Building a culture of learning design: Reconsidering the place of online learning in the tertiary curriculum

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Abstract

Recent reviews of online learning (QUT, 2003; ATN, 2004) at Queensland University of Technology have found that the affordances of existing learning and teaching technologies are not being exploited by the mainstream culture of the university. These reviews have lead to a reconsideration of online learning and teaching frameworks, tools and resources that are used to support academics develop curriculum and design learning environments. This paper describes a Learning Design Framework and an associated Learning Design Evaluation Tool to support curriculum design and the integration of online learning at Queensland University of Technology. The framework has been designed to encourage a more holistic approach to integrating online learning in the curriculum with the intention of refocusing the designed use of online learning environments away from information delivery and toward the engagement of learners in active and interactive learning. It is hoped that this framework and evaluation tool in conjunction with a number of other initiatives will build a culture of learning design across the academic community of the university.

Keywords

learning design, learner-centred learning, online learning, evaluation, curriculum design

Introduction

Over the last decade advances in information and communication technologies (ICTs) have made a significant impact on how we operate and interact in university. As with everyday life, the tertiary learning and teaching environment is being significantly changed by the increasing pervasiveness of these technologies. Even for strongly campus-based universities like Queensland University of Technology (QUT) there has been a significant uptake of online learning technologies to manage communications and deliver resources. For most academics the online environment has been utilised for the delivery of teaching materials and resources. A much smaller number of academics have been designing online environments that integrate information and communication technologies in ways that support active and interactive learning. Recent reviews of online learning (QUT, 2003; ATN, 2004; Brown & Carrington, 2005) at QUT have found that the affordances of existing learning and teaching technologies are not being exploited by the mainstream culture of the university. These reviews have lead to a reconsideration of online learning and teaching frameworks, tools and resources that are used to support academics to develop curriculum and design learning environments.

This paper describes a *Learning Design Framework* and an associated *Learning Design Evaluation Tool* to support curriculum design and the integration of online learning at Queensland University of Technology. The framework has been designed to encourage a more holistic approach to integrating online learning in the curriculum with the intention of refocusing curriculum design and the use of online learning environments away from information delivery and toward the engagement of learners in active and interactive learning. It is hoped that this framework and evaluation tool in conjunction with a number of other initiatives will build a culture of learning design across the academic community of the university.

Reconsidering our strategic approaches to online learning

Queensland University of Technology (QUT) developed its own, in-house online learning management system called OLT (Online Learning and Teaching). This system has been in use since 2000 and over the years has undergone substantial development and extension in terms of features and tools. It is very similar in functionality to commercial learning management systems such as Blackboard and WebCT.

In 2003, QUT undertook a thorough review of the OLT system, which involved a number of external reviewers, and resulted in a comprehensive report with several recommendations for improved usage of the system (QUT OLT Review, 2003). Some of the key findings of this review were that the OLT system was being used predominantly 'as a delivery tool to supplement rather than enhance the learning environment' (p. 17), and that 'the place of technologies and applications were not clearly articulated' in the University's overall teaching and learning vision (p. 12).

A further evaluation of online teaching and learning was undertaken in 2004 by the Australian Technology Network (ATN) group of universities, of which QUT is a member. This evaluation involved a survey of over 20,000 students and almost 1000 staff from across five of the ATN universities about their perceptions of and interactions with the online learning management systems of their universities. This study revealed that, in all of the participating universities, the predominant use of the online system was a transactional one, used mainly for access to course content, to information about courses and for electronic access to the administrative procedures of the universities including online enrolment, access to library databases and payment of fees. The QUT results showed high levels of use of the OLT system for delivery of lecture notes, PowerPoint slides, and access to library databases for course materials. In all of the universities surveyed, and at QUT, the use of the systems for more collaborative and communicative purposes was much less prevalent.

These results indicate that a focus on the technological delivery aspects rather than on pedagogical uses of the online environment still predominate, and that pedagogical approaches relate most closely to a view of teaching as one of transmissive information delivery and a view of learning as little more than a need to access information. The survey results show that adoption of the online environment at QUT has largely been characterised by the digital replication of traditional forms of didactic teaching in higher education contexts, hence the predominance of course websites dominated by content such as lecture notes and PowerPoint slides, and online access to videos of lecture material.

Top-level learning and teaching plans at QUT encourage the effective integration of online learning environments to support learning. Priority strategies in the 2005 QUT Learning and Teaching Plan include:

- Facilitate optimal student learning outcomes by seeking out and capitalising on emerging technologies and integrating information and communications technology into our teaching (1.2).
- Assist staff to recognise and utilise effectively a range of technologies (including the virtual, campus based, and work integrated) in order to achieve an holistic approach to course delivery (3.3).

The challenge now is how to best support academics design curriculum that makes effective use of the available environments, resources and tools to enhance student learning.

Challenging the transmission models of learning

Theoretical constructs of learning, as informed by Vygotsky (1978), Piaget (1972), Bruner (1974), Lave and Wenger (1991) and Jonassen (1999), point to the centrality of the learner, the context of their learning, and the crucial role of social interaction in knowledge building. Arising from these theories are principles of learning that highlight the importance of learner activity (Boud & Prosser, 2002; Bonk & Cunningham, 1998; Lebow 1993; Savery & Duffy, 1995; Wild & Quinn, 1998), the building of collaborative learning communities (Oliver, 2000; Brook & Oliver, 2003; Palloff & Pratt, 1999), authentic contexts (Brown, Collins, & Duguid, 1989; Duffy & Cunningham, 1996; Herrington & Oliver, 2000), authentic tasks (Biggs, 1999; Oliver & Herrington, 2000) and authentic assessments (Angelo, 1998).

However, these principles seem to have been lost in translation to the online environment. The QUT OLT evaluation research (QUT, 2003; ATN, 2004) shows that the majority of online courseware does not show evidence of these principles in action; rather, the system is used predominantly for providing repositories of information and access to static course material and resources. While this use may provide administrative efficiencies and ease of access to content, the lack of focus on design for learning makes its connections with improved learning outcomes for students rather remote. Learning-focused uses of the online environment espoused by Harper and Hedberg (1997) and Ferry et al. (2005), such as collaborative knowledge construction, information seeking and sharing, reflection, debate and problem-based learning are a rarity. These findings accord with those of Bonk and Dennen (1999) in US contexts.

The prevalence of the use of online environments as information repositories for course content may have been influenced by government required statistics related to activity in online environments, which required evaluation reportage to focus on the extent and reach of online activity. The result of this focus saw the rise of online evaluation frameworks characterised by a hierarchy of delivery aspects and building block approaches in stages over time. Early stages concentrated on assessing the extent to which the online environment had started to penetrate course delivery, and looked to document the number of courses with an online presence such as the provision of access to information about the course in the form of course outlines as well as access to resources such as lecture notes. Secondary stages saw the implementation of some collaborative features, such as email associated with the subject cohort, discussion lists and chat rooms. Later stages saw the addition of some interactive tools such as online quizzes, multiple choice activities and simulation tools. The pinnacle of achievement was considered to be a fully online course, and universities began reporting to their funding bodies ‘measurable’ data such as the number of fully online courses existing

at their institutions. The connection with this kind of evaluation data to student learning is remote. Early studies by Owston (1997) pointed to the need for more focus on the learning outcomes associated with technology driven pedagogy, and research in this field (Alexander & McKenzie, 1998; Alexander, 1999), reveals the lack of effective evaluation approaches and models related to online teaching and learning.

Other, more sophisticated iterations of the staged approach to the description and evaluation of technological pedagogy include Mitchell and Hope's (2002) 'maturity model', where the stages move pedagogically from delivery, through interaction, to exploration.

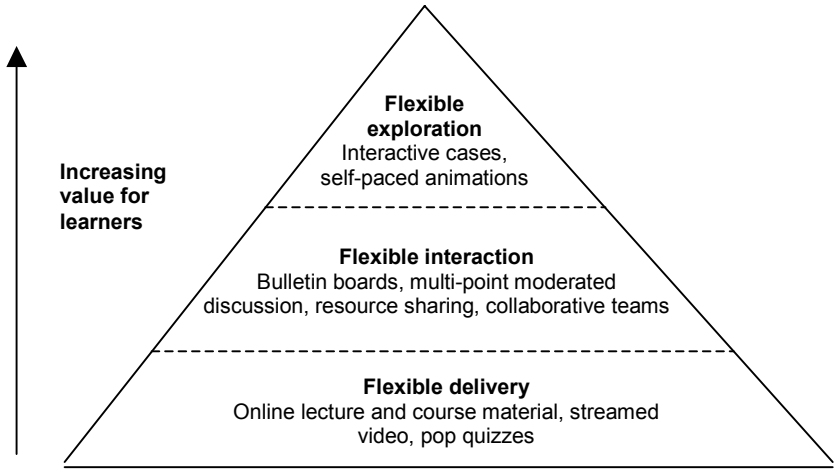

Figure 1: A maturity model of flexible learning facilities

While the premise behind this model is more clearly focused on increased learning outcomes for students, it is still largely a model of accretion, and one that leaves it up to the students to draw out the learning experiences. It is also not clear from this model how academics can effectively evaluate their created technological environments from a learning outcomes point of view, other than a checklist of features present in their environment.

Recognising that the WWW supports various forms of educational engagement, Oliver, Omari and Ring (1998) present a framework outlining four applications of the WWW in teaching and learning: information access, interactive learning, networked learning and information construction. While this framework is helpful in orienting a focus of attention on those aspects that will encourage more interactive learning and provide students with opportunities to construct knowledge, as a design and evaluation framework it has limited usefulness because of its breadth. Further work by Oliver and others (Oliver, McLoughlin, & Herrington, 2001) found that there are relatively few frameworks or instruments that can easily be applied to help academics both design and evaluate online learning environments in terms of their effect on student learning outcomes.

Building a culture of learning design

The QUT Learning Design Framework (see Figure 2) and the Learning Design Evaluation Tool (see Table 1) were designed to serve a number of purposes. Firstly it was considered important that the framework support the integration of online learning in the curriculum by promoting the integration of online learning with other learning environments in ways that lead to the achievement of identified learning outcomes and QUT graduate capabilities. Secondly, reviews of online learning (QUT, 2003; ATN, 2004) had clearly identified the need to shift the use of online learning environment from one in which there is an emphasis on delivery of content to focus instead on enhancing learning through active and interactive engagement with resources, activities, and assessment.

In these learning environments learners are encouraged to engage in knowledge construction. To this end the Learning Design Framework was designed to shift emphasis away from focusing on online learning to a broader framework supporting holistic learning design and its implementation. The framework has been developed with course design in mind; however, this framework could just as easily be applied in the process of designing a program, a course/subject or a specific learning activity. This holistic view of learning design represented in the framework is relevant for on campus, blended and online learning environments. It was intended that this framework and the associated evaluation tool would be useful for a range of audiences within the QUT community including:

- Curriculum designers at course and program level (course and program coordinators).
- Heads of School/Discipline working with academic staff in the process of curriculum design, implementation, review, and PPR.
- Learning and teaching support staff supporting academics with curriculum design and the integration of online learning.
- Directors of learning and teaching who are required to report on course developments.
- Accreditation and benchmarking audiences.

The Learning Design Framework has been developed from a learning-centred perspective where the learners' activities and their interactions with others are positioned at the heart of the learning design. Boud et al. (1993) identified five propositions about learning which encapsulate learning-centred perspectives:

- Experience is the foundation and the stimulus for all learning.
- Learners actively construct their own experience.
- Learning is a holistic process.
- Learning is socially and culturally constructed.
- Learning is influenced by the social and emotional context in which it occurs.

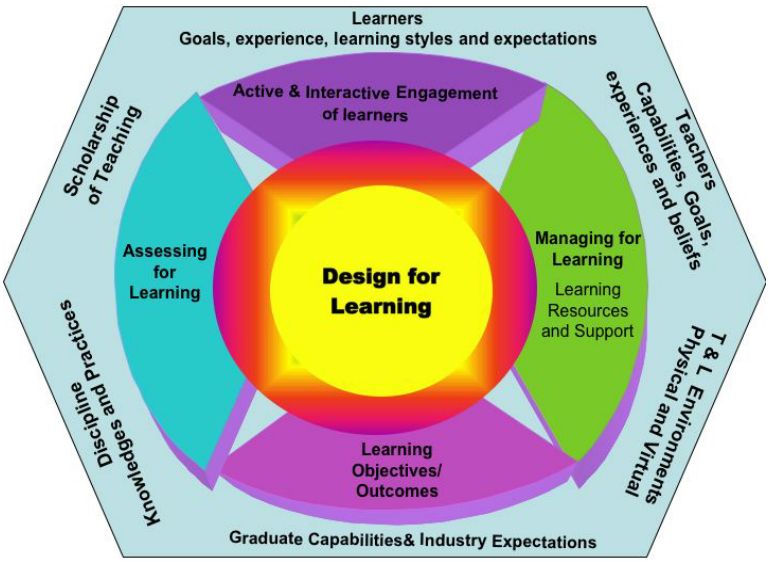

Figure 2: Learning design framework

At the core of the Learning Design Framework is the activity of *designing for learning*. This term, with its emphasis on the creation of learning, shifts curriculum conversations away from the performative activities of completing curriculum documents to creative conversations focusing on engaging students in learning. Introducing different forms of learning designs provides richness and possibility to these conversations. Informed by the work of Jonassen (2000), Oliver et al. (2002) identified four main forms of learning designs: rule based, incident based, strategy based and role based.

Other authors (Ip & Naidu, 2001; Oliver & Herrington, 2001) have also referred to learning designs such as problem based learning, case based and situated based learning. These forms of learning design work to focus attention on notions of learners' knowledge construction through active engagement and sit comfortably within a social constructivist framework for learning which is built not on the traditional "transmission of knowledge" model, but on the assumption that students are encouraged to become active partners in the construction of knowledge with their peers, academic staff and the wider social context of the disciplines in which they work (Angelo, 1999). The appropriateness of these learning designs to any particular learning context depends on a range of related factors such as the learners' and the teachers' existing knowledge and experience, the learning environment, objectives or outcomes of the curriculum and discipline knowledge and practices to be addressed.

As curriculum designers make decisions about their designs for learning they will work to develop *learning objectives or outcomes* and consider how their designs will *engage learners*, as well as how they will *assess* and *manage the learning*. Decisions regarding these dimensions of the design need to be considered in light of the contexts in which the learning occurs.

Most significant in the context are the learners and their prior knowledge, learning styles, expectations and perceptions. The *learners* are placed at the top of the framework to indicate the importance of the learners' and their interactions with the learning design. Boud and Prosser (2002, p. 238) believe what is important is the way students' perceive and understand their learning environment and the way they approach their learning in relationship to these perceptions. Besides the learners, other contexts for learning are acknowledged in the framework as important considerations when designing for learning. They include:

- the institutional and course graduate capabilities and industry expectations
- discipline knowledges and practices
- learning and teaching environments — physical and virtual
- the teachers and their capabilities, goals, experiences and beliefs
- the scholarship of teaching.

Starting points for the design of learning vary, a particular learning design like problem-based learning could provide the initial stimulus for design or it may be that identifying learning objectives precede other design decisions. No matter what the starting point, it is important to align these dimensions of design to enhance opportunities for learning and this has been reflected in the cyclical nature of the framework. For many years the Biggs (1999) model for an aligned curriculum has provided a foundation for tertiary curriculum design, however, for many academics, alignment is not prominent in their thinking when designing curriculum. More often it is the discipline content knowledge being delivered to students that becomes the driver of curriculum decisions. The Learning Design Framework purposefully de-emphasises the content of the curriculum and highlights the active and interactive engagement of learners working towards achieving the identified generic and specific learning objectives or outcomes. The framework encourages academics to consider the relationship between the learning objectives, the learning engagements, assessment approaches and learning resources and supports when designing their learning. It is through the process of aligning these elements and focusing on activities that will engage learners in the process, that the key content to be learned is synthesised.

The dimension of *active and interactive engagement of learners* focuses on the centrality of the learner, the need for them to be active participants, the context of their learning and the crucial role of social interaction in knowledge building. In the performative process of writing curriculum documents such as program and course outlines, it is often this dimension that receives the least attention. This is unfortunate as this is the process that provides the most opportunity for reflection, peer review and feedback. Referred to as 'approaches to teaching and learning' in QUT course outlines, it is mostly the types of learning environments that are described, rather than the kinds of activities that are designed to engage the students in learning. Central to authentic learner activity is the designed alignment between learning objectives, engaging learning activities and assessment tasks. *Learning objectives* derived from Bloom's (1984) taxonomy encouraging a range of cognitive engagement by the learner, will result in the design of more authentic learning activities and assessment tasks for the achievement of higher order cognition. This approach contrasts with the more common tendency for learning objectives to be written in terms of content objectives, and underscores the importance of designed learner activity in the achievement of learning objectives.

The framework incorporates the dimension, *assessing for learning* rather than the assessment of learning. The principle is that assessment should be integral to and complementary with the learners' experiences and as such continue to contribute to learning. Another key element is the authenticity of the assessment where assessment tasks should, as much as possible, reflect real world activities — in this way learners are better supported to develop skills for the world beyond the classroom, and the students' engagement with the content to be learned, is contextualised in real world usage and application.

When considering *managing for learning* the framework encourages academics to plan the resources and supports they will employ to support and enhance learning. Oliver and Herrington (2001), identified learning resources and learning supports along with learning tasks as critical components for the design of learning settings. While they were specifically referring to technology based learning settings, these categories have relevance in all learning contexts. Learning resources refer to "content and information needed to support the learners' inquiry and problem-solving activities" (Oliver & Herrington, 2001, p. 22). These resources can take many forms including books, notes, weblinks and case study examples. Learning supports are provided to enable the learners to engage with the learning tasks. Learning supports may or may not "form part of the actual learning" and could include such things as instructions and schedules, notices and messages, or more direct support including peer supports, mentors and learning scaffolds (Oliver & Herrington, 2001). The decisions about which learning environments and learning tools would best support learning resources and supports should also be carefully considered. The information and communication technologies and online environments along with face to face teaching environments should be employed appropriately to support the active components of the learning design and to enhance opportunities for students' access to and engagement with the learning activities. Appropriate blends of learning environments (physical and virtual) that maximise student activity and interactivity on learning tasks are important.

Hence, the move from a focus on achieving a 'fully online course' to a focus on a choice and blend of learning environments. Blended learning is driven by decisions about which environments, interactions and tools will best support student engagement with learning activities as opposed to the current prevalent focus on supporting student access to course content.

The QUT Learning Design Framework has been developed to directly align with the QUT Teaching Capabilities Framework (2004). Employing the same constructs in both frameworks supports a consistency of language across the areas of teaching and learning. This will also assist academics to document and reflect on their teaching and learning practices.

The Learning Design Evaluation Tool

The Learning Design Evaluation Tool (Table 1) has been conceived as an online web interface that is to be accessed from either the QUT Evaluation Management System or the OLT site for a course. The tool is designed to collate evaluation data relating to the course or program of study around the four key dimensions of *design for learning*, *engaging learners*, *assessing for learning* and *managing learning*. This digital tool draws on data from various sources such as Student Evaluation of Units (SEU), Online Learning and Teaching Self-Audit checklists as well as peer reviews and other forms of evaluation. It aims to support learning design improvement cycles by asking academics to reflect on Learning Design evaluation data to plan improvements in learning.

The example statements have been included to assist academics in collecting and reflect on data arising from the learning designs they have implemented. These statements have been adapted from the work of Boud and Prosser (2002); the AUTC project on ICT-based Learning Designs (2002) which developed an 'Evaluation and redevelopment framework' and the QUT *Teaching capabilities framework* (2004). They are not intended to be prescriptive, but rather to act as stimulus statements to support academics to consider more deeply each dimension of learning design. Evaluation of learning mainly through Student Evaluations of Units (SEU) and Course Experience Questionnaires (CEQ) lacks systemic support for closing the loop to reflect on the efficacy of the learning design. This tool provides an opportunity to triangulate and reflect on a richer collection of data on learning, leading to plans of improvement to learning design.

Table 1: Evaluation tool for learning design

Teaching capabilities	**Evaluation data**	**Comments**	**Action plan**
Designing for learning For example: • Contributes towards course objectives and identified graduate capabilities • Develops discipline knowledge and practices • Considers the learners' experience, learning styles, expectations and perceptions • Aligns learning objectives or outcome, learning activities and the ways in which learners will be assessed • Allows sufficient opportunity for practice for expertise to be realised			
Engaging learners for active and interactive learning For example: • Uses prior experiences of learners • Provides opportunities for peer interaction and feedback • Supports reflection and consolidation • Engages learners affectively • Allows learner control of learning • Challenges learners to go beyond the knowledge and resources provided			
Assessing for learning For example: • Incorporates authentic assessment experiences to assess learning • Assessment activities reflect the learning objectives/ outcomes and support learners to express high level quality outcomes • Applies clearly stated criteria and standards when assessing learning outcomes • Supports engagement through assessment • Provides appropriate feedback in terms of source, nature and timing which is available at key points in the learning process • Encourages students to reflect on their own learning			

Teaching capabilities	Evaluation data	Comments	Action plan
Managing learning For example: • Enables access to key concepts in many ways utilising appropriate learning environments • Employs learning resources of high quality in terms of currency, variety and suitability to support the learning objectives/outcomes • Uses learning resources that conform to standards (eg QUT policy on equity, copyright and WC3 standards) • Appropriately blends learning environments (physical and virtual) that take account of the diverse needs of learners including culture, gender and social diversity. • Supports meaningful learning outcomes while considering efficient and effective use for staff and students' time			
Other			

This evaluation tool will provide a useful resource in curriculum conversations undertaken between unit coordinators, course coordinators and learning and teaching support staff. It can also inform workload and PPR discussions. By aligning the dimensions of the Learning Design Framework and associated evaluation tool with the QUT *Teaching capabilities framework* (2004), academic staff are able to incorporate these resources in their teaching portfolios.

Conclusion

The Learning Design Framework and associated Evaluation Tool have been developed to encourage a shift in thinking from curriculum design as a process of selecting, ordering and delivering course content to students, to one in which the design of authentic, engaging, active and interactive learning activity is the central driver. Content in this process is something to be actively engaged with in contextualised, meaningful ways for the learner. The information and communication technologies are tools to be used to enhance this learner engagement with authentic activity, not just as a means to deliver more content or more resources to students. The Learning Design Framework acknowledges that no one technology or social pattern of engagement will be able to deliver optimal learning environments to students, but that a blend of learning environments and social interactions both, physical and virtual, driven by the designed learning activities will result in many and varied blends of learning environments to meet the designed learning needs. Thus, online learning environments become an integral means of creating and supporting learner activity and interactivity in the curriculum, rather than just a replicative add on to, or replacement of, traditional delivery of information in face to face settings.

The conversations around the Learning Design Framework and Evaluation Tool will stimulate change in thinking about approaches to curriculum design and the more effective integration of online learning environments in the curriculum.

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