy across all spectra of the learning cycle (short courses to full degree programs) and across the range of the technology life cycle (from emerging technologies and applied research, through scaled implementation of on-going effective digital tools). For this investment to render maximum value, those programs or courses that are scheduled for review, accreditation or redesign need the opportunity to take advantage of these resources. We suggest that groups in the DVCA portfolio systemically engage with these academic units (programs, schools or faculties) in the early conceptualisation stage of either new course/program or redesign efforts. Their input can add to the proposal or review documentation that these projects are required to submit. More importantly they can change practice in learning and teaching.

   **Recommendation**

   Centres and institutes that are focused on best practice in pedagogy (TEDI, CEIT, CIPL and relevant others) should systemically engage with academic units (programs, schools or faculties) that are in the early conceptualisation stage of either new course/program or redesign efforts.

2. **T&L Design Flying Squad**

   Help for improving or redesigning learning activities can be focused through formation of a group that has a targeted goal to facilitate best practice designs. Drawn from the broader T&L design community, this group is targeted to assist a specific program team to define and implement best practices for learning activities. Possible groups who might serve on a given T&L Design Flying Squad might include members of the Learning Designers Forum, TEDI, CIPL, CEIT, ITS, Library, School/Faculty support units, and external experts. Key to this proposal is the finite nature of the engagement (specific goals, timeline, and sunset date for the project).

   **Recommendation**

   Leverage selected members of the Learning Designers Forum, TEDI, CIPL, CEIT, ITS, Library, School/Faculty support units, and external experts to assist specific academic programs to define and implement best practices for learning activities. The T&L Design Flying Squad engagements should have specific goals, timelines, and sunset dates for each project.

3. **Embedded support**

   Every school/learning unit should have direct access to at least one eLearning support person. Expand the distributed technology enabled learning support resources by hiring local disciplinary trained academics within the faculties and schools following the educational designer model.

   **Recommendation**

   Provide additional direct support to teaching academics to implement improved education designs via the provision of additional learning designers and related staff within the faculties and schools.
4. eLearning Initiatives Pipeline

Engage the entire UQ community in a crowd-sourced effort to find, review, and prioritise new initiatives for UQ consideration and support. Innovative ideas to advance UQ’s digitally mediated learning environment can come from anywhere. The eLearning Initiatives Pipeline proposes a mechanism to collect ideas for enhancing the digital learning environment, and act on them as appropriate.

The Software Selection Working Party of the eLSC has recommended the adoption of a four stage gated pipeline for the evaluation of centrally supported elearning proposals, as described in Figure 4 and Table 1, below. The Gated Pipeline for eLearning Proposals is expected to facilitate the submission, development and evaluation of proposals including strategies, problems and opportunities, for central endorsement, support or funding.

**Recommendation**
Establish and communicate a community process, the Gated Pipeline for eLearning Proposals, to solicit, review, assess and prioritise new or improved digital learning programs or processes.

![Figure 5 Gated Pipeline for eLearning proposals](image)

### Table 1 – Gated Pipeline for eLearning Proposals – Stage Gates

<table>
<thead>
<tr>
<th>Phase</th>
<th>Objective</th>
<th>Gate-Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Submission to Qualifying Checklist</td>
<td>Allow UQ community to contribute proposals to include the minimum amount of information required for an evaluation.</td>
<td>All set questions complete</td>
</tr>
<tr>
<td>2. Expert stakeholder review for viability</td>
<td>Key units evaluate and identify viable proposals with accurate costings</td>
<td>Viable proposal for eLSC ranking</td>
</tr>
<tr>
<td>3. eLSC review and ranking</td>
<td>eLSC discusses and ranks the list of viable proposals for DVC(A) consideration</td>
<td>A rank assigned to each current proposal indicating their relative importance.</td>
</tr>
<tr>
<td>4. DVCA endorsement, resource allocation or funding.</td>
<td>Locate funding or resources for viable ranked proposals.</td>
<td>Funded proposals</td>
</tr>
</tbody>
</table>
5. **Mass customisation for teaching academics**

   Signature pedagogies derive from the concept of repeating design patterns and models and the potential customised application of design templates. Signature pedagogies/design patterns include:
   
   - Inverted classroom designs
   - Build or Experiment focused activities
   - Project/Problem-based activities
   - Inquiry-based learning
   - Peer learning

   UQ should provide systemic support and incentives for program or school focused curriculum redesign efforts that seek to implement large-class personalised learning design patterns. This support necessarily must include a mechanism by which all affected systems within the university, e.g., service groups, support groups, etc., are informed and involved in the redesign, and are committed to see those selected projects to successful outcomes. A formal review and revise mechanism must be included along with a clear decision-making process that endorses or rejects adoption of the program as an on-going feature of the university’s offerings.

   **Recommendation**
   Provide systemic support and incentives for programs or school focused curriculum redesign efforts that seek to implement large-class personalised learning design patterns (e.g., inverted classroom designs, build or experiment focused activities, project/problem-based activities, inquiry-based learning, peer learning, etc.).

6. **Collaboratives:**

   Collaboratives are groups of practising T&L professionals who are prepared to share their experiences of implementing designs to achieve particular pedagogical outcomes, whether successful or not. The collaborative becomes a pathway for individual academics to appropriate the experience of others and customise for their own specific application.

   The investment in UQ Teaching Fellows along with recognised expertise among UQ academic staff should be leveraged to support the *ad hoc* sharing of best practices in learning communities. Allocate a modest budget to encourage gathering, information exchange and support for occasional external speakers, managed by the LIB collective. Review annually the relevance and interest in these collaboratives to sunset those whose value has diminished and support new ones as needed.

   **Recommendation**
   Engage and support UQ Teaching Fellows along with those having recognised expertise among UQ academic staff to support *ad hoc* sharing of best practices in learning communities.

7. **Proactive engagement with online learning focused on UQ hybrid course designs**

   MOOCs, large online course delivery, and open courses are a major contemporary thrust of elite universities around the world. While there remain questions about their sustainability and capitalisation, it is clear that they are projecting brand consciousness, offering insights into scaling learning, and serving as testbeds for the technologies underlying them (machine learning, short rich media learning modules [replacing lecture recordings], etc.).

   There is general agreement that a cornerstone of the UQ Advantage is grounded in the quality and diversity of our physical infrastructure designed for world-class research and teaching. Deriving the best value out of this to support increasing enrolments and more diverse learners
suggests we should be a part of the elite research community looking at online course delivery, with particular emphasis on its ability to enrich our place-based learning strengths. To explore this format for learning as a university, we recommend that one course or portion (module or section) of course from each of the six faculties be nominated as a development candidate for scaled delivery of online learning to a wide audience (UQ students and beyond).

The goal is not to design fully online courses as separate experiences from the core place-based learning valued by UQ. Rather it is to explore opening up access to a wider potential audience of learners the quality of UQ education, while retaining the frame of reference that insures such learning modules enhance UQ's place-based learning advantage.

**Recommendation**
Nominate one course or portion (module or section) of course from each of the six faculties as development candidates for scaled delivery of online learning to a wide audience (UQ students and beyond) to investigate how they might enhance campus-based UQ students as well as those distributed around the world.

8. **Learning Analytics – the digital footprints of technology mediated learning interactions**
Interaction between learners and the digital materials they study and engage with in the learning process provides new opportunities for capturing information from this process. While most high quality tertiary institutions capture a significant amount of data about students, little of it is designed to inform the learner or the academic in real-time to improve the proximate outcomes of performance in courses. Rather, the majority of these data are used for analysis and recommendations for changes or improvements the next time the course is taught. We can and should do better.

The problem is not the lack of data. It is the opposite – the deluge of data that is possible to capture. There are two approaches, one involving leveraging big data to sift out the meaningful indicators of effective learning. The other is to develop models that help describe and predict effective learning and highlight the data that such models require. These are not mutually exclusive and should form parts of a comprehensive commitment to leverage the potential of data from online learning environments that UQ students interact with to inform and guide learners and teachers by presenting actionable representations of learning in process.

Four steps should be taken to encourage UQ to embrace learning analytics systemically:
1. comprehensively identify the data that currently are captured by the existing enterprise systems at UQ in terms of their potential value as indicators of learner/instructor performance. This requires a learning data audit.
2. In parallel with this, a working party to identify best practices and research directions among our elite peer institutions should describe the current state of play, and areas of greatest potential benefit to UQ.
3. Run a summer learning analytics camp to promote understanding of and approaches to the uses for learning analytics by academic staff.
4. Develop practical experience with either research systems that show promise or commercial offerings based on openly published research findings through direct trial use of these tools in defined pilot projects.

**Recommendation**
Conduct a learning data audit to identify data that are useful to understanding student learning with digital material, identify best practices and research directions among our elite peer institutions, conduct a summer learning analytics camp to promote understanding of, and
approaches to, the uses for learning analytics by academic staff, and conduct trials using learning analytic tools in defined pilot projects to develop practical experience with either open source systems or commercial offerings.

9. **Personalised learning environments**

There is an inherent conflict in the two major themes that characterise the student learning experience as mediated through online tools. On the one hand, surveys of students tell us they want a common, consistent, uniform way to find their assignments, lecture notes, and assessments. In effect, they want to have clear and unambiguous expectations for what they must do to achieve explicitly defined marks. In response, UQ has mandated use of BlackBoard Learn. On the other hand, there is rapid growth in open, idiosyncratic, often cloud-based tools available to learners from the web while they are students as well as once they’ve left UQ. These tools offer support for student life-long learning needs. This thread is referred to as the development of “personal learning environments”. Therefore it is important to help students become familiar with, and effectively use, a wide palette of choices beyond the institution’s direct eLearning environment.

UQ should develop a transition program/module for UQ students about to become life-long learning UQ alumni that orients them to the tools that they may find valuable as part of their on-going personal learning environment. This might be included in a program that provides an introduction to other services that will be offered to the growing alumni community, including short courses for continuing professional development, cultural or social programs and avenues by which they may wish to continue engagement with UQ as a distributed intellectual community. Just as UQ focuses on first year retention of students, this recommendation highlights the need to recognise capstone efforts to retain alumni as life-long learners.

**Recommendation**

Develop a transition program/module for UQ students about to become life-long learning UQ alumni that orients them to the tools that they may find valuable as part of their on-going personal learning environment.
Appendix A: Extract from Innovating Pedagogy 2012


1 New pedagogy for e-books: As e-book technologies evolve, they will offer new ways of interacting with massively shared, adaptive and dynamic books. Teachers will be able to write alternative versions of text, embed graphs and simulations showing live data, add summarization, and use tools such as timers and calculators to support structured learning and formative assessment. Students will be able to share annotations or contact other people reading the same page of a book. New forms of learning with e-books could include crowd authoring (where textbooks are produced by students, for students), embedded tutoring (where readers offer to explain or discuss a difficult passage), or co-reading (where readers are automatically put in contact with others currently reading the same page).

2 Publisher-led short courses: These are short courses offered by publishers either in affiliation with recognised educational providers, or independently. The publisher's incentive is to understand learners in the subject areas covered by their regular publications, and to engage consumers in extended learning activities. For the learner, these courses offer self-directed learning for professionals, with institutional affiliation providing respectable ‘leisure learning’ products.

3 Assessment for learning: Assessment can support the process of learning, not just measure its outcomes. In diagnostic testing with rapid feedback, the results of summative computer-based assessment are provided immediately to learners and teachers, then used as a basis for addressing misconceptions and providing supplementary teaching. Research from computer games has explored how continuous feedback can guide performance and improve motivation. This requires software to monitor how learners progress through the course materials, diagnose misconceptions, know when to intervene, and offer appropriate advice. A teacher can be provided with a ‘dashboard’ that displays the progress of each student and offers a range of actions from simple automated prompts to online student-tutor conversation. Students can be offered ‘open learner models’ that show their progress in relation to peers.

4 Badges to accredit learning: Badges offer a way of accrediting non-formal learning. A badge, analogous to a Scout badge, is awarded when a learner completes a task or challenge that demonstrates a learning achievement. Badges may be awarded by authorities, by peers, or may be automatically assigned on completion of certain tasks. Badge systems have been used to encourage participation in online help forums and to acknowledge expertise in gaming environments. New approaches support the collection and validation of badges for learning, and work is in progress to develop an infrastructure to award, manage and validate badges.

5 MOOCs: Massive open online courses are attempts to create open-access online courses that provide no constraints on class size. They run over a defined period of time and are open to all. The early instantiations followed a pattern of ‘let’s put on a course here, right now’. More recent offerings take the form of free courses based on existing university teaching materials freely available online, with computer marked assessment and certificates of completion. Some courses have engaged over one hundred thousand participants.

6 Rebirth of academic publishing: There are two commonly used approaches to open access publishing: the Gold route, whereby the author or research funder pays a publisher for the cost of making an article open; and the Green route, where the individual author self-archives the article.
Some journals have begun to experiment with open review where the reviewers' comments are made public and not anonymised. Others adopt a low threshold for acceptance, replacing peer review selection with post-publishing commentary.

7 Seamless learning: Seamless learning occurs when a person experiences a continuity of learning across a combination of locations, times, technologies or social settings. Previous work on seamless learning has focused on designing software for mobile devices that allow people to carry their learning with them and to switch quickly from one learning activity to another. Recent studies have also examined how to support learning journeys. These are extended learning projects that can be accessed on multiple devices, flow across boundaries between formal and informal settings, and continue over life transitions such as school to university and workplace.

8 Learning analytics: Learning analytics involves the collection, analysis and reporting of large datasets about learners and their contexts in order to improve learning and the environments in which learning takes place, for example visualisations and recommendations that can influence student behaviour while a course is in progress. Current research is attempting to identify key indicators that show when a student is making good progress or is struggling. From a practical perspective, systems need to allow real-time analysis of disparate data and generate timely reports.

9 Personal inquiry learning: Typically, personal inquiry learning involves active exploration of an open question, with the student taking ownership of the inquiry process. Mobile phones can become inquiry toolkits. A typical inquiry might start in a formal setting, with a tutor helping students to refine their questions, continue at home or outdoors with the students collecting and viewing data, then return to the formal setting to share and present results. Inquiry learning can extend existing online or classroom learning. It also has the potential to catalyse citizen science experimentation.

10 Rhizomatic learning: This invokes the metaphor of a rhizome, a plant stem which sends out roots and shoots that allow the plant to propagate itself through organic growth into the surrounding habitat. Seen as a model for the construction of knowledge, rhizomatic processes suggest the interconnectedness of ideas as well as boundless exploration across many fronts from different starting points. For the educator, supporting rhizomatic learning requires the creation of a context within which the curriculum and knowledge are constructed by members of a learning community and which can be reshaped in a dynamic manner in response to environmental conditions. The learning experience may build on social, conversational processes, as well as personal knowledge creation, linked into unbounded personal learning networks that merge formal and informal media.