Moodle and the institutional repositioning of learning and teaching at CQUniversity

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This paper provides insights into the unique operation of a multi-campus university and its pursuit to improve the quality of the student learning experience. The paper outlines the institutional repositioning of learning and teaching and discusses the beginning of this journey in terms of improving educational practice in the delivery of courses through the use of the newly adopted Learning Management System (LMS), Moodle. The limitations of past practices are reflected upon within which the new adoption strategies are discussed through the lens of the RIPPLES model, the elements of which include **R**esources, **I**nfrastructure, **P**eople, **P**olicies, **L**earning, **E**valuation and **S**upport (Surry, Ensminger & Haab 2005). The paper highlights the critical influence of these factors in the change management of the new LMS, and outlines an approach for sustaining the renewal of educational practice. The paper concludes with an action plan for continuing the renewal journey through action research.

Keywords: learning, teaching, seven principles, RIPPLES, technology, LMS, Moodle, higher education

Introduction

CQUniversity Australia has approximately 18,000 students across 11 locations, as well as those studying at a distance from locations across Australia and throughout the world. Even though it is often described as a regional University, CQUniversity does not really fit into any standard organisational type. The original institution was founded in 1967 in Rockhampton as the Queensland Institute of Technology (Capricornia) and introduced distance education in 1974. The institution has evolved into Central Queensland University with campuses and learning centres at Gladstone, Mackay, Bundaberg, Emerald, Noosa and Singapore. The University has also established on-shore teaching site for international students at capital cities Sydney, Melbourne and Brisbane, as well as the Gold Coast. The majority of international students are situated on the capital city campuses, which are managed by the University's wholly owned company. Programs and courses are developed and administered at Rockhampton campus with the majority of course coordinators located on this campus

As can be seen, the distributed nature of learning environments at CQUniversity highlights the need to support learners and learning through flexible approaches that involve a blending of campus-based learning and online learning, a blending of traditional print-based delivery and online learning, and/or a blending of work integrated learning and online learning. The blended learning construct has attracted much attention within the higher education sector in recent times (Barone, 2003; Dziuban, Hartman & Moskal, 2004). Blended learning is concerned with the integrated combination of traditional delivery formats with web-based components in ways that optimize both learning environments. However, it is worthy to note that blended learning is an evolving phenomenon in higher education (Dziuban, Hartman & Moskal, 2004), and there have been contentious debates about its definition, which according to Oliver and Trigwell (2005 make it difficult to understand what is really being promoted and researched.

Notwithstanding the ongoing debates, proponents of blended learning such as Dziuban, Hartman and Moskal argue that, "blended learning should be viewed as a pedagogical approach that combines the effectiveness and socialization opportunities of the classroom with the technologically enhanced active

learning possibilities of the online learning environment" (2004, p. 3). Other commentators call for a shift from centralised classroom-based learning towards distributed approaches where learners can engage anytime, anywhere (e.g. Barone, 2003; Bonk & Graham, 2004). These assumptions have tacitly influenced the adoption of the Learning Management System (LMS) at CQUniversity to support learners and learning in its distributed learning environments.

Delivery models, pedagogical vision and the adoption of LMS

Multimodal delivery is the most common delivery approach at CQUniversity. However some courses are also offered through web-based delivery format. Like many other universities that have adopted similar models of delivery, CQUniversity is responding to the changing landscape of higher education and the educational opportunities presented by technology rich learning environments. Table 1 lists the common elements of each delivery model at CQUniversity.

Table 1: Delivery models at CQUniversity

Multimodal Delivery	Web-based Delivery
Typically students in this mode of delivery: - *if on-campus*, are provided face-to-face tuition or may be required to attend *ISL-based classes - *if off-campus,* may be required to attend **res school - have learning materials in print or electronic form - may be given some core learning materials online - are provided L&T support online or other medium - may have aspects of summative assessment online - may have learning materials packaged in different media formats, e.g. DVD, CD	Typically students in this mode of delivery: - undertake compulsory coursework online - are provided L&T support predominantly online - use web-based core learning materials - may be given print study guide or other alternative media formats - may be provided face-to-face tuition, e.g. res school - undertake summative assessment online - may be required to submit assessment items online - may be required to access assessment marks online

*ISL – Interactive System-Wide Learning is a videoconferencing facility that allows video and audio interaction between CQU campuses.
Each campus within CQUniversity offers lectures and tutorials using this facility.
** Res School – Residential School

The multimodal delivery approach in particular recognises the ongoing convergence of internal (on-campus) and external (off-campus) delivery and blurs the boundary between the two delivery modes. It also recognises the complementary aspects of the manner in which students from each group learn. As such, CQUniversity has made provisions for all students regardless of their mode of enrolment to have open and flexible access to learning resources and learning support mechanisms. For example it is common practice to issue the print Study Guide to both external and internal cohorts at no additional cost to internal students. Likewise access to video recorded face-to-face lectures is provided to both internal and external cohorts. This approach is predicated on the assumption that it can improve access to learning opportunities and promote independent attitudes to learning. Indeed proponents of blended learning claim that those who embrace the blended learning approach are trying to maximise the benefits of different delivery methods used in the physical and web-based environments (Garrison & Vaughan, 2008; Graham, 2004; Young 2002), where "the important consideration is to ensure that the blend involves the strengths of each type of learning environment and none of the weaknesses" (Osguthorpe & Graham 2003, p. 227).

As earlier alluded to, this perspective aligns with the pedagogical vision at CQUniversity and underpinned the adoption of LMS, which commenced in the late 90s with an in-house developed system and progressing to propriety products. The University deemed LMS as critical for supporting not only blended learning but also fully online delivery. McConachie et al define LMS or CMS (Course Management System) as "software packages that provide Web-based tools, services, and resources to support teaching and learning processes for both online and blended delivery" (2005, p. 1). While some commentators within the higher education sector herald LMS and information and communication technology (ICT) in general to add new dimensions of richness and complexity to the student learning experience (e.g. Barone, 2003; Frand, 2000; Bonk & Graham, 2004) others disagree, continuously scrutinising its limited impact on pedagogy (e.g. Candy, 2004; Downes, 2006). Candy for example claims that much of the hype turns out to be "fundamentally about enduring educational problems and issues, rather than about anything dramatically new and transformational" (2004, p. 39). As do many others, this sentiment is echoed by Benson and Palaskas (2006) stating that, for the most part, the use of LMS for learning at their university "seemed to involve fairly unsophisticated use of the tools available, and in some cases it was used primarily to provide access to information, rather than to engage students directly in an online learning environment". Jones and Muldoon (2007) have identified a similar pattern of

engagement within LMS at CQUniversity, reporting that the use of course websites hosted on the LMS is commonly focused on transmitting course documents to students. The mismatch between the potential of technologies and actual use in practice begs the question of how return on investment is being considered, given one of the major rationales for such an investment is to maximise the quality of the student learning experience and outcomes. This situation has highlighted the need for the University to respond to this critical issue, which directly relates to the wider organisational change occurring at the present time.

The need to reposition learning and teaching at the core of organisational change is evident. Serving as the conduit for this organisational change, the Management Plan for Learning and Teaching 2007-2010 explicitly states the institutional goal that "CQU will enrich the student experience and ensure high quality support for learning and teaching", one of the strategies for which pertains to grounding the implementation of the Plan on the Seven Principles of Good Teaching Practice in Undergraduate Education (Chickering & Gamson, 1987). To achieve this goal, the intention is to 'Provide appropriate support for staff and students to access and use ICT effectively in learning and teaching." It also intends to "Review academic policies for the support of learning and teaching and ensure effective implementation of new and revised policies." ICT projects and initiatives were initiated to enhance learning and teaching at CQUniversity, one of which was the decision to adopt one centrally supported LMS that can partner with the institutional repositioning of learning and teaching. The cost of maintaining two systems and student feedback on the confusion about using two systems also prompted this decision. An open source LMS called Moodle was selected to replace the existing propriety LMS, Blackboard and the in-house developed LMS, Webfuse.

James, Coates and Baldwin state that, "there is something so seductive about LMS that, despite their complexities and risks, almost every university seems compelled to have one" (2005, p. 23). CQUniversity has indeed been seduced into the LMS hype ever since its adoption, making a series of presumptions about improvements to learning and teaching by virtue of having this system. Indeed according to Wise and Quealy:

> LMS have been widely touted, not only as the centrepiece of elearning infrastructure, but also agents of pedagogical change.... It is presumed that LMS will transform university teaching from the outdated traditional university teaching model based around passive transfer of content to a privileged few into a broadly accessible student-centred, interactive learning model based around learning networks, interactive and collaborative technologies and communities of practice (2006, 899).

Observations about the use of LMS at CQUniversity suggest that the learning and teaching practices within this space perennially contradicted these presumptions in many respects. This was confirmed in the analysis of the 417 courses considered for transition to the new LMS, to be offered in the opening term in 2010. These courses have included degrees of online presence within Blackboard. Data were collected from the immediate history of each course on number of discussion forums, number of virtual groups formed, number of documents, number of quizzes, number of hits per student, and various aspects related to delivery sites and staff involved. Of the 417 courses considered, 35% did not use discussion forums, 78% did not use virtual groups, 21% had no documents, 89% did not use quizzes, and 13% did not receive any hits at all. Of the courses that did have documents the median number was 25. Given that 69% of domestic students are studying off campus (CQU Annual Report, 2008), these figures are a concern and reflect the *ad hoc* development previously used. As Wise and Quealy note "much of the conversation around elearning and its transformational potential refers loosely to a social constructivist pedagogy, communities of practice and learning Networks" (2006, p 903). Hence, the need for human interaction is critical, but how can this transpire when there is an apparent minimal or lack of understanding about what the LMS is meant to serve, or how it can support the educational transaction in a transformative manner?

Weaknesses of previous implementations of LMS at CQUniversity can be traced back to the absence of methodical considerations for the change process, such as empowering people and establishing appropriate resources and infrastructure to support them. Another critical weakness is the absence of a clearly articulated institutional direction, vision and policies concerning pedagogical goals that the University was systemically intending to pursue, coupled with the mechanisms for achieving them. Moreover, very little evaluation, if any, was carried out on the use of the system or what impact it may be having on learning and teaching. The deficiencies concerning these factors have contributed to the meagre use of the LMS to a large extent. They therefore form part of the retrospection that are continually being reflected upon as the University embarks on a new challenge of transitioning into the new LMS.

Considerations for transitioning into the new LMS

The success of any innovations or organisational change warrants a well-considered implementation plan (Voss, 1992). To this end, the *RIPPLES* model presented a useful reminder for the types of focus and considerations concerning the new LMS implementation. Introduced by Surry, Estminger & Haab (2005) *RIPPLES* has emerged from their investigation of integrating instructional technologies into colleges and universities, highlighting the need to consider **r**esources, **i**nfrastructure, **p**eople, **p**olicies, **l**earning, **e**valuation and **s**upport in the adoption process. Benson and Palaskas (2006) conclude that the "RIPPLES model appears to be a useful tool for analysing institutional innovations… it covers major factors that need to be considered in the higher education environment". The *RIPPLES* model provided an instrumentalist perspective for focusing on specific aspects of the change process within the complex operation of CQUniversity. As Estminger and Surry suggest:

> Given that success of an innovation is directly tied to its successful implementation, organisations must not only be aware of variables that facilitate implementation, but need a means for determining which variables are most important to their organisation, given a specific innovation (2008, p. 612).

Each factor considered is summarised below, within which the degree of fit and interaction across all factors has highlighted the strengths, weaknesses and opportunities for the current LMS implementation.

Resources: Financial, materials, personnel and support structures

Upon setting up the LMS Implementation Project Team, a small budget was set-aside for the evaluation phase. A dedicated project manager, change manager and a training officer were appointed. A communications officer was assigned part time to the project. The budget covered these salaries and the software and hardware requirements. Existing staff in key areas had major portions of their workload re-allocated to parts of the implementation project. The Curriculum Design Unit was strengthened and the full complement of Curriculum Design staff allocated to training and support of academics in the course development process. Staff from Academic Staff Development was also involved in the training and change management. These strategies were put in place early in the project to embed the process of staff training and curriculum design to be used post project implementation.

Infrastructure: Hardware, software and network capabilities to support the implementation, including support for teaching resources, production resources, communication resources and administrative resources

For the selection process, an outside commercial organisation was used to host two LMSs and a "playpen" area in each. This was deemed necessary otherwise the university would have been hosting four LMSs. The ability to compare features proved an effective way to engage staff in the selection process. For the pilot phase the server capacity was increased but the full requirements are still being determined. The IT support has also been increased to facilitate the rollout, along with the inclusion of communication and administrative support. The ability to redirect the efforts of the Curriculum Design Unit to conduct training in support of course design and development has meant significant infrastructure savings but, importantly, it facilitated the kinds of conversations that occurred in design teams as those involved were confronted with real problems of technology integration in pedagogy (Koehler & Mishra, 2005).

People: the essential role that the people play within the organisation in the technology integration process

From the outset, the academic community's involvement in the new LMS selection process has been heightened, in conjunction with the involvement of staff from support areas such as Information Technology and Curriculum Design. This approach triggered the engagement process that included the setting up of the Academic Reference Group (ARG), which meant a broad representation from across the University. Through the combined efforts of the academic community, the Curriculum Design Unit and the LMS Implementation Project Team, a course development plan was established to provide a systemic course development support for the Moodle implementation and beyond. The Moodle Mentor Program was also put in place within which a community of practice was cultivated (Wenger, McDermott & Snyder, 2002) and mitigated some of the otherwise silo-oriented practices of the past. For example, Moodle Mentors actively share their course design and development journey during the Moodle Mentors' Forums, which have become an important source of knowledge and skills development and therefore

learning for course coordinators, curriculum designers and information technology staff. In addition, the online discussion forums provided another space for collaboration and support amongst the Moodle champions. Discoveries at these Forums often helped inform the decisions made at ARG and Project Board levels. For the wider academic community, ongoing evaluation of training and development workshops facilitated a responsive approach to the delivery of introductory sessions on a week-to-week basis, and the delivery of special topics workshops based on identified course development requirements. Newsletters and frequent updates from the Pro Vice Chancellor championing the project as well as the Vice Chancellor were critical in maintaining the enthusiasm across the University. However, this remains an ongoing challenge, thus requiring the physical presence of Project Board representatives on all campuses and learning centres to promote the Moodle project and facilitate training and course development workshops face-to-face.

Policies: Institutional policies and procedures to adapt to new technology

The Vice Chancellor and the Academic Board have approved all decisions from the initial proposal to move to one centrally supported LMS, which demonstrated a unified institutional support. Policies about training and standards of courseware were also approved at this level, including the introduction of Minimum Service Standards for course delivery (see Appendix 1). Another policy pertaining to the new LMS adoption is that all academic staff must attend the four-hour introductory training, while attendance to additional course development workshops is actively encouraged.

Learning: Refers to the need of the technology to enhance the educational goals of the university

The explicit linkage of the new LMS implementation to the Learning and Teaching Management Plan meant staff had a point of reference for the intended quality of their course for the transition to Moodle. The Minimum Service Standards, with its foundation on the Seven Principles for Good Practice (Chickering & Gamson, 1987) is used for course design planning, and a starting point for integrating learning and teaching strategies that could influence students study habits and learning. It is designed to provide the pedagogical basis for developing online learning environments and to encourage academic staff to look beyond existing practices and consider the useful features of the new LMS.

Evaluation: Ongoing as well as summative evaluation of technologies, including the impact on learning goals

During Week 6 of the pilot term, an evaluation of staff and student is to be carried out to determine modification requirements in readiness for the full implementation. The survey includes technical questions on performance, design, usability, and interaction. In addition to this major evaluation, ongoing evaluations are also carried out after each training session to see how effective the Project Team members are in engaging staff, and assessing the relevance of the training and development program. Evaluation is certainly an essential element for understanding the impact of technological innovations as part of the learning and teaching renewal initiative at CQUniversity. However, sustained evaluation to measure the impact on learning goals over time remains a challenge, until such time as a systemic approach to evaluation is in place, with all levels of management alongside academic staff understanding and supporting the evaluation process. In this regard the Policy element requires further exploration to highlight the critical influence of evaluation in improving educational practice. In the meantime ongoing evaluation of alternative technologies is being carried out to improve overall usability of the LMS, e.g. another project is being run in parallel to test and develop academic support systems such as assignment tracking and plagiarism detection in response to the growing institutional needs.

Support: The need to have a support system to ensure successful adoption and diffusion of technologies

Four components of support were put in place, namely technical support, pedagogical support, administrative leadership and senior management sponsorship. The Information Technology Division was put in charge of project management and technical support. The Division had established good project management practices and experience in enterprise wide implementations. Pedagogical support was available through the established Curriculum Design Unit. The staffing in this unit was increased to cover existing workload as well as the training and design work necessary for the project. A Pro Vice Chancellor was appointed as Chair of the project to provide leadership across the University and ensure that unified support is in place. The integration of this support is seen as a key to success, as academic and pedagogical aspects of the project relate to the core business of the organisation.

LMS implementation is a complex process where gaps emerge on a continual basis. However, such gaps can influence the strategic directions for the project. For example as the University is experiencing static revenues, resources are therefore limited. Hence the Project Team began pursuing the possibility of realigning the part of the normal course redevelopment cycle into the Moodle pilot, thus mitigating the full resource impact of the project. Engaging the academic staff in the training and timing the support to fit with when the individuals do their course development has required significant planning and flexibility - this approach proved conducive to establishing trust amongst stakeholders. Moreover members of the implementation team have visited (or are visiting) every School to ensure that all members of academic staff are well informed of the process and have an opportunity for input into the implementation. As Estminger and Surry conclude:

> The emphasis being placed on change and innovation requires that those responsible for implementing new technologies, processes and programs not only select quality innovations but also consider the environmental and human factors associated with implementation (2008, p. 624).

Weller, Pegler and Mason (2005) indeed note that one of the strongest factors influencing the subsequent uptake of technology is the implementation of technology in a positive learning environment. This has become an important goal in the current LMS deployment at CQUniversity, as it continues to reflect on the limitations of past approaches for promoting the uptake of instructional technology in a cohesive manner. With the deployment of earlier LMSs, the focus on technology infrastructure transcended other equally important factors. The University for example did not provide a systematic supported introduction of the systems to staff or students, education and training was *ad hoc*, and innovation tended to be in isolation rather than a shared journey where learning from others' experiences could be maximised. For the most part, it was more staff showing an interest and thereby learning how to use the system and then expecting students to have the skills to use the system. However, with the introduction of Moodle to replace the two existing LMS, the focus has shifted on empowering people and establishing support mechanisms for achieving desired outcomes. The People element has emerged as the most important variable and has had a significant impact on strategies and decisions made across other factors considered, particularly in relation to Support, Resources, Learning and Infrastructure (see Figure 1).

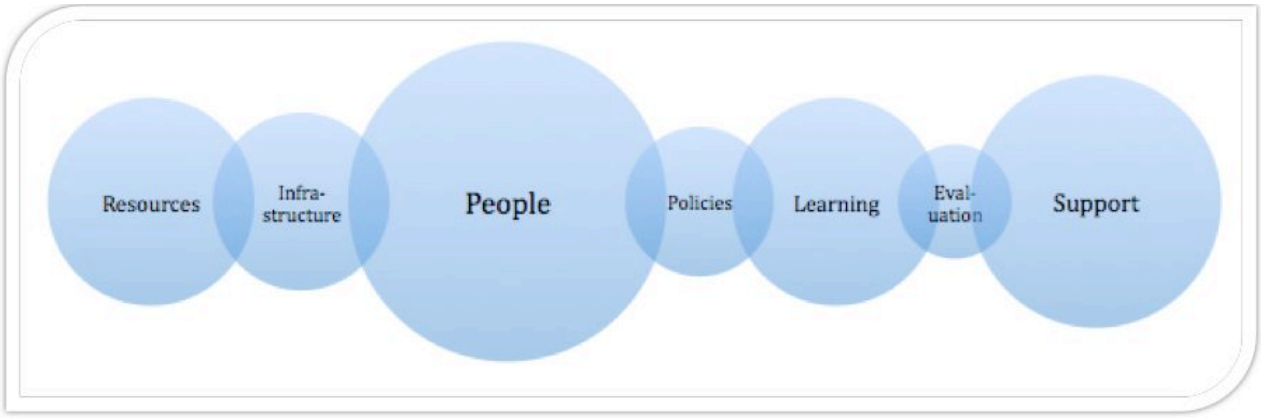

Figure 1: Factors considered for the new LMS implementation

The existing Learning and Teaching Management Plan has provided a basis for addressing these factors. Critically, the Plan underpins the redevelopment quality required, in such a way that staff could identify the linkage of the Moodle project and the Plan. However, it is likely that taking account of the fiscal climate and more practical factors that can either support or inhibit innovation in learning and teaching can be an ongoing challenge for the full implementation as well as post hoc. For example, the willingness of academic staff to devote time to develop new skills, or the University's willingness to provide paid time for users to learn new skills or procedures in order to use the innovation (see Ely, 1999). This is particularly challenging in that, in the current climate most academic staff are time poor, but time is critical in order to develop familiarity and confidence with the innovation. As Coates, James and Baldwin suggest, "teachers need to become adept at new forms of communication and online dynamics… Such change might require substantial restructuring of established routines and procedures" (2005, p. 30). This brings to the fore the question of how the institution might sustain the renewal of academic practice, as explored below.

Towards a sustainable renewal of academic practice

Koehler and Mishra (2005) suggest that the approach referred to as 'learning technology by design' can help academic staff respond in a sustainable manner to the pedagogical possibilities that new technologies have to offer. Learning technology by design provides academic staff with opportunities to encounter the connections between technology, content and pedagogy, and has been shown to lead to meaningful learning (Mishra & Koehler, 2006). Academics learn by doing in a collaborative and supportive environment, often tied to their attempts to solve genuine educational problems. The learning technology by design approach puts academics in a more active role as designers of technology as opposed to the role of passive consumers of technology (Koehler & Mishra, 2005), inherent in most standard *how to use the technology* workshops.

The learning technology by design framework is currently being used for bringing academics along towards sustainable renewal of academic practice, and forms part of the institutional repositioning of learning and teaching. To prepare for the Moodle implementation, academics are shown the capabilities of the system and go through different stages of reflection during course design planning. Using the seven principles for good practice (Chickering & Gamson, 1987) as the lens to explore pedagogical possibilities in Moodle, academics, as course designers, work with curriculum designers and information technology staff in discovering different features of Moodle to address key pedagogical requirements for course delivery as espoused in the Minimum Service Standards (see Appendix 1). Elements in the minimum Service Standards provide a starting point for course design planning, aided by exemplar courses developed by Moodle Mentors. The exemplar courses not only exhibit the Moodle elements used to meet the minimum design expectations, but the exemplars also demonstrate possibilities for integrating good pedagogical practice into the design. There were no pre-defined templates provided during the pilot, but in response to requests from academic staff, a common course shell was introduced containing commonly used blocks such as Latest News, People and activities block. However, unlike the previous practice of prescribing the look and feel of the course site, academics as course designers shape the design of the course site and its content, often evolving from the initial requirements in the Minimum Service Standards.

There are tendencies during group discussions in early parts of the workshop to treat technology, content and pedagogy as relatively independent areas of knowledge. However as academics go through the actual course design and development process, the possibilities to recognise the complex and intertwined relationships between technology, content and pedagogy are increased (see Koehler & Mishra, 2005). Interestingly, many academics have chosen to go beyond the minimum requirements for course delivery as they begin to appreciate the liberating aspects of the new LMS that have previously inhibited innovation in other systems. What is apparent in some cases is that the seven principles through the Minimum Service Standards provided a framework and a label for what good teachers have always done, i.e. setting the environment for students to encourage active learning and providing a means to connect with each other, among other important aspects of the pedagogy of engagement (see Krause, 2005). What is also apparent is that while some academics appear risk-averse they are still willing to adopt the technology particularly if they perceived benefits for students, as Birch and Burnett have also observed (2009). The courses developed in Moodle thus far provide evidence that when academics directly assume the role of designer, actively engaging in the development of their courses, they have a greater appreciation for the technology and its connection with the content and pedagogical practices. Using the learning technology by design approach, a sense of ownership is also noticeable.

Conclusions, recommendations and future research

It is duly acknowledged that LMS provide a means to create order in teaching and learning practice, a way of packaging pedagogical activities, and has the capacity to control and regulate teaching (Coates, James & Baldwin, 2005). Some commentators like Wise and Quealy view these factors as a concern due to the "inherent conflict between order and creativity, between the checklist-based quality of observable outputs ("content") and the qualitative evaluation of teaching and learning quality, and between autonomy and independence" (2006, pp. 904-905). However, in the unique context of CQUniversity, these perceived limitations of the LMS design have, to some extent, provided a bridge for mitigating the otherwise challenging delivery of courses. In many respects, LMS have influenced and guided teaching at CQUniversity through their very design, which can be liberating for teams of teaching staff operating in geographically dispersed campuses and learning centres where programs and courses are predominantly administered and coordinated centrally from one main campus. Liberating in the sense that the system has the capacity to offer possibilities for addressing issues of flexible access and convenience inherent in blended learning, for allowing incremental changes to the pedagogy without having to drastically change the way teaching and learning occurs, or for facilitating a radical transformation through learning designs

that can enable dynamic web-based interactions (see Graham, 2004). Indeed there has never been a closer alignment between affordances of the new technologies and what is put forward as good practice, such as those espoused in the seven principles for good practice (Chickering & Gamson, 1987). As commentators assert, the Web can provide possibilities of social contact for learners than the former stand-alone systems, and electronic devices that preceded them (Candy, 2004; Chickering & Ehrmann, 1996). Empowering the people within and providing appropriate support mechanisms are some of the factors that emerged in the current project as critical for facilitating effective technology adoption and diffusion.

This paper has argued that aligning institutional resources and infrastructure to support the needs at different parts of the organisation can provide an avenue for developing a collaborative learning environment for the academic community involved in technology implementation. Championing the adoption and diffusion of educational technology from the Vice Chancellor's Executive ensured a concerted and unified approach in this process, along with the establishment of committees and forums to enable active engagement of staff across the university. The factors considered based on the RIPPLES model have been critical in the transition process, and highlighted some strengths, weaknesses and opportunities pertaining to the strategies in place to support the renewal of academic practice. In response to the strategic goal of the university to reposition learning and teaching at the core of its business, the new LMS implementation has triggered an incentive for scoping academic practices into a coherent framework.

The project has a life until the end of 2010, however formal structures are already being evaluated to ensure that different components of support initially set up for the project become mainstream and systemic. An action plan has been formulated below to continue the renewal journey, which forms part of the recommendations to the University:

1. Provide updated institutional visions and policies concerning a coherent learning and teaching framework for CQUniversity.
2. Articulate procedures and processes for strategic planning pertaining to the design of physical and online learning environments.
3. Provide ongoing integrated institutional support for learning and teaching, involving all levels of management.
4. Facilitate ongoing collaboration between academic faculties, curriculum design team and information technology staff to enable the effective integration of educational technologies to pedagogy.
5. Examine the impact of the learning technology by design framework to aid in understanding effective teaching with technology.
6. Continue cultivating a community of practice through the Mentor Program initially set up for the project.
7. Develop a space to showcase exemplar courses and use as a point of reference for course design and development.
8. Build and maintain a library of re-usable learning objects to aid in course design and development.
9. Put in place strategies, such as rewards and recognition, for supporting academic staff to innovate beyond the Minimum Service Standards for course delivery.
10. Strengthen evaluation practices and policies and put in place a sustainable evaluation strategy for measuring the impact of technology integration on learning goals over time.
11. Foster research and scholarship in learning and teaching through collaborative partnerships and affiliation with Learning and Teaching Research Centre.

Implementing a new LMS while academics are engaged in usual teaching activities present challenges and difficulties. Academics are traditionally time poor and yet successful renewal of academic practice requires time to reflect and enact strategies for improvements.

It is worth noting that the differences in the way academics are engaging in course design and development and their different perceptions about innovations in learning and teaching have set a healthy agenda for investigation. Also of particular interest for the project is exploring the impact of the learning technology by design approach, and how this could be harnessed to facilitate a more sustainable approach for renewing academic practice. In this regard, an action research journey is underway, based on the suggestion made by Carr & Kemmis (1986) to involve "those responsible for the practice in each of the moments of the activity, widening participation in the project gradually to include others affected by the practice, and maintaining collaborative control of the process (p. 166). Action research has become an accepted approach to both developing and improving educational practice and to research in education (Kember & Kelly, 1993). Both student and academic staff perceptions of their experiences form part of this study.

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Appendix 1: Minimum service standards for course delivery

	Seven Principles of Good Practice	Practice Standards	Service Expectations
MINIMUM STANDARDS	1. Encourages contact between students and staff 2. Develops reciprocity and cooperation among students 3. Encourages active learning 4. Gives prompt feedback 5. Emphasises time on task 6. Communicates high expectation 7. Respects diverse talents and ways of learning	The course profile contains: • contact details for course coordinator (1) • information on how to contact campus-based teaching staff (1) • clearly stated expected learning outcomes (6) • timelines for topics of study (5) • critical dates, e.g. standard and deferred exam periods, assessment deadlines (5) • clearly stated assessment and examination requirements (6, 5) • regulatory and other administrative requirements, e.g. link to assessment policy, plagiarism, etc. (6) The learning management system (LMS) is used to provide: • course wide announcements for ongoing guidance (6, 4, 1, 5, 3) • a space for *spontaneous* student interactions (2, 7, 3) • links to learning resources such as lecture notes/presentation slides, video/audio lectures, revision materials, and other relevant course documents (7, 3) • additional information about the assignment, e.g. guide to referencing (6, 3) • examination guidance information, if the course has a final examination (6, 3) • points of contact for student enquiries, e.g. learning support needs, technical difficulties, assignment clarification, etc. (1, 3)	1. Access to Course Profile is provided *two weeks before the start of term.* 2. A welcome message is sent to all students *two weeks before the start of term*, which includes: • information on how to access the course profile • points of contact and primary means of communication • frequency of contact and availability 3. Access to the LMS is provided *two weeks before the start of term*. 4. Guidelines are posted on the *LMS two weeks before the start of term*, which explain: • how the LMS will be used throughout the term • the purpose of the discussion forum • the role of the course coordinator and other teaching staff • the response time to student posts/emails, expected to be *within 1 working day* • how to obtain support

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