Using the e-learning Maturity Model to Identify Good Practice in E-Learning

Stephen Marshall
Centre for Academic Development
Victoria University of Wellington

E-learning is a complex endeavor which presents significant challenges as the scale and complexity of different technologies and pedagogical models grows. The e-learning Maturity Model is a quality framework aimed at helping educational institutions engage with this complexity both by understanding the state of their current organizational e-learning capability, but also by providing tools aimed at systematically improving that capability. The eMM framework includes an extensive body of information drawn from the literature but is also intended to help identify useful examples from different institutions so these can inform other organization seeking ideas for their own situation. This paper describes a number of such examples of good practice identified as part of an ongoing project applying the eMM to Australian universities, and signals the potential outcomes possible from a more complete sample in the future.

Keywords: e-learning maturity model, eMM, quality

Introduction

Recent interest in large-scale e-learning sparked by the Massive Open Online Course (MOOC) model being adopted by a number of prominent international universities (Cormier, 2012; Daniel, 2012) has highlighted the complex nature of the strategic and educational choices facing all universities. In part the challenge arises from the competing nature of the forces shaping higher education, which can be imagined as a series of scales or axes in a multidimensional space. These forces act on the organization, applying stresses that can sustain collective action or weaken it. A possible set for higher education could include (Sporn, 1999; Shattock, 2003):

- Demographic and political changes driving the scale of higher education, including increasing globalization in all forms of commerce, specifically in this case education;
- Financial challenges and constraints both in terms of access to resources but also the diversity of the sources of revenue; for organizations and also for individuals;
- The importance of qualifications and the role that they play in shaping the nature of the university;
- Internal and external stakeholder influences. Many, varied and often in conflict with each other;
- Technological innovation/integration. The challenge of understanding the contribution that new technologies can make and realizing those opportunities in a complex organization;
- The Open agenda (Wiley & Nelson, 1998; Stallman, 2002), with changing models of information use and ownership reflecting the low cost of duplicating digital goods and a reaction against commercial intellectual property and ownership behaviors.

In the face of these challenges, the maintenance of an effective technology infrastructure remains a key strategic focus for university leaders, but it is less clear that they are seeing a positive response from many academics (Allen & Seaman, 2013; McCarthy & Samors, 2009). Some years ago, Taylor (2001) observed that the challenge facing universities innovating with technology is the execution of the change. The qualities of organizational engagement with technology discriminate between organizations reacting to their environment

and those that are leading and shaping it (Carr, 2003; Hamel & Välikangas, 2003; Hagel, Brown & Davison, 2008).

Quality in higher education is, however, a complex area with a highly politicized mix of approaches and measures used to assess different aspects of institutional work. Many of the quality measures used in commercial contexts have proved problematic when applied to higher education (Koch, 2003; Quinn, Lemay, Larsen & Johnson, 2009) and quality is more often than not defined by assurance and accreditation activities, which have questionable value (Chalmers 2007; Gibbs 2010; Hénard 2010; Law, 2010).

The e-learning Maturity Model (eMM, Marshall, 2006a; 2006b) is a quality improvement framework designed to support educational institutions interested in improving their organizational capability to use technology in learning and teaching in a complex and changing environment. The measurement framework included in the eMM can be used for benchmarking purposes but the intention for doing so is not to rank institutions or identify 'winners' or 'losers' but rather to support collaboration by institutions. This collaboration takes two main forms, it can be through joint benchmarking projects using the eMM to identify common areas needing improvement, and it can be through institutions sharing examples of their e-learning activities that can help other institutions explore different alternative systems and processes with the goal of improving the experience of staff and students and supporting the achievement of the wider organizational goals and objectives. This idea of collaboration underlies a pilot study expanding on an earlier project (Marshall, 2009), which is progressively applying the eMM to a sample of Australian universities (ideally ultimately a census rather than just a sample).

The culture of political and financial accountability and quality assurance has had the consequence of making institutional leaders cautious in their use of such information, and even reluctant to be identified more than as required by sector agencies. Tools such as the eMM provide an opportunity for exploring ideas of quality with a focus on improvement, and an opportunity to move away from at least some aspects of the 'league table' mentality. The eMM summaries of organisational capability are just that, summaries. The use of colour and the matrix of results (such as in Figure 1 below) resist attempts to create simplistic, ranked, lists and instead encourage a recognition of the rich complexity that influences the quality of e-learning in large institutions. Behind the visualization there is a rich data set of educational and organizational activities that embody specific aspects of quality and which can provide models for guiding improvement in other institutions. Unlike the summaries, these examples of good practice cannot be used for performance measurements and accountability by external agencies and so we can (with their permission) provide details of these good practices in their full institutional context.

This paper describes progress to date in the project, identifying good practices and challenges that are already evident, and signals the potential outcomes possible from a more complete sample in the future.

Methodology

The project commenced with a eMM assessment of each participating institution. The eMM capability assessments were done with the eMM version 2.3 practices and processes outlined in Marshall (2006b). A brief summary of the assessment process is provided here, more extensive detail of the application of the eMM is available in the literature (Marshall, 2006a, 2006b, 2009, 2010, 2012a). The eMM assessments conducted to date provide each individual institution with detailed information on their e-learning capability. They also provide the opportunity to identify examples of good practice as well as opportunities for improvement that are common to all institutions.

In undertaking this analysis a few caveats should be noted. Firstly, the ethics approval conditions applying to this research mean that which assessment relates to which institution must be kept confidential. The institutions identified in this paper have consented to being identified as participants, but care has been taken to ensure that it is not possible to associate a given assessment with a specific institution. The good practice examples given below should not be seen as directly indicating capability in the eMM as they constitute only part of the evidence used to make assessments. A common experience when conducting eMM assessments is to see examples of good practice in specific units, but to not see that recognized and adopted more widely in the institution. Finally, the sample of universities assessed cannot be described as fully representative of the diversity and range of practice internationally. Consequently, the examples given below may be good practice but cannot be described as best practice (whether or not 'best practice' can ever be meaningfully identified is another question entirely). The eMM project aspires to collect a more complete sample of Australian universities but this is dependent on institutional willingness to participate and the time needed to complete the assessments.

Ethics approval to undertake this research was obtained from the Victoria University of Wellington Human Ethics Committee (Approvals #19035/2011, #17271/2010 and #73/2004) and also from each participating institution.

Results

Overview of the eMM assessments

A total of eight Australian university assessments have been completed over the last year. The assessments are summarized in Figure 1, with the results from the eight new assessments compared to a selection of other international universities provided as reference points (Marshall, 2012a; 2012b).

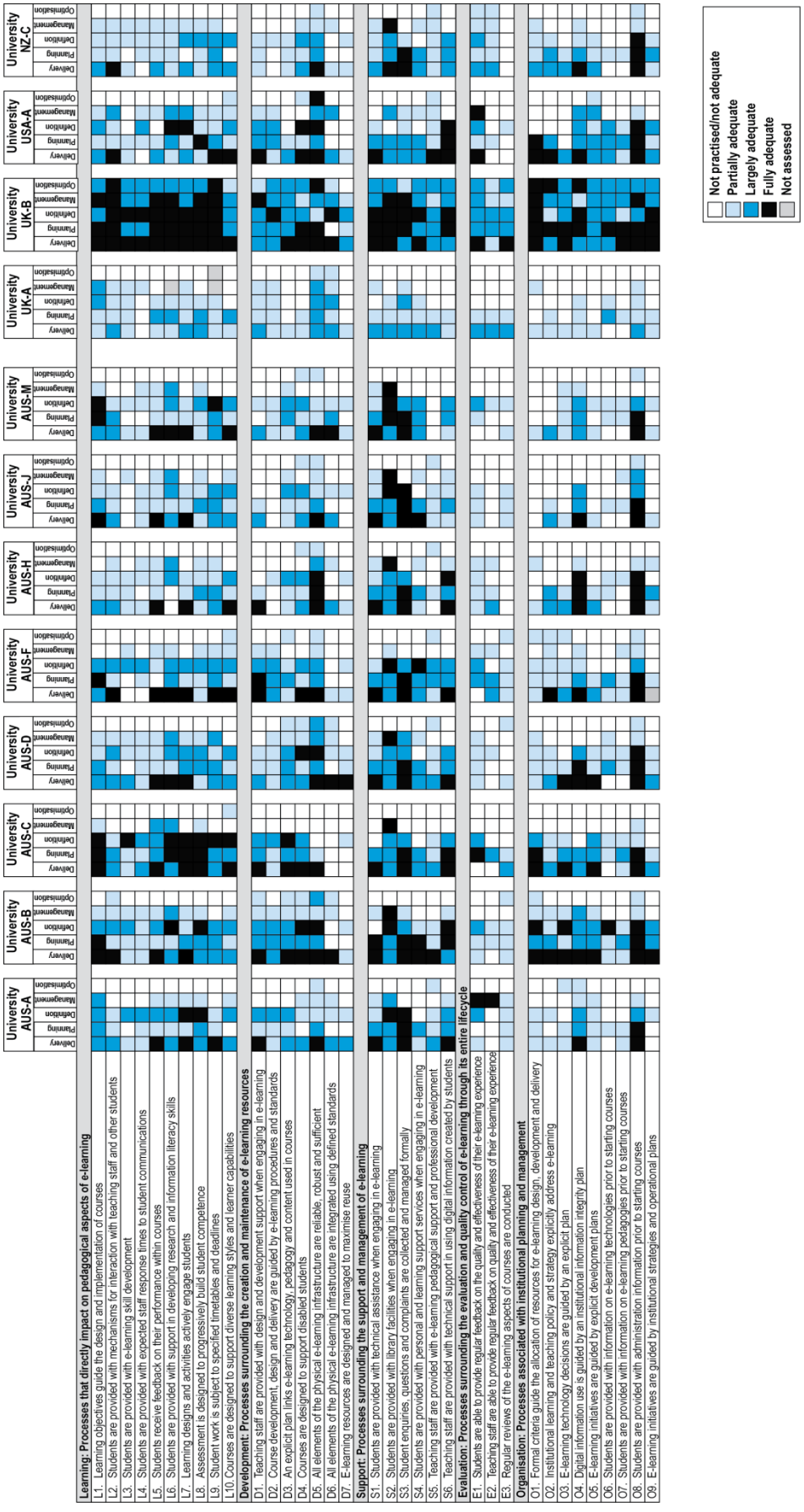

Figure 1: Australian university eMM assessments (sample of other universities provided as context)

Looking at the results in Figure 1, some general observations can be made. The capabilities assessed for the Australian universities generally sit in the mid-range with no university as weak as University UK-A but none as capable as UK-B (a specialist distance provider widely regarded as among the best in the world at online education). Universities AUS-B and AUS-C demonstrate the strongest overall capability, with strong (dark) assessments for the Delivery, Planning and Definition dimensions of most processes. However, even these institutions share weaknesses with most of the other institutions. All of the institutions assessed are weak in the Management dimension and also in the Evaluation process area. This reflects the somewhat surprising lack of systems analyzing the impact of technology on student learning and staff teaching activities. This lack is surprising as there is a strong focus on performance reporting and management systems apparent in the Australian institutions but these are not directed at improving the outcomes measured by the eMM.

Other shared weaknesses include process D7 "E-learning resources are designed and managed to maximise reuse" where most universities were found to have minimal engagement with reuse, process L3 "Students are provided with e-learning skill development" characterized by a focus on technical support rather than pedagogical; and processes O6 and O7, reflecting the lack of information for students helping them prepare for the use of technology in their studies.

These weaknesses are not limited to the Australian universities whose assessments are reported here (Marshall, 2011). They appear to reflect common challenges faced by many educational institutions, not just universities (Neal & Marshall, 2008; Sero, 2007). One of the goals of the eMM is to identify possible ideas for addressing these and other weaknesses, exemplars of organizational activities that can be used to guide improvements more widely. The summary assessments in Figure 1 represent the overview of judgments made against nearly 900 practice statements referencing a substantial evidence base of individual courses, institutional documentation and interviews. While this visualization helps institutions focus onto priority areas for improvement, this overview also obscures the outliers that demonstrate plausible and successful ways of improving aspects of e-learning, many of which are so specific or operational in scope as to never warrant substantial investigation and empirical analysis by scholars. In the next section a number of such exemplars identified in the current project are explored in the hope that these will stimulate wider uptake of such ideas even in the absence of substantive evidence bases justifying each small improvement.

Seeking examples of good practice

This section presents several examples of good practice highlighted during this project. In describing these as 'good' it should be clear that this judgment is on the basis of the practices identified in the eMM rather than as a result of an exhaustive and empirical measurement of excellence. These should be seen as ideas to stimulate engagement and improvement, heuristics rather than standards. An ongoing problem in the field is demonstrating that capability measured by a variety of tools, including the eMM, reflects a real and consequential aspect of an organization's ability to be successful. It may only be possible ever to demonstrate that the process of engagement with quality improvement tools is in itself helpful to those attempting to stimulate and sustain positive organizational change.

Learning objective *What you should be able to do*	**Learning opportunities** *What you can do to achieve the objective*	**Assessment** *How it is assessed*
1 Critically assess current and historical claims about language curriculum development in context and indicate types of evidence to support the claims.	• Read relevant published material and course notes about formulating research questions. • Read relevant published material and course notes on trends in language teaching. • Become practised at identifying claims in paragraphs from articles and establish whether they are empirical or evaluative in nature. • Relate your own experience to various trends in language teaching. • Explore ways of establishing evidence for the claims. • Clarify information by: making verbal or diagrammatic summaries, raising questions in class or on Blackboard • Seek feedback from peers and tutors on your understanding.	This is a general objective and will be assessed in Tasks 1 and 2
2 Justify a set of learning goals and linked learning opportunities for specific learners.	• Read relevant published material and course notes about needs analysis, motivation, and goal theory. • Practise describing the learning needs of individual learners and how goals might capture these needs. • Practise analysis of goals including their specificity, relevance and measurement.	Task 2

Figure 2: Example of a student oriented learning objective mapping

All of the universities assessed by the eMM make use of learning objectives, with all providing some form of standardized statement listing objectives in the unit documents supplied to students, and this is clearly apparent in the capability assessed for process L1 "Learning objectives guide the design and implementation of courses" in Figure 1. Australian universities in particular have clearly adopted constructive alignment as a general approach to individual unit and course design. In some cases this has resulted in extremely elaborate mapping tables which, while useful to staff orienting themselves to teaching or revising a unit or course, are of more questionable value to students. These statements of learning objectives are commonly mapped against the assessment programme of a unit, however in all but a few cases the value of these mappings are unclear. Many examples of units mapping all objectives to all activities were observed, far less common were examples of units conveying the information in a manner that enabled a pro-active response by students (e.g. Figure 2).

At Queensland University of Technology (QUT) the Unit Outlines are available to students prior to enrolment and in addition to the standard sections listing learning objectives and assessment, they have a section titled Approaches to Learning and Teaching that explains the design of the course and the way that various activities will contribute to student learning:

Approaches to Teaching and Learning
Classes are 3 hours each week. The 3 hour class will be used for a lecture which introduces new material, and a workshop on the previous week's work. For all lectures a lecture outline is available on the [course] Blackboard site and should be downloaded prior to the lecture. You will get the most out of the lectures if you bring the Lecture Outline with you. Homework questions are included in each lecture outline. Students are strongly encouraged to keep up with the work by completing all of these questions in the allotted week.

This unit will encourage you to conceptually link the theoretical aspects with the practical aspects and thus you will be able to apply your knowledge to a wide variety of [subject] situations. Lectures will provide an introduction to the theoretical concepts, and will use practical examples to illustrate techniques and processes. Your learning will be supported by more in-depth homework questions which are designed to further develop your understanding of the material covered. Solutions for all homework questions will be provided on the [course] Blackboard site each week. Full lecture notes will be provided on the [course] Blackboard site at the end of each week.

Homework Questions: The basic understanding provided in lectures will be developed through the use of practice questions. To achieve the objectives of the unit it is essential that you complete the practice questions each week so that you can develop a sound understanding of the content of the unit.

Workshop Questions: The workshop questions are designed to further reinforce the work covered in the lecture, to show how various issues in the lecture material fit together, and to give students the opportunity to see how problems are worked, and discuss why something is done a certain way.

This information makes no presumption about the experience of the student and helps them understand how the different parts of the course are designed to work together in the student's interest. Technology used in the course is also clearly apparent, if sometimes somewhat passively integrated. Courses which take advantage of other tools and facilities such as discussion fora, virtual classrooms, wikis, etc. can use this section to highlight these to students. QUT also has a clear focus on the role that formative feedback plays in student learning with all unit outlines including a section on assessment that covers the feedback student can expect:

Assessment
You will receive multiple sources of feedback, including:
• immediate feedback on basic knowledge and application via computer generated responses to selected quiz questions;
• self-reflection on learnings from quizzes;
• ongoing oral feedback from peers as well as teachers on problem-solving;
• written feedback on problem solving tasks and strategies to assist and improve your learning; and
• broader feedback from teachers, peers and industry representatives.

This type of information helps reinforce the idea that students are expected to learn actively, to take the opportunities and experiences of a course and use these to learn, rather than passively accept a body of knowledge. An institution implementing systems equivalent to these three examples will be well positioned to communicate new pedagogies to students and will plausibly help students from a variety of backgrounds engage

effectively with the courses. As tertiary education continues to expand to meet the needs of students with an increasingly diverse range of backgrounds and levels of preparedness such systems will become essential.

Throughout the assessments of the Australian institutions it is apparent that scaling the support of staff using technology in their teaching is a significant challenge, particularly with regard to the pedagogical aspects. All of the universities were assessed strongly in the Delivery dimension of process D1 "Teaching staff are provided with design and development support when engaging in e-learning" reflecting the provision of technical support and development resources. However fewer were assessed strongly in process S5 "Teaching staff are provided with pedagogical support and professional development in using e-learning", with the majority of the available support being framed around the use of standard LMS facilities without any redesign of the course activities and assessment to take advantage of e-learning technologies. Those institutions which have developed strategies and plans for wider adoption of technology in their courses invariably acknowledge that full service support models for academics cannot scale, due to the cost, but also because of the lack of available skilled support staff and the inflexibility such as large-scale service would create.

A much more attractive support model identified in several eMM assessments is that of enabling academic staff to work collaboratively within their school, department or programme to engage in e-learning (re)design and development projects. Under such a model, support activities become more about facilitation and advice than hands-on involvement. Despite the recognition of the value of this model, however, few institutions had created resources that facilitated independent action by their academic staff.

One exception was Griffith University, who in addition to a wide variety of other support materials and assistance from pedagogical and technical staff, have also produced a useful handbook "Getting Started With Blended Learning" (Bath & Bourke, 2010). This document is designed to assist staff working through a complete e-learning project. It starts with a clear discussion of the idea of blended learning and the associated terms that often confuse academics new to the area, as well as a clear description of the support provided by the institution. The bulk of the document guides academics through a clear project process (planning, designing, developing, implementing, reviewing and improving), with a strong emphasis on the need to have clear learning goals aligned at both programme and course levels. A series of detailed questions are asked stimulating the academics to consider the relationship of the course being changed with wider programme and institutional goals, the characteristics and needs of their students, and the specific goals of the course and academic staff.

Moving onto technologies, the Griffith handbook focuses on the pedagogical aspects rather than the technical. Examples are provided of the ways specific technologies support particular student learning outcomes and a number of major technology types (such as wikis, lecture capture, and virtual classrooms) are described in sections with information helping academics understand the opportunities but also the challenges or limitations of each technology. Each technology section is filled with advice and also links to more detailed resources. The focus is very much on understanding the pedagogical and practical affordances of the technology, helping the academic to choose which options will best suit their particular circumstance. Similarly, the La Trobe University Flexible and Online Learning Development (FOLD) Exemplars (http://www.latrobe.edu.au/teaching/flexible-and-online-learning/exemplars) illustrate how universities can provide staff with guidance based on the experience of their colleagues with a detailed educational context, rather than technically oriented service catalogues that simply enumerate products. These case studies are invaluable but experience of such initiatives over several years suggests that they are hard to maintain unless some mechanism associated with e-learning support and development is actively soliciting and updating the resources. There is also the issue that many case studies of this type are light on empirical evidence of impact, limited their ability to promote organizational changes in e-learning.

Change is a challenging aspect of e-learning. New technologies present particular challenges to the IT groups charged with ensuring that the IT infrastructure is sufficient, reliable and robust, while also able to be responsive and supportive of educational innovation. RMIT's "Business and ICT Maxims" (Schalken, 2012) demonstrate one useful approach to this challenge. The Maxims "are statements of preferred direction or practice. They reflect a level of consensus among the various organizations within an enterprise, such as business units, ICT, and support groups" (Schalken, 2012, p. 4). By stating the principles that guide IT decision making clearly, they help non-specialists understand the issues that underlie existing and new policies. Consequently, staff intending to engage with new technologies are able to understand the wider concerns that frame their ability to deploy systems and tools within the organizational context.

Also helpful is the use of documents that outline the future plans of the university for the deployment, maintenance, and ultimately retirement of technologies. Realistically, few universities have the resources to

purchase every available product and integrate it into the existing infrastructure. Often the process of selection and deployment can take months or years, and a 'roadmap' with an integrated lifecycle provides a useful means of communicating the university's intentions. Figure 3 illustrates examples of such roadmaps in summary form as used at RMIT University. This roadmap is complemented with more detailed information on the identified technologies, the strategic and operational value they play, and the mechanism for moving technologies through the lifecycle. This type of diagram is an important organizational communication tool, particularly given the normal structural complexities of universities, which often see e-learning activities supported by four or five different service groups in addition to the academics themselves. Coordination of investment and plans is a significant ongoing challenge in this space for all of the universities assessed to date. The other role that roadmaps and their supporting documents provide is in supporting the definition of a 'platform' of standard tools and services that the university expects all courses to have integrated into the learning and teaching process.

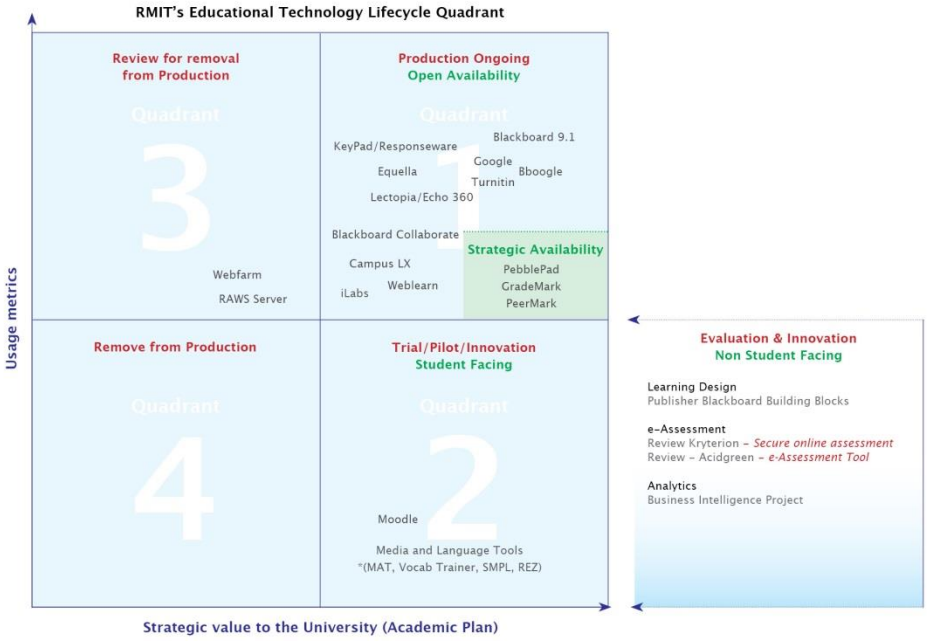

Figure 3: Example of an e-learning technology roadmap

Discussion

The focus of this paper has been on positive examples that can inform improvements in e-learning capability. The intention in so doing to is highlight the role that the eMM, and similar tools including the ACODE benchmarks (ACODE, 2008) and the New Zealand e-Learning Guidelines (Milne & Dimock, 2006) can play in improvement as opposed to the normal rhetoric of quality as a tool for coercion and ranking. Existing resources (http://www.cad.vuw.ac.nz/emmWiki/) provide access to a body of literature that supports the inclusion of specific elements in the different frameworks; the examples included in this paper are intended to support this material by showing specifically what can be done in reality rather than in theory.

Unfortunately, as well as helping identify useful ideas for other universities, the assessments summarized in Figure 1 clearly show much room for improvement. The examples identified here provide specific illustrations of how particular operational activities might be approached, and the deliberate decision has been made to identify the source institutions in order to encourage others to contact the relevant institutions and learn how similar changes can be made elsewhere.

Earlier studies (Marshall 2005; Sero, 2007; Neal & Marshall 2008; Marshall, 2011) have identified issues facing all institutions and generated the six pieces of advice aimed at improving capability (Table 1). The issues that stimulated this advice are also apparent in the new Australian assessments reported in this paper. In sharing some exemplars this paper is hopefully supporting improvements addressing the first and last item in Table 1.

Examining the other items in Table 1 in light of the current work, it is clear that articulating the strategic relevance of investment in e-learning remains an ongoing challenge for many universities. A number of

examples were seen of strategies that addressed the development and maintenance of a technical infrastructure, consistent with the intentions reported by Allen & Seaman (2013), but which have failed to integrate the capabilities and affordances of that infrastructure with the strategic objectives of the university. This lack of integration is apparent in documents similar to the roadmap shown in Figure 3, but where there is little evidence of such plans being aligned with measureable strategic goals and objectives for other university activities.

Table 1: Advice for improving capability (Marshall, 2011)

1.	Have a reason for why e-learning is part of the institutions purpose for existence and be able to express this in strategic and operational activities.
2.	Clearly identify the ways existing e-learning support is impacting upon the staff and student experience.
3.	Talk to the teaching and support staff and find out what prevents their making the best use of existing e-learning investments.
4.	Communicate to students the ways that technology will be used to improve their learning experience and help them prepare themselves to take best advantage of the opportunities provided.
5.	Formally assess staff skills in e-learning and target development resources strategically.
6.	Look for ways to reduce the barriers that discourage informal sharing of e-learning resources, starting with open licensing models.

The absence of measureable strategic goals for e-learning perhaps explains the overall weakness in the Management and Optimisation dimensions of the eMM assessments (Figure 1). Very few examples have been seen in the current study of universities engaging in detail with the impact that different technologies are having on the learning and teaching experiences of students and academics. This lack of rich and detailed information on the realities of e-learning may also explain why few institutions have created resources supporting the student's pedagogical experience of e-learning as opposed to their technical experiences, which are comparatively well served. As noted earlier, a similar situation is apparent for staff and complicates the wider uptake of e-learning.

Another weakness is the lack of capability in process D7 "E-learning resources are designed and managed to maximise reuse" noted earlier. Most institutions have systems in place that manage compliance with copyright licenses and use a content management system in their libraries to ensure that resources are used correctly and that reports of usage can be generated efficiently. Few of the universities assessed to date, however, have engaged with other aspects of reuse, including open licensing. Until recently, there was a clear sense that formalized reuse (Wiley, 2000), while having clear benefits in the abstract sense, was failing in reality to deliver on its promise. Newer models of learning using open licenses such as MOOCs (Cormier, 2012; Daniel, 2012) and the OER University (Attwood, 2011) have reawakened interest in the ways that educational materials can be used and reused to support student learning. The lack of engagement with reuse and licensing observed in the assessments, combined with the absence of clearly articulated strategies for e-learning, suggests that these new models are likely to generate more confusion than action (Marshall, 2013).

The last area of potential concern noted in the assessments so far relates to the ability of universities to manage the risks associated with increasing dependence on technology as a medium for education. Recent events in New Zealand such as the Christchurch earthquake (Stevenson, Kachali, Whitman, Seville, Vargo & Wilson, 2011) have illustrated the importance of robust systems capable of supporting ongoing learning and teaching in the face of unpredictable and substantial challenges (Marshall, 2012a). Particularly when support models are dependent on small numbers of specialist staff it is easy to become vulnerable to risks of losing key staff. The rate of change resulting from successful e-learning strategies can also potentially outpace the ability of key systems to sustain that success unless considerable attention is paid to business continuity and risk issues. These problems are likely to further exacerbated when organizational self-analysis and strategic activities are weak, such as has been noted in some of the current assessments.

The current sample of Australian universities, on which this analysis has been based, includes a range of diverse institutions. Using the typology of Marginson and Considine (2000) this sample has four 'gumtrees' and one each of the 'sandstone,' 'unitech' and 'new universities.' Until a more complete sample is obtained it is unclear to what extent the issues identified here are systematically a problem, although the parallels to assessments of international institutions suggest that they may well be. The eMM project is ongoing and the intention is to expand the sample of Australian universities as much as funding and willingness to participate allows.

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Author contact details:
Dr Stephen Marshall, Stephen.Marshall@vuw.ac.nz

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