

E-Learning Maturity Model Version Two
New Zealand Tertiary Institution E-Learning Capability:
Informing and Guiding E-Learning Architectural Change and Development

Project Report



E-Learning Maturity Model Version Two

New Zealand Tertiary Institution E-Learning Capability: Informing and Guiding E-Learning Architectural Change and Development Project Report

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Contents

Glossary	4
Intellectual Property Statement	4
Introduction.....	5
Acknowledgements	6
Ethics Approval.....	6
Literature Review	7
Project Background	7
Organisational Management of E-Learning.....	7
Process Capability Maturity.....	7
Methodology Changes from Version One of the eMM	8
Key eMM concepts.....	9
Processes	9
Dimensions of capability	10
Practices	12
Capability assessment criteria	13
Identifying Practices and Standards for Effective E-Learning	14
eMM Process and Practice Literature Review	16
Use of the Maturity Model Concept by E-Learning Researchers	16
Citations of the eMM Methodology and Research	18
International Workshops	20
ACODE Workshop Outcomes	20
ASCILITE Workshop Outcomes	22
Manchester Workshop Outcomes	23
Revision of the eMM Processes and Practices	26
Criteria for Inclusion	26
Changes to the eMM Resulting from the First Sector Assessment	26
Accreditation Criteria, Standards and Heuristics Mapping	27
Changes to the eMM Resulting From the Workshops.....	27
New, revised and reorganised processes	28
Assessing processes by dimensions, rather than levels.....	28
Reflecting international differences within the eMM methodology	28
International Comparison and Revision	28
Version Two of the eMM Process Set.....	29
Updated Sector Assessments	33
Learning: Processes that directly impact on pedagogical aspects of e-learning	37
Development: Processes surrounding the creation and maintenance of e-learning resources	47
Support: Processes surrounding the support and operational management of e-learning	54
Evaluation: Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle....	60
Organisation: Processes associated with institutional planning and management	63
Web-based Data Collection and Analysis System	72
System Design	72
Users.....	72
Platform.....	72
Data design	72
User Interface.....	73

Future Work	79
References	80
Appendix A: Data Collection Ethics Approval Documentation.....	85
Appendix B: Workshop Ethics Approval Documentation	88
Appendix C: Workshop evaluations	91
Appendix D: ACODE Workshop Practice Mapping	96
Appendix E: ASCILITE Workshop Practice Mapping	107
Appendix F: Manchester Workshop Practice Mapping	112

Glossary

ANTA	Australian National Training Authority
ADEC	American Distance Education Consortium
ADL	Advanced Distributed Learning
ALA	American Library Association
CanREG	Canadian Recommended E-learning Guidelines
Capability	Capability, in the context of this model, refers to the ability of an institution to ensure that e-learning design, development and deployment is meeting the needs of the students, staff and institution. As well, capability includes the ability of an institution to sustain e-learning support of teaching as demand grows and staff change
CMM	Capability Maturity Model
eMM	e-Learning Maturity Model
IHEP	The Institute for Higher Education Policy
LMS	Learning Management System
Practice	Activities undertaken by institutions, that contribute to capability in individual processes
Process	A high-level activity that has been found through research and evaluation of e-learning to positively contribute to institutional e-learning capability
Process area	A collection of individual processes that share related institutional capability outcomes
SCORM	Sharable Content Object Reference Model
SPICE	Software Process Improvement and Capability dEtermination
W3C	World Wide Web Consortium
WAI	W3C Web Accessibility Initiative
WCET	Western Cooperative for Educational Telecommunications
WWW	World Wide Web

Intellectual Property Statement

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Introduction

Institutions and individuals will always have the ability to choose to invest time and other discretionary resources in innovative, unique learning and teaching projects involving the use of technology. The goal of the e-learning Maturity Model (eMM) is to assist educational leaders in changing organisational conditions so that e-learning is delivered in a sustainable and high quality fashion to as many students as possible. As noted by Fullan:

“The answer to large-scale reform is not to try to emulate the characteristics of the minority who are getting somewhere *under present conditions* ... Rather, we must change existing conditions so that it is normal and possible for a majority of people to move forward” (Fullan, 2001, page 268)

The eMM takes the ideas of process capability maturity and uses them as a foundation for a form of benchmarking explicitly intended to improve the quality of e-learning for the benefit of students, staff and institutions. Software process maturity models have been found effective in supporting the transfer of good practice between projects (Herbsleb *et al.* 1994; Lawlis *et al.* 1995) and in answering the questions (SECAT 1998):

- Is the organisation successful at learning from past mistakes?
- Is it clear that the organisation is spending limited resources effectively?
- Does everyone agree which problems within the organisation are the highest priorities?
- Does the organisation have a clear picture of how it will improve its processes?

These are all extremely relevant questions for educational organisations to ask in the light of increasing use of technology and the consequent need for improved and evolved internal systems and procedures.

Since its initial conception (Marshall and Mitchell, 2002), the eMM has evolved with the support of colleagues in New Zealand and internationally and the financial assistance of the New Zealand Ministry of Education. This has allowed for an initial pilot assessment of capability across the New Zealand sector (Marshall, 2005) and the current work to create version two and make the eMM more usable by institutions and researchers conducting their own assessments.

The substantial revision to create version two of the eMM which is presented in this report and the associated documents has resulted in a substantially improved methodology and process set that should enable useful international comparison between New Zealand tertiary organisations and institutions based in many other countries. The international workshops and other collaborations being developed in Australia, the United Kingdom and the United States offer a significant opportunity for future improvements in both the quality of e-learning and our understanding of what drives that quality.

The sections that follow present the context within which the eMM is placed as well as the design and evolution of the methodology, process set and evidence base. A substantial reanalysis of the sector, expanded from the initial pilot is presented as the basis for future international comparison. The associated documents *eMM Version Two Process Guide* (Marshall, 2006a) and the *eMM Version Two Process Assessment Workbook* (Marshall, 2006b), both of which are available from the eMM project website <http://www.utdc.vuw.ac.nz/research/emm/>, complement this report with much of the detail of the current version. These documents, combined with the eMM web interface for collecting, analysing and displaying capability assessments mean that any institution can now assess their own capability and start the process of improving their own e-learning capability maturity.

Acknowledgements

A large body of research such as this is dependent on the support and assistance of a number of people. Most important are the staff of the various participating institutions who generously gave of their time in the completion of the capability assessments used to validate the eMM. While you cannot be named, your assistance was vital for the success of this project and is much appreciated; it is hoped that the outcomes of the analysis are of value to your institution.

The model owes much to the work of Dr Geoff Mitchell and his contribution and ongoing friendship remain key to the ongoing research. Also important was the contribution made by my research assistants, Charlotte Clements, Darren Hoshek and Warren Sellers. Creation of the web system was greatly assisted by programmer Bruce Hoult and CSS programmer Deb Shepherd.

The support of colleagues in New Zealand, Australia and the UK, including the ACODE member organisations and Professor Paul Bacsich, is greatly appreciated. Dr Jim Petch and colleagues at the University of Manchester provided invaluable assistance in reviewing the processes and practices and in generating the questions used to elicit evidence.

The support of the New Zealand Ministry of Education's Tertiary E-Learning Research Fund and staff in enabling this research is acknowledged with gratitude.

Ethics Approval

Full human ethics approval to conduct this research was obtained from the VUW Human Ethics Committee (Approval #73/2004).

Human ethics approval to undertake the workshops and to retain the results for ongoing use in the development of the eMM was obtained from the VUW Human Ethics Committee (Approval No 136/2005, June 9, 2006). Copies of the approval, consent and information documents are attached as Appendix B.

Workshop participants who did not consent were invited to use grey post-it notes when participating in the brainstorming activities so as to avoid inclusion of their information in subsequent analysis while still allowing for their full participation in the actual workshop.

Literature Review

Project Background

This project was founded (Marshall and Mitchell, 2002) on an attempt to develop tools for the management of e-learning which were informed by the success of process maturity approaches in software engineering (Paulk *et al.* 1993a; El Emam *et al.* 1998; SPICE 1995). This work has resulted in a model described as an “e-learning Maturity Model” or eMM (Marshall and Mitchell 2002; 2003; 2004; 2006) which combines the SPICE framework with a set of practices derived from the educational literature.

Application of this work in the New Zealand context has resulted in the evaluation of eleven tertiary organisations, nine from previous work (Marshall and Mitchell 2005; Marshall 2005) and an additional two included in this report.

Organisational Management of E-Learning

E-Learning has come to dominate the strategic thinking of both institutions and Governments over the past decade. This has been driven by the perception that increased use of technology will improve the quality and flexibility of learning (Bush 1945; Ryan *et al.* 2000; Bates 2001; Cuban 2001; DfES 2003; Oppenheimer 2003) combined with a changing focus on learners rather than teachers and institutions (Oblinger and Maruyama 1996; Buckley 2002; Laurillard 2002).

Despite this emphasis on e-learning, it is clear that models for successful deployment and ongoing success have not yet been identified (Phipps 1999; Ryan 2002; Zemsky and Massy 2004). Even with the large amounts of money being spent, it is not clear that any improvement in student learning outcomes has been identified (Conole *et al.* 2000; Taylor 2001; GAO 2003). The situation has been further complicated by the belief that e-learning was going to inevitably result in structural changes to the education sector (Katz 1999; Cunningham *et al.* 2000; Ryan 2002; Zemsky and Massy 2004) in line with other technology-induced panics (Cuban 2001; Oppenheimer 2003).

Part of the explanation of the lack of clear success in e-learning is likely to be the complexity of the problem of deploying the new approaches (Kenny 2001; Radloff 2001) as the projects usually involve multiple disciplines and different types of expertise (Inglis *et al.* 1999), mixed in an environment with significant tension between technology, pedagogy and organisational concerns (Reid 1999; Laurillard 2002).

The need to ensure that the organisational aspects of e-learning are supported as well as the pedagogical and technological is now being recognised (Ryan *et al.* 2000; Bates 2001) and this includes an understanding of the wider, systems, context within which e-learning is situated (Laurillard 1997; Ison 1999; Laurillard 1999; Peters 1999) and the need for leadership, strategic direction and collaboration within an organisation (Hanna 1998; Reid 1999). As well as the significant pedagogical challenges arising from the use of e-learning technologies, there is now an understanding of the need to consider resource utilization (Karelis 1999), sustainability (Strauss 2002; Young 2002), scalability and reusability (Bain 1999; IEEE 2002; Boyle 2003) and management concerns (Laurillard 1997; Reid 1999).

An obvious technique to determine how and where scarce resources should be used is benchmarking (Spendolini, 1992; Bacsich, 2005; eLRC, 2005). The diversity of institutions and disciplines combined with the rapid development of technology however makes identifying the key characteristics to benchmark against for successful e-learning a non-trivial task (Bacsich, 2005).

Process Capability Maturity

The eMM derives its underlying theoretical foundation from the insights learnt in the field of software engineering. Software engineers identified that ad-hoc processes were weakening the ability of software organisations to deliver effective and high quality software (Paulk *et al.* 1993a). This resulted in the development of the Capability Maturity Model or CMM (Paulk *et al.* 1993a; 1993b). This model provides both a roadmap for improvement of process capability and a means of benchmarking organisations for

both comparative and planning purposes. An important characteristic of the CMM is that it does not depend on the technical details of the process inputs and outputs, but rather focuses on the ability of the organisation and individuals to be effective (Humphrey 1994). This independence has seen the CMM extended to support human resource activities (Curtis *et al.* 2001).

The CMM has been found effective in supporting the transfer of good practice between projects (Herbsleb *et al.* 1994; Lawlis *et al.* 1995) and in answering the questions (SECAT 1998):

- Is the organisation successful at learning from past mistakes?
- Is it clear that the organisation is spending limited resources effectively?
- Does everyone agree which problems within the organisation are the highest priorities?
- Does the organisation have a clear picture of how it will improve its processes?

These are all extremely relevant questions for educational organisations to ask in the light of increasing use of technology and the consequent need for improved and evolved internal systems and procedures. Consideration of the CMM approach lead to the initial ideas behind the current research (Marshall and Mitchell 2002), however this has been superseded by later work (Marshall and Mitchell 2003; 2004) that builds on the related SPICE (Software Process Improvement and Capability Determination) framework (SPICE 1995).

The SPICE methodology differs from the CMM in that it models an institution as a matrix of capability with areas of strength or weakness rather than imposing a summary and uniform maturity level on the organisation. This means that large and diverse organisations are able to be explored in a way that acknowledges the complexity of their business and the reality that not all aspects of the systems and procedures will be similarly capable.

The SPICE methodology organises software development capability determination around five areas derived from research and validation trials conducted in the 1990s (El Emam *et al.* 1998). These five areas are listed in table 1. Modification of these in the eMM (Marshall and Mitchell 2004) has resulted in a similar set focused on e-learning (table 2). Capability in each of these areas is assessed over a number of practices at six levels (table 3), resulting in a tabulation of strengths and weaknesses in SPICE that reflect the diversity of drivers of effective practice. This view of capability, richer than the summary maturity levels provided by the CMM, helps benchmark performance and guide decision making (Marshall and Mitchell 2004).

Process category	Brief description
Customer-Supplier	Processes that directly impact the customer
Engineering	Processes that specify, implement, or maintain a system and software product
Project	Processes that establish the project, and coordinate and manage its resources
Support	Processes that enable and support the performance of the other processes on the project
Organization	Processes that establish the business goals of the organization and develop process, product, and resource assets which will help the organization achieve its business goals

Table 1: SPICE version one process categories

Methodology Changes from Version One of the eMM

The eMM has evolved since its initial conception (Marshall and Mitchell, 2003), this evolution was informed by an initial assessment of capability in the New Zealand sector (Marshall, 2005), extensive consultation and workshops with colleagues in New Zealand, Australia and the UK, and an extensive literature review examining a wide set of heuristics, benchmarks and e-learning quality research (Marshall, 2006). As well as a significantly improved set of processes and practices, the current version of the eMM differs most significantly in the change from levels of process capability to dimensions (Marshall and Mitchell, 2006; see below) and the renaming of the *Coordination* process area to *Support* to address confusion over the separation from the *Organisation* process area. The description of the model that follows is of the most current version as at the publication of this report. It is anticipated that future work (see below) will see the model further evolve, particularly as the evidence base grows.

Key eMM concepts

Capability is perhaps the most important concept incorporated in the eMM. Capability, in the context of this model, refers to the ability of an institution to ensure that e-learning design, development and deployment is meeting the needs of the students, staff and institution. Critically, capability includes the ability of an institution to sustain e-learning delivery and the support of learning and teaching as demand grows and staff change. Given the large investments made in e-learning both by students and institutions it is essential that delivery be robust and reliable and able to cope with changes in the personnel involved, growth in the number of students, changes in technology requirements and skills, as well as the increasingly hostile and challenging digital communications environment.

The assessment of capability in a complex area such as e-learning is difficult and necessarily involves reducing large amounts of detail into a broader overview that supports management decision making and strategic planning. It is inevitable that this approach will fail to single out the subtle nuances and innovative work of individuals that motivate teaching staff to work on individual projects. Institutions and individuals will always have the ability to choose to invest time and other discretionary resources in innovative, unique opportunities.

The focus of the eMM is aimed at a less lofty goal, that of changing organisational conditions so that e-learning is delivered in a sustainable and high quality fashion to as many students as possible. As noted by Fullan:

“The answer to large-scale reform is not to try to emulate the characteristics of the minority who are getting somewhere *under present conditions* ... Rather, we must change existing conditions so that it is normal and possible for a majority of people to move forward” (Fullan, 2001, page 268)

The framework used in this analysis is based on the CMM (Paulk *et al.*, 1993) and SPICE (El Emam *et al.*, 1998; SPICE, 2002) methodologies. The underlying idea is that the ability of an institution to be effective in a particular area of work is dependent on their capability to engage in high quality processes that are reproducible and able to be sustained and built upon. The characteristics of an institution that enable high quality processes are to some extent able to be separated from the details of the actual work undertaken that will vary depending on particular circumstances. This separation means that the analysis can be done independently of the technologies selected and pedagogies applied, thus allowing for a meaningful comparison across the sector.

This separation of technology and other details means that it is potentially meaningful and useful to apply this approach to the assessment of the ability of institutions to engage in e-learning. The rapid growth in the technologies being used, the ways that they are being applied across an ever widening group of academic disciplines and the evolving skills and experience of teachers and students means that e-learning is a moving target. Any benchmarking approach that presumes particular e-learning technologies or pedagogies is unlikely to meaningfully assess a range of institutions within a single country, let alone allow for useful international collaboration and comparison, particularly over an extended period of time.

Processes

Building on the SPICE model, the eMM divides the capability of institutions to sustain and deliver e-learning into five major categories or process areas (Table 2). The key difference from the original SPICE model is the introduction of the *Learning* area, which replaces the *Customer/Supplier* area used in software engineering.

Within each of these areas are a number of processes, derived from the research literature on e-learning quality, experience from eMM assessments, and consultation with the sector through workshops. Processes define an aspect of the overall ability of institutions to perform well in the given process area, and thus in e-learning overall. The advantage of this approach is that it breaks down a complex area of institutional work into related sections that can be assessed independently and presented in a comparatively simple overview without losing the underlying detail.

Process category	Brief description
Learning	Processes that directly impact on pedagogical aspects of e-learning
Development	Processes surrounding the creation and maintenance of e-learning resources
Support	Processes surrounding the oversight and management of e-learning
Evaluation	Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle.
Organisation	Processes associated with institutional planning and management

Table 2: eMM version two process categories (revised from Marshall and Mitchell, 2003)

An obvious requirement of this model is that the processes chosen are based on empirical evidence and represent ‘common truths’ about e-learning capability:

“are there common practices or ways of creating e-learning resources and learning environments that are accepted, useful and able to be described in a way that others can adopt them and improve their own e-learning capability?” (Marshall and Mitchell, 2003, page 4)

The processes used in version one of the eMM were developed from the ‘Seven Principles’ of Chickering and Gamson (1987) and ‘Quality on the Line’ benchmarks (IHEP 2000) as outlined in Marshall and Mitchell (2004). These had the advantage of being widely accepted as guidelines or benchmarks for e-learning delivery (Sherry, 2003), however extensive feedback through the workshops and from collaborators in New Zealand, Australia and the UK as well as the experience of applying the first version of the eMM identified a number of additional aspects of capability that needed assessment and this has now resulted in version two of the eMM (Marshall, 2006).

It is important to stress that the focus of the high level processes is on the outcomes or characteristics of successful, or capable, e-learning delivery. This means that some specific concepts, technologies or activities may appear to be absent when reading the list of processes (Table 12). Examples are the requirement that an institution have an e-learning strategy or use a single learning management system (LMS). In both of these cases the desired outcome is not that these specific things exist. In the case of an e-learning strategy the desired outcome is that an institution guides its investment and energies systematically and in line with defined learning and teaching goals that are clearly communicated to its staff and students, an e-learning strategy is a convenient and sometimes effective means to achieving this end.

The rapid uptake of LMSs by institutions internationally reflects the way that these systems provide a cost effective mechanism for administering e-learning courses and students combined with an adequate mechanism for aggregating content and communication facilities in an authenticated environment. It is widely expected that more effective ways of achieving these outcomes will become available as alternatives to the current generation of LMS software is developed.

In both of these cases the desired outcomes are sufficiently pervasive and important for institutional e-learning capability that they are reflected in the assessments in multiple ways, using the eMM concepts of *Dimension* and *Practice* explained below.

Dimensions of capability

A key development that arose from the application and analysis of the first version of the eMM is that the concept of levels reused from the CMM and SPICE was unhelpful (Marshall and Mitchell, 2006). The use of levels incorrectly implies a hierarchical model of institutional improvement where capability is assessed and built in a layered and progressive manner.

The key idea underlying the dimension concept in contrast, is holistic capability. Rather than the model measuring progressive levels, it describes the capability of a process from synergistic perspectives. An organisation that has developed capability on all dimensions for all processes will be more capable than one that has not. Strong capability at particular dimensions that is not supported by capability at the other dimensions will not deliver the desired outcomes. Capability at dimensions one and two that is

not supported by capability in the other dimensions will be ad-hoc, unsustainable and unresponsive to changing organisational and learner needs. Capability in dimensions three, four and five that is not complemented with similar strength at dimensions one and two will be unable to meet the desired goals and liable to fail.

In thinking about the relationship between the five dimensions it is helpful to consider them arranged as in Figure 1 below. The matrix of boxes used on the left to display summaries of process capabilities is helpful when performing comparisons within or between institutions but it can imply a hierarchical relationship that is misleading when interpreting individual process capability results.

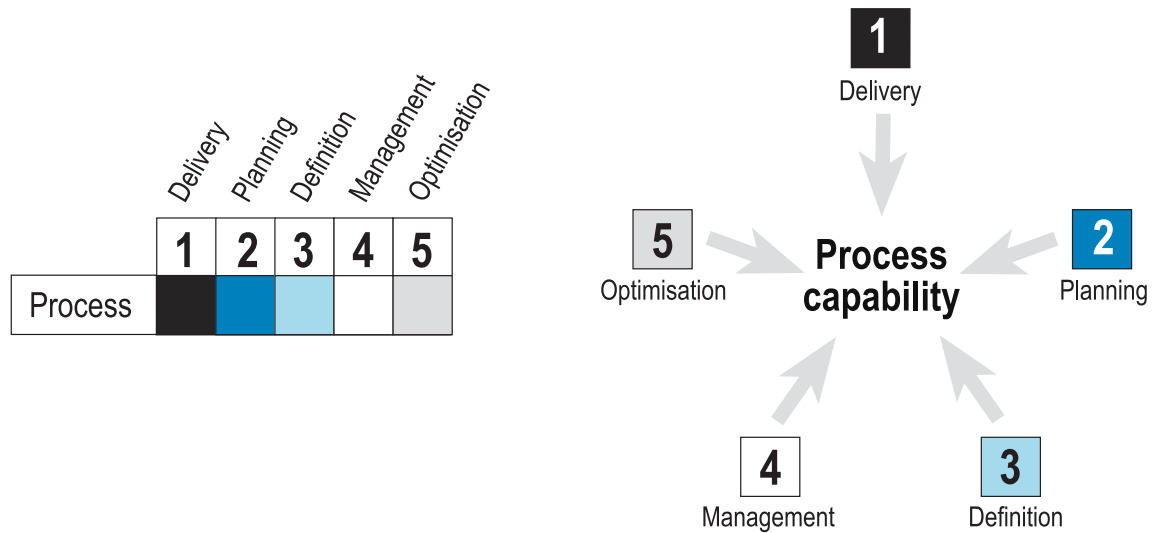


Figure 1: eMM Process Dimensions

Each of the five dimensions reflects an aspect of process capability from a single perspective:

Dimension 1 (Delivery) is concerned with the creation and provision of process outcomes. Assessments of this dimension are aimed at determining the extent to which the process is seen to operate within the institution. It is important to emphasize that institutions can have extremely effective processes operating within this dimension, but in the absence of capability in other dimensions there is risk of failure or unsustainable delivery and wasting resources through needless duplication.

Dimension 2 (Planning) assesses the use of predefined objectives and plans in conducting the work of the process. The use of predefined plans potentially makes processes more able to be managed effectively and reproduced if successful.

Dimension 3 (Definition) covers the use of institutionally defined and documented standards, guidelines, templates and policies during the process implementation. An institution operating effectively within this dimension has clearly defined how a given process should be performed. This does not mean that the staff of the institution follows this guidance.

Dimension 4 (Management) is concerned with how the institution manages the process implementation and ensures the quality of the outcomes. Capability within this dimension reflects the extent of measurement and control of the outcomes and the way in which the practices of the process are performed by the staff of the institution.

Dimension 5 (Optimisation) captures the extent an institution is using formal approaches to improve capability measured within the other dimensions of this process. Capability of this dimension reflects a culture of continuous improvement.

Practices

Each process in the eMM is further broken down within each dimension into practices that define how the process outcomes might be achieved by institutions. These practices are either essential for the process to be successfully achieved (bold type) or just useful in supporting the outcomes of the particular process (regular type). The practices are intended to capture the key essences of the different dimensions of the processes as a series of items, derived from empirical evidence, the e-learning literature or expert practitioner judgement, that can be assessed easily in a given institutional context. As an example, Table 3 lists the practices by dimension for one process.

Dimension	Practices
Optimisation	Information on student achievement of learning outcomes is used to inform and support the current and future design and (re)development of courses, programmes and degrees. Strategic planning of teaching and learning across the institution is used to determine new or modified objectives that are promulgated to courses, programmes and degrees.
Management	Courses are regularly reviewed to ensure that staff are incorporating learning objectives in course design and delivery consistent with the expectations of the institutional policies, guidelines and standards. Performance of students against the expected outcomes measured using a variety of qualitative and quantitative metrics. Information is collected on the extent to which courses are providing learning objectives that address the full range of cognitive outcomes appropriate to the course and students. Regular reviews of course learning objectives undertaken to ensure currency and effectiveness. E-learning design and (re)development activities are subject to formal quality assurance reviews and re-prioritisation of resources and objectives at key milestones. Financial costs and benefits of delivering course learning objectives regularly assessed and reported on. Feedback collected regularly from students regarding the effectiveness of the course e-learning activities and tasks. Feedback collected regularly from staff regarding the effectiveness of the course e-learning activities and tasks.
Definition	Institutional policies require that a formal statement of learning objectives is part of all course documentation provided to students. Teaching staff are provided with training, guidelines and examples for developing learning objectives that address the full range of cognitive outcomes appropriate to the discipline, pedagogical approach and students. Training, templates, examples, standards and guidelines are provided on how to use learning objectives explicitly in the design and delivery of course learning activities and assessment in order to assist student learning. Teaching staff are provided with training, guidelines and examples in assessing student outcomes and the extent to which learning objectives are being met. Institutionally defined graduate attributes exist and are referenced in policy guiding course, programme and degree design, development and delivery. A researched evidence base of effective learning objectives and associated e-learning activities undertaken within or relevant to the local context is maintained for use by staff engaged in e-learning design and (re)development.
Planning	Statements of learning objectives are mandated in institutional templates for course summaries and documents such as course prospectuses or syllabi. E-learning design and (re)development activities reference the learning objectives and use them to determine the nature and relationship of content, activities and assessment used. E-learning design and (re)development activities reference the course learning objectives when selecting and implementing e-learning technologies and pedagogies. Programme or degree planning and review processes consider the relationship between learning objectives of individual courses with those of the programme or degree as a whole. E-learning planning and review documentation explicitly refers to the learning objectives when assessing the course and making any decisions about the course structure, learning design and content. E-learning design and (re)development activities reference a researched evidence base of effective learning objectives and associated e-learning activities. E-learning design and (re)development activities formally link learning objectives and decisions regarding e-learning technologies and pedagogies with the institutional e-learning strategies and associated operational plans. Assistance in course design and (re)development is provided to staff engaging in course design and (re)development activities.
Delivery	Learning objectives are provided explicitly in the formal descriptions of the course provided to students, including the summary versions provided prior to enrolment as well as within detailed course prospectuses or syllabi. Learning objectives are linked explicitly throughout learning and assessment activities using consistent language. Learning objectives for individual courses or modules are explicitly linked to wider programme or degree objectives and institutional graduate attributes. Learning objectives are aimed at supporting student cognitive outcomes that go beyond recall and acquisition of knowledge. Course workload expectations and assessment tasks are consistent with the learning objectives.

Table 3: eMM version two process L1 practices (Marshall, 2006)

Capability assessment criteria

The practices provide the eMM with the ability to retain the flexibility of a generic set of high level processes while still being able to incorporate specific detail to reflect the growing body of evidence describing effective use of e-learning technologies and pedagogies. An additional mechanism for ensuring that the model is able to evolve is through the assessments of capability which are made for each process on each of the five dimensions listed in Figure 1.

When conducting a process assessment each practice is rated for performance from *not adequate* to *fully adequate* (Figure 2). The ratings at each dimension are done on the basis of the evidence collected from the institution and are a combination of whether or not the practice is performed, how well it appears to be functioning, and how prevalent it appears to be. This provides a useful future-proofing mechanism as performance that is currently *fully adequate* may not be so in three or four years as technologies evolve and experience in e-learning grows.

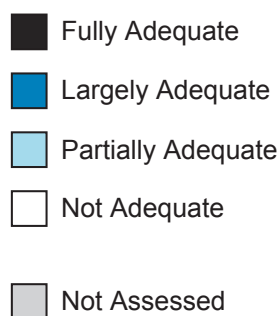


Figure 2: eMM Capability Assessments (based on Marshall and Mitchell, 2003)

Once each practice has been assessed, the results are averaged as a rating for the given dimension of the process. Practices listed in bold are essential for the achievement of the process outcomes and are used primarily to make the capability assessment, with the other practices used when making a choice between two possible assessments. In the example shown in Figure 3, the assessment for dimension one would be *largely adequate*, although the two practices with lower assessments indicate where additional attention could usefully be focused. A purely mechanical process with a mathematical summation has been deliberately avoided in order to provide enough flexibility within the model for differences of pedagogy, technology, organisational culture and national culture.

Process L1: Learning objectives are apparent in the design and implementation of courses (Dimension 1)		
	Assessment	Practices
1	☐ ☐ ☐ ☒ ☐	Learning objectives are provided explicitly in the formal descriptions of the course provided to students, including the summary versions provided prior to enrolment as well as within detailed course prospectuses or syllabi.
	☐ ☐ ☒ ☐ ☐	Learning objectives are linked explicitly throughout learning and assessment activities using consistent language.
	☐ ☒ ☐ ☐ ☐	Learning objectives for individual courses or modules are explicitly linked to wider programme or degree objectives and institutional graduate attributes.
	☐ ☐ ☐ ☒ ☐	Learning objectives are aimed at supporting student cognitive outcomes that go beyond recall and acquisition of knowledge.
	☐ ☐ ☐ ☒ ☐	Course workload expectations and assessment tasks are consistent with the learning objectives.

Figure 3: Example eMM Capability Assessment

It should be noted that experience of applying this type of assessment in the field of software engineering (SEI, 2004) and with the first version of the eMM (Marshall, 2005) suggests that most, if not all, institutions initially assessed will show a low level of capability for the processes selected. This is not surprising as one of the drivers for the model in the first place is the widely held perception that e-learning could be implemented more effectively and efficiently in most institutions.

Identifying Practices and Standards for Effective E-Learning

One of the reasons why uncertainty remains over the effectiveness of e-learning and its impact on student learning outcomes (Conole *et al.* 2000, Taylor 2001) is that the body of research supporting e-learning is weak and subject to methodological flaws (Phipps 1999; Mitchel 2000; Conole *et al.* 2004). Despite this weakness, substantial amounts of money have been invested (GAO 2003) and a large amount of work is being undertaken to define standards for more (Table 5). Examination of successful projects has suggested that some formality of project management is necessary for success (Alexander and McKenzie 1998; Kenny 2002) but the proliferation of standards without a stronger understanding of what drives successful e-learning has been subject to criticism (Boyle 2003; Oliver and Liber 2003; Blandin 2004; Friesen 2004a; Marshall, 2005b).

For a document to be a standard, a recognised national or international standards body must issue it. In comparison e-learning is dominated by guidelines and heuristics (Table 5). These include the influential seven principles (Chickering and Ehrmann 1996; Graham, *et al.*, 2001) and the Quality On the Line benchmarks (IHEP 2000; Hagner 2001). These guidelines have the benefit of being informed by expert opinion and experience, but at the cost of lacking empirical support (Phipps 1999; Mitchel 2000; Conole *et al.* 2004) and they have a focus on inputs rather than on outputs such as student learning (Twigg 2001). Despite these limitations, this collection of standards and guidelines (such as those in Tables 4 and 5 below) reflects one source of understanding e-learning capability in use by e-learning practitioners.

Recently, the TEC eCDF E-Learning Standards and Guidelines project (Milne and Suddaby 2005) has generated a set of New Zealand e-learning guidelines delivered through a wiki (<http://elg.massey.ac.nz/>) that are intended to inform practice and stimulate discussion around the issues of quality in e-learning. These are not standards, but rather a growing collection of practices and supporting evidence which can inform practitioners.

Teaching, Learning and Technology Group	Seven Principles	http://www.tltgroup.org/programs/seven.html
Council of Regional Accrediting Commissions and the Western Cooperative for Educational Telecommunications (WCET)	Guidelines for the Evaluation of Electronically Offered Certificate and Degree Programs	http://www.wiche.edu/telecom/Guidelines.htm
Western Cooperative for Educational Telecommunications (WCET)	Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs	http://www.wiche.edu/telecom/projects/balancing/principles.htm
American Distance Education Consortium	ADEC Guiding Principles for Distance Learning	http://www.adec.edu/admin/papers/distance-learning_principles.html
Instructional Telecommunications Council (ITC)	Quality Enhancing Practices in Distance Education	http://www.itcnetwork.org/quality.html
The American Federation of Teachers (AFT)	Distance Education: Guidelines for Good Practice	http://www.aft.org/higher_ed/downloadable/distance.pdf
National Education Association (NEA), Blackboard Inc. and the Institute for Higher Education Policy (IHEP)	Quality on the Line: Benchmarks for Success in Internet-Based Distance Education	http://www.ihep.com/quality.pdf
IMS Learning Design	Specification to describe learning scenarios for reuse or transfer between systems	http://www.imsglobal.org/learningdesign/
Southern Regional Education Board	Principles of Good Practice	http://www.electroniccampus.org/student/srecinfo/publications/principles.asp
Australian National Training Authority	Flexible Learning Toolbox	http://www.flexiblelearning.net.au/toolbox/
	Quality Assurance Information Kit	http://www.anta.gov.au/publication.asp?qsID=264
FuturEd, Community Association for Community Education (CACE) and the Office of Learning Technologies (OLT) of Human Resources Development Canada (HRDC)	Canadian Recommended E-learning Guidelines (CanREGs)	http://www.futured.com/pdf/CanREGs%20Eng.pdf
New Zealand TEC eCDF	New Zealand E-Learning Guidelines	http://elg.massey.ac.nz/

Table 4: Pedagogical quality standards and guidelines used in selecting the eMM version two processes and practices

Standard	Description	Source	Further information
Resource Discovery - Metadata			
Dublin Core	Interoperable metadata standard and vocabulary. Widely referenced by other metadata instances. Includes the DC-ED extension for educational materials.	DCMI	http://www.dublincore.org/
LOM-1484-12-1	IEEE Standard for Learning Object Metadata	IEEE	http://ltsc.ieee.org/wg12/index.html
IMS LRM	Reference implementation of the IEEE-LOM-1484 standard	IMS	http://www.imsglobal.org/metadata/
CanCore	The Canadian Core Learning Object Metadata Application Profile is based on the IEEE LOM and IMS Learning Resource Metadata and is customized for Canadian use	CanCore	http://www.cancore.ca/indexen.html
SingCore	Based on the IEEE LOM and IMS Learning Resource Metadata specifications and is customized for Singaporean use	ECC	http://www.ecc.org.sg/cocoon/ecc/website/standards/singcore.standards
EdNA Metadata	A subset and customization of the Dublin Core intended for use in the Australian context	EdNA	http://www.edna.edu.au/metadata
Microsoft LRN	Implements IMS content packaging and metadata and SCORM standards	Microsoft	http://www.microsoft.com/learn/support.asp
UK LOM Core	UK Learning Object Metadata Framework. Application profile within LOM-1484-12-1 customised for UK use.	CETIS	http://www.cetis.ac.uk/profiles/uklomcore
Systems Interoperability			
IMS Enterprise	Specification for transferring data about people and groups within an enterprise for HR, student records, training, and library systems.	IMS	http://www.imsglobal.org/enterprise/
IMS Learner Information Profile	A specification for recording information about students and teachers for interoperability between internet learning systems.	IMS	http://www.imsglobal.org/profiles/
IMS Content Packaging	A specification for packaging and transferring learning materials and their structure	IMS	http://www.imsglobal.org/content/packaging/
IMS Question & Test Interoperability	An XML language describing questions and tests that supports the transfer of tests, questions and results between systems	IMS	http://www.imsglobal.org/question/
ADL SCORM	A reference architecture for an e-learning platform combining interrelated specifications	ADL	http://www.adlnet.org/index.cfm?fuseaction=scormabt
Miscellaneous			
IMS Simple Sequencing	Supports the authoring of learning experiences by allowing the description of navigation pathways through a collection of learning activities	IMS	http://www.imsglobal.org/simplesequencing/
IMS Learning Design	Specification to describe learning scenarios for reuse or transfer between systems	IMS	http://www.imsglobal.org/learningdesign/
AGRs	The Aviation Industry CBT Committee Guidelines and Recommendations are standards for the delivery and interoperability of e-learning for aviation	AICC	http://www.aicc.org/pages/aicc3.htm

Table 5: Prominent e-learning standards (Marshall, 2005b)

eMM Process and Practice Literature Review

The nearly one thousand practices defining capability for each of the thirty-five processes of version two of the eMM are informed by an extensive review of the research literature. This detailed review is provided in a separate document the *eMM Version Two Process Guide* (Marshall, 2006b), which is available from the eMM project website <http://www.utdc.vuw.ac.nz/research/emm/>.

Use of the Maturity Model Concept by E-Learning Researchers

The concept of maturity models as a means of assessing capability is popular, resulting in a significant number of different models being created in different domains. A number of other researchers have examined the potential of such models in the educational context, and a brief synopsis of this work is provided below.

In reviewing this body of work, it is apparent that in most cases the ideas of the CMM are being used to support the intuitive concept that organisations must evolve and that this necessarily results in a more structured and formalised approach to e-learning. While this is likely true, and is consistent with the motivations behind the development of the eMM, the majority of these models fail to provide a useful means of benchmarking an institutions capability, either in isolation or in comparison to other institutions. Consistent with the observations made above regarding e-learning standards, there is also very little evidence that most of these models have been applied formally and evidence on their usefulness collected.

Griffith et al. (1997)

Applies the CMM to the Southwest Texas State University in order to improve the delivery of education and other services. Application is limited to using the main five categorisations to suggest how the institution needs to develop from an initial 'ad-hoc' status in its formal delivery and planning of services. This work is limited to applying the CMM in its traditional role of guiding information system development rather than e-learning delivery.

Manford and McSporran (2003).

Presents a simple CMM derived E-Learning Capability Model (ECM²). Levels are:

1. Initial,
2. Independent,
3. Shared,
4. Organised,
5. Learning.

Key performance indicators are identified for three of these levels (2-4) in the categories of people, processes and technology. These have then been applied over four institutions. An interesting aspect of the work presented is the use of an historical representation to show the evolution of capability over multiple years, something that will be explored with the eMM over the next few years. Assessments were performed on the basis of interviews and review of documents.

Vollmer (2003)

Discusses the commercial LMS market and presents a CMM approach with five levels, no empirical basis for the model or evidence of its application is supplied.

1. Organic

Ad-hoc, reactionary response to individual staff demands.

2. Initiative-Driven

Learning is targeted at process outcomes. Objective is business-unit excellence.

3. Enterprise-Based

The organisation can establish consistent learning goals and objectives between business units.
Reuse of IT investments via shared infrastructure.

4. Competency-Based

Learning becomes massively customized to meet end-user roles, performance needs and individual/teamwork models.

5. Knowledge-Management-Based

Human capital management and knowledge management strategies are unified, and learning becomes a key element to enhance workplace performance and innovation.

Harris (2004)

Presents a six level model for enterprise e-learning improvement. No citations of any research included and the model appears to have a descriptive rather than empirical focus and to be aimed at the use of e-learning within commercial organisations rather than educational providers. The model has the following levels:

Level 0 Nonexistent:

Essentially e-learning is limited to occasional use in the absence of strategy or explicit management.

Level 1 Initial:

Silo based use of e-learning with an initial level of planning and awareness developing.

Level 2 Repeatable:

Planning for the use and reuse of e-learning is evident within key aspects of the business.

Level 3 Defined:

The use of e-learning is subject to a strategy, operational planning and ongoing budget provision is made for its use.

Level 4 Managed:

E-learning planning is aligned within business plans and performance of the e-learning systems are measured and reported upon.

Level 5 Optimized:

E-learning is an integral part of operations within and without the business and a regular redevelopment programme ensures that the systems grow and develop as the business develops and new technologies become available.

Love et al. (2004)

Applies the idea of maturity models to the use of portfolios by tertiary institutions, modeling development from ad-hoc scrapbooks through to “webfolios” of authentic evidence.

Neuhauser (2004)

Presents a model derived from the CMM, called the online course design maturity model (OCDMM). Identifies five levels:

Level 1: Initial

Level 2: Exploring

Level 3: Awakening

Level 4: Synergizing Strategies

Level 5: Integrating Best Practices

Each of these levels is defined using five process areas:

- Components and Appearance
- Individualized and Personal
- Use of Technology
- Socialization and Interactivity
- Assessment

The practices were drawn from the literature and are defined in descriptive terms. Performance against the model is evaluated by questionnaire (not supplied).

THINQ Learning Management Maturity Model

A commercial LMS provider (<http://www.thinq.com/>) has created a CMM based maturity model process for commercial e-learning provision and management in September 2002. Uses the following five levels:

1. Ad Hoc
2. Managed Learning
3. Competency-Driven
4. Integrated Performance
5. Optimized Workforce

Practices are organised in nine areas:

1. Content Management
2. Knowledge Management
3. Collaboration
4. Program Strategy and Design
5. LMS
6. Change Leadership
7. Testing and Assessment
8. Performance Management
9. Competency Management

No empirical basis for the model or evidence of its application is supplied.

Citations of the eMM Methodology and Research

Since the publication of the initial ideas for the eMM (Marshall and Mitchell 2002) there have been a number of references made to the research. The publication of the 2005 report (Marshall 2005) has seen this grow.

Kirkpatrick (2003)

Focus of the paper is on institutional improvements in the ability to deliver open and distance education. Cites Marshall and Mitchell (2003) in the context of the need for a focus on institutional aspects supporting student learning rather than on individual courses and isolated initiatives.

NHSU (2003)

Document is a discussion paper aimed at informing planning for e-learning support within the UK NHS training programmes. Document cites Marshall and Mitchell (2002) noting the benefits of the approach for measuring progress both at the organisational and sector levels. The eMM is also similarly cited and supported in the context of the Australian health service by Parkes (2004).

Baruque and Melo (2004)

Cites Marshall and Mitchell (2002) regarding the need for better management of e-learning within organisations and converts ideas from academia to corporate e-learning. Presents a reference model for e-learning governance that incorporates information architecture, processes and sub-processes and governance rules and metrics. Includes aspects of the CMM in the reference model.

UMass Information Technology Council Subcommittee on Academic Technology (2005)

This report presents the University of Massachusetts's vision and implementation framework for effective employment of technology in teaching and learning. Cites Marshall and Mitchell (2002) in support of the concept of maturity models for guiding long term improvements in institutional capability.

Bacsich (2005)

An overview of benchmarking undertaken in the context of the UK Higher Education Academy benchmarking project. Reviews the concepts underlying benchmarking and its application to improving the use of e-learning internationally. Provides a brief but positive overview of the eMM citing Marshall and Mitchell (2004) as well as Marshall (2005).

Fernando (2005)

Presents a two-dimensional maturity model called the IT-Aligned Learning Maturity Model (IA-LMM) that measures the institutional IT infrastructure and e-learning levels. Infrastructure is measured as being:

- Level 1: Internal network focused
- Level 2: Global network focused
- Level 3: Information capacity focused
- Level 4: Security and confidentiality focused
- Level 5: Reliability and availability focused

E-learning is measured at the following levels:

- Level 1: Learner administration focused
- Level 2: Learner participation focused
- Level 3: Content development focused
- Level 4: Evolutionary cycle focused
- Level 5: Organizational drive focused

As well as assessing both of these against a set of seven criteria derived from a limited literature review, predominantly Bates (2000) and Colis and Moonen (2001). The two dimensional rating is adjusted using a IT Alignment Capacity Index (IACI). As well, the model includes an underlying Minimum Capability Model (MCM) for transitional countries not measured by the IA-LMM. Focus is predominantly on the coordination of the IT infrastructure with e-learning aspects. Paper is theoretical and does not present any application of the framework.

Lima, P.S.R., de Brito, S.R., Fonesca, O. and Favero, S. e E. L.(2005)

Paper on the design of an adaptive learning environment aimed at supporting communities of learners. Cites Marshall and Mitchell (2004) in the context of applying software development ideas in the creation of effective e-learning.

Petrova and Sinclair (2005)

Assessment of an online undergraduate business programme at Auckland University of Technology through a student perception survey. Results are noted as being in line with the Marshall (2005) findings for AUT.

Wilcox (2005a, 2005b)

Briefing papers prepared by the University of Manchester e-learning Research Centre which describe the concepts of benchmarking and maturity models. Both papers cite Marshall and Mitchell (2002) and the maturity models paper provides an extensive introduction to the important concepts of the eMM.

Choat (2006)

A scoping report for the TEC on the impact that information and communication technologies are having on the New Zealand tertiary workforce. Cites Marshall (2005) as evidence that the sector has a range of capabilities with no clear leaders.

International Workshops

Three workshops have been held internationally following the publication of the first sector evaluation (Marshall, 2005). These were held in Melbourne in association with an ACODE (Australasian Council on Open and Distance Education, <http://www.acode.edu.au/>) meeting (attended by 23 people), at the 2005 ASCILITE (Australasian Society for Computers in Learning in Tertiary Education) conference in Brisbane (attended by 6 people), and at the University of Manchester, UK (attended by 15 people). This has provided the eMM with the privilege of forty three additional perspectives on e-learning quality from a range of people at very senior levels in tertiary and government organisations as well as e-learning practitioners and teachers. Ethical approvals to conduct these workshops and use the collected information, consent and information forms are in Appendix B. All of the workshops were evaluated and a summary of the feedback from participants is in Appendix C.

The workshops provided participants with an introduction to the eMM and the associated concepts and an opportunity to collectively brainstorm the ways by which institutions can ensure that e-learning is effective and high quality. The physical results of the workshop brainstorming sessions were a number of A3 sheets of paper containing the collected and organised ideas of the participants on post-it notes. These were transcribed and aggregated by process area in order to capture the individual ideas for further analysis.

This section presents an analysis of the workshops themselves and the insights into institutional e-learning capability they provide, the changes that have resulted in the eMM as a consequence of this consultation and analysis are discussed in detail in the section on the *Revision of the eMM Processes and Practices*.

ACODE Workshop Outcomes

A detailed alignment of the workshop results with this version of the eMM is included in Appendix D. This alignment was not done as part of the workshop, but rather was conducted as part of the evolution of the current version of the eMM. Consequently every item has been matched with a corresponding process. It should be noted that this alignment allowed for multiple matches so the same item may appear in more than one process and dimension. A number of observations arising from the analysis are included below.

Process Area	Dimension					Total unique items	Total items
	Delivery	Planning	Definition	Management	Optimisation		
Learning	19	8	2	0	0	29	34
Development	16	15	8	4	0	43	80
Support	22	18	11	4	0	55	144
Evaluation	4	6	0	4	1	15	15
Organisation	20	9	17	4	0	50	100

Table 6: Summary of ACODE Workshop Item Alignment

Table 6 shows a summary of the number of items identified in the brainstorming exercise broken down by eMM process area and dimension. It is clear from this table that the *Support* area received the most attention from participants, followed by the *Organisation* and *Development* areas. The *Learning* and *Evaluation* areas in contrast received relatively little attention. Interestingly, once similar or duplicate items are collapsed, the *Learning* area is seen to have roughly comparable unique items when compared with the first *Support*, *Organisation* and *Development* areas although at a generally lower mix of dimensions. The few items identified for *Evaluation* had very little overlap.

In terms of dimension, the majority of the items were placed in the first two dimensions, *Delivery* and *Planning*. This appears to reflect the summary approach adopted by the participants in describing the items and it is likely that in many cases the intent of the item would include aspects that are addressed by the higher dimensions of the eMM. Only one item in the 5th dimension, *Optimisation*, was specifically identified “Student evaluation feedback used for [course improvement]” however this placement seems

to reflect the definition of that dimension rather than a deliberate intent on the part of the participant. Similarly, a high proportion of the items in the *Organisation* area were placed in the 3rd dimension, *Definition*, again this seems to be a consequence of that dimension's definition overlapping with the concerns of the processes listed.

Learning

Looking at the results for the *Learning* process area in detail it is clear that the main focus of the participants was on L3 (Student skill development for e-learning is provided) with over one third of all items matching. Many of these also matched processes in the *Support* process area so this is consistent with the overall focus on support issues observed above. Many of the items are expressed in general terms and this has meant that the majority of them are placed in the 1st dimension. The two items in the 3rd dimension related to detection of plagiarism and collusion, and the need for rules governing deadlines for assessment.

The absence of more items in the *Learning* process area may reflect the sense that many of the processes are the responsibility of individual teachers, a sense by participants that learning is already well addressed, or merely the focus of the interests of the participants on organisational aspects. Nevertheless, given the frequent comment on the need to focus on learning when discussing e-learning it is interesting that more items were not identified.

Development

The *Development* area received much more attention from the participants with a range of items in dimensions 1 to 4. Process D1 (Teaching staff are provided with design and development support when engaging in e-learning) had the most items, but as with L3, this appears to reflect in part the focus on support issues as many of the items overlapped with processes S5 (Teaching staff are provided with pedagogical support and professional development in using e-learning) and S6 (Teaching staff are provided with technical support in the handling of electronic materials created by students). Key items that were mentioned by a number of participants were the need for “adequate ongoing staff support” provided by specialist staff organised in a coherent or centralized way. The “support for and recognition of the need for evidence-based practice” was also noted as was the dependence on an “interoperable, seamless learning environment” that was able to evolve with staff and student needs.

Support

Support was easily the most popular area, however this in part reflected the expression of the items in general terms that covered all or most of the processes in this area such as “technical support for students” and “library support for learners”. That said, there were also a large number of duplicate or similar items reflecting a shared set of concerns by the participants. The provision of “at elbow” professional development support was the most noted idea with 22 items reflecting this theme. Clearly group workshops as a form of staff development are not well regarded, and there was definite support for a range of support options rather than a generic approach as well as provision of support over extended hours rather than just the standard business week. The need for “reward and celebration of good teaching” was also noted in many items. All of the student support items received strong support.

Evaluation

In contrast to *Support*, the *Evaluation* process area was almost ignored. Very few items were noted and although these matched the higher dimensions disproportionately this appears to be an artifact of the overlap between the definitions of the dimensions and the processes. This may reflect the sense that existing evaluation procedures and instruments are well equipped to address e-learning or simply the composition of the workshop attendees.

Organisation

Given the composition of the workshop it is perhaps not surprising that a large number of items were identified in the *Organisation* process area. Processes O2 (Institutional learning and teaching policy and strategy explicitly address e-learning) and O9 (The provision of e-learning is guided by formal business management and strategy) dominated the results and there was also a large number of items in the 3rd (Definition) and 4th (Management) dimensions, probably reflecting the overlap between the definitions of

the dimensions and the processes. Key ideas included that “there must be a clear institutional view about what the purpose of e-learning opportunities might be” supported by clear definitions and policy, and the strongly expressed need for a “shared vision about what it means to the institution and what it will do”. The need for “appropriate and timely funding” was also noted.

Interestingly, many of the operational aspects that are part of this process area received little attention (for example O8: Course administration information communicated to students prior to starting courses). As with the *Evaluation* area, this may reflect the sense that existing administrative procedures and systems are well equipped to address e-learning or simply the composition of the workshop attendees.

ASCILITE Workshop Outcomes

A detailed alignment of the workshop results with this version of the eMM is included in Appendix E. This alignment was not done as part of the workshop, but rather was conducted as part of the evolution of the current version of the eMM. Consequently every item has been matched with a corresponding process. It should be noted that this alignment allowed for multiple matches so the same item may appear in more than one process and dimension. A number of observations arising from the analysis are included below. It should be noted that the fewer participants in this workshop compared with the other two has meant that fewer observations can be made of the results.

Process Area	Dimension					Total unique items	Total items
	Delivery	Planning	Definition	Management	Optimisation		
Learning	1	3	2	0	0	6	5
Development	6	4	5	0	0	15	17
Support	0	5	3	0	0	8	23
Evaluation	5	3	0	4	0	12	12
Organisation	2	10	3	0	0	15	19

Table 7: Summary of ASCILITE Workshop Item Alignment

Table 7 shows a summary of the number of items identified in the brainstorming exercise broken down by eMM process area and dimension. It is clear from this table that as with the ACODE workshop the *Support* area received the most attention from participants, followed by the *Organisation* and *Development* areas. The *Learning* and *Evaluation* areas in contrast received relatively little attention.

In terms of dimension, the majority of the items were placed in the first two dimensions, *Delivery* and *Planning*. This appears to reflect the summary approach adopted by the participants in describing the items and it is likely that in many cases the intent of the item would include aspects that are addressed by the higher dimensions of the eMM. The relatively high number of items in the *Management* dimension of the *Evaluation* area was a consequence of a strongly expressed desire that evaluation and feedback information be widely shared, rather than kept confidential to management or technical areas.

Learning

Very few items were identified in the *Learning* area, focusing primarily on L3 (Student skill development for e-learning is provided) and L10 (Courses are designed to support diverse learning styles and learner capabilities).

Development

The *Development* area received more attention from the participants. Process D1 (Teaching staff are provided with design and development support when engaging in e-learning) had the most items, followed by process D5 (All elements of the physical e-learning infrastructure are reliable, robust and sufficient). It is interesting to contrast the items, those for D1 included a range of issues in dimensions one to three such as “Teachers are given time to think, do, evaluate and reflect. They have optional support available”, while those for D5 were all in the first dimension and seem to express a distrust in the reliability and robustness

of e-learning systems “The technology ‘just works’” The realization of the need to involve staff with a range of skills, not just academics, was also apparent “Integrated teams (academic, support & library) to develop courses”.

Support

As with the ACODE workshop *Support* was easily the most popular area. However, unlike the ACODE results this was a consequence of a large number of items in only two processes S5 (Teaching staff are provided with pedagogical support and professional development in using e-learning) and S6 (Teaching staff are provided with technical support in the handling of electronic materials created by students) with 21 of the 23 items noted in these two processes. Most of these items were focused on the availability of support and assistance although the need for evidence based practice was clearly noted with items such as “Establish exemplars of best practice of e-learning”, “Research led L&T encouraged” and “Teachers are given time to think, do, evaluate and reflect”.

Evaluation

In contrast to the ACODE workshop the *Evaluation* process area was relatively well covered, with a number of items identified across the first four dimensions. Interestingly these were not just general items around issues of collecting feedback “E-learning and other teaching are evaluated in a truly integrated way”, but there was also a strong emphasis on quality improvement and engaging staff and students in an effective feedback loop “Obtain & circulate student feedback /concerns/needs from multiple courses to devise common directions for improvement”. The need to use feedback information both to inform “Evaluation of innovations & changes to understand their impact” but also to celebrate effective teaching “Celebrating teaching forums” was also clear.

Organisation

As with the ACODE workshop items in the *Organisation* process area fell mainly in processes O2 (Institutional learning and teaching policy and strategy explicitly address e-learning) and O9 (The provision of e-learning is guided by formal business management and strategy). However the noticeable emphasis was on the lead for well informed “Managers admit they need to learn about this and stop doing ‘nothing’ because it feels safer” and clear leadership “Get executive ownership of e-learning direction at an institutional level”, however with a clear academic focus “Stop [educational] decisions being made by managers[/IT experts]”. Interestingly, the items covering student information and preparation needs (O6-O8) were only expressed in terms of actions by the students, rather than by the teachers.

Manchester Workshop Outcomes

A detailed alignment of the workshop results with this version of the eMM is included in Appendix F. This alignment was not done as part of the workshop, but rather was conducted as part of the evolution of the current version of the eMM. Consequently every item has been matched with a corresponding process. It should be noted that this alignment allowed for multiple matches so the same item may appear in more than one process and dimension. A number of observations arising from the analysis are included below.

Process Area	Dimension					Total unique items	Total items
	Delivery	Planning	Definition	Management	Optimisation		
Learning	15	3	0	2	0	20	23
Development	16	5	4	1	0	26	50
Support	21	5	1	3	0	30	49
Evaluation	4	3	0	4	0	11	24
Organisation	16	2	1	0	0	19	40

Table 8: Summary of Manchester Workshop Item Alignment

Table 8 shows a summary of the number of items identified in the brainstorming exercise broken down by eMM process area and dimension. As with the other workshops the *Learning* and *Evaluation* areas received the least attention, while *Development* and *Support* received the most. As with the ACODE workshop, the dominance of *Support* reflected at least in part the large number of items being expressed in general terms and thus being listed in multiple processes, the effect of this is apparent in the unique item results in the table.

A very much greater proportion of the items were placed in dimension one (*Delivery*) compared to the other workshops. As noted for the ACODE results this appears to reflect the summary approach adopted by the participants in describing the items and it is likely that in many cases the intent of the item would include aspects that are addressed by the higher dimensions of the eMM. The items in the *Management* dimension were dominated by generic comments about the need for quality control and measurement mechanisms.

Learning

The items in the *Learning* process area were relatively evenly spread amongst the processes, although there was an emphasis on the need to communicate both learning objectives “Clear learning objectives, personal transferable outcomes & academic skill outcomes” and communication expectations clearly “Expectations should be communicated to students regarding their participation online”. The need for “Undertaking thorough surveys of student needs both for knowledge aspects and delivery aspects” was also noted in the *Management* dimension.

Development

The *Development* area received much more attention from the participants with a range of items in dimensions 1 to 4. Apart from D4 (Courses are designed to support disabled students) and D7 (Resources created are designed and managed to maximise reuse) items were distributed evenly in the processes and with multiple participants identifying similar concerns. Notably, items for processes D5 (All elements of the physical e-learning infrastructure are reliable, robust and sufficient) and D6 (All elements of the physical e-learning infrastructure are integrated using defined standards) were predominantly expressed at dimension one (*Delivery*) “e-learning system must be reliable” while those for the first three processes were expressed over a range of dimensions, including dimension four (*Management*) “Embedded quality enhancement processes”.

The need for effective support “At elbow training for academics (rapid response team)” involving a range of skills and perspectives “Teams – Academic (learning technologists)” was noted clearly in process D1 (Teaching staff are provided with design and development support when engaging in e-learning) but with a concern that the focus be on academic rather than business outcomes “Consider how you can sell me ‘real’ story not the ‘efficient’ story corporate affairs would prefer”. The absence of any items for D4 (Courses are designed to support disabled students) is most likely a consequence of the strong UK legislative requirement that support be provided, thus making any consideration of it redundant as a benchmarking discriminator.

Support

While not as dominant as in the other workshops, *Support* was still a popular area reflecting the general coverage of items such as “Plan student support requirements” and “Students understand what support is available to them, where/how to obtain it, what response times to expect”. Items were spread relatively evenly amongst the processes and with items at the four lower dimensions.

The most items were found in process S5 (Teaching staff are provided with pedagogical support and professional development in using e-learning) with items ranging from basic service provision “Staff development to support e-learning” through to encouraging and supporting research and reflection “It must be possible to derive research outcomes from (large scale) e-learning activities”. Items in S6 (Teaching staff are provided with technical support in the handling of electronic materials created by students) also noted the need for support arising from the empowerment of students “Programme developments might assume learners will be active producers of own content”.

Evaluation

The *Evaluation* process area was comparatively well addressed in this workshop with items noting the need to get student feedback “There is real feedback of aspects of course performance (learning activity, assessment) to planning” but also to actively engage them in the improvement process “Developing partnerships with staff and students”. The need for quality enhancement processes was strongly expressed in several items noting the need for continuous enhancement “Embedded quality enhancement process” and the need to support innovation “Quality processes must facilitate innovation in e-learning”.

Organisation

Relatively few items were identified in the *Organisation* process area. As with the other workshops processes O2 (Institutional learning and teaching policy and strategy explicitly address e-learning) and O9 (The provision of e-learning is guided by formal business management and strategy) dominated the results. The need for an e-learning strategy dominated the results along with the need to ensure that strategies and policies are used throughout the organisation “Policy and policies are disseminated meaningfully to practitioners and practitioners buy-in to policy and policies”. As with the *Evaluation* process area, the need for support of innovation was noted “Work towards change. We live in a change culture” and “Allow for flexibility/adaptability of processes/policies/procedures”. This was not however seen as solely an academic or managerial concern “Student experience is seen as the responsibility of all institutional staff”.

Revision of the eMM Processes and Practices

This section of the report describes the revision of the processes and practices used in the first version of the eMM. This revision is based on information, feedback, collaboration and analysis from the following sources:

- the results of the New Zealand eMM version one pilot (Marshall, 2005);
- feedback from the participants in the international workshops presented earlier in this report;
- work with the University of Manchester e-Learning Research Centre and with Professor Paul Bacsich in connection with the UK Higher Education Academy's 2006 e-learning benchmarking pilot exercise; and,
- a substantial literature review conducted under the current 2006 New Zealand Ministry of Education Tertiary E-Learning Research Fund supported research described in the current report.

Criteria for Inclusion

In the context of the SPICE methodology, El Emam *et al.* (1998) identified questions that should be considered when assessing individual processes in capability maturity models. These can be adapted to the current context:

- ☐ Are the processes that were chosen the characteristics that tend to make e-learning more capable?
- ☐ Do the processes cover all the relevant capabilities needed for effective e-learning?
- ☐ Are the processes defined so as to be independent of each other?
- ☐ Is this set of processes sufficient to characterise a range of capabilities?
- ☐ Do the processes represent the 'universal truths' of e-learning capability?
- ☐ Are the processes genuinely applicable to any institutional context?

These questions should be able to be answered affirmatively for the ideal set of processes defining e-learning capability. The second version of the eMM is proposed as being closer to that ideal than the initial set that constituted version one.

Changes to the eMM Resulting from the First Sector Assessment

The processes that constituted version one of the eMM are listed in Table 11 below. These were used to perform the initial capability assessment of nine New Zealand institutions reported in Marshall (2005). It was noted in that report that the initial evaluation identified some limitations with these processes:

"Applying these tests and examining the results presented in this report, it is clear that the initial set of processes used can be improved. This is not unexpected; the SPICE process set was developed through a number of 'trials' conducted over several years and the eMM processes are likely to require considerable refinement." (Marshall, 2005, page 14).

In that work, the following recommendations were made:

1. Processes L1, L7 and E5 should be combined into a single process describing the use and maintenance of learning objectives as guides to student learning.
2. Processes C6, O4 and O9 should be combined into a single process describing the need to support student use of technology through advance warning of its use and opportunities to practice and develop confidence prior to engagement in course work.
3. Processes E1, E2, E3 and E4 should be combined into a single process describing effective evaluation of courses in an e-learning context.
4. Processes C5 and C8 should be combined into a single process describing the support available to students in the use of technology while engaged in course work.
5. Process C1 should be moved into the *Development* process area.
6. Processes O6 and O7 should be combined into a single process describing the provision of administrative information to students.

Following these recommendations reduced the set of forty three processes to thirty four. However, review of the literature suggested that as many as one hundred additional processes could potentially be incorporated. Merging this wider set and evaluating their utility was therefore undertaken as the first stage of revising the eMM.

Accreditation Criteria, Standards and Heuristics Mapping

An initial assessment of the literature on e-learning standards and heuristics describing the various institutional factors that result in effective e-learning design, development, delivery and maintenance identified thirteen documents which are listed in Table 4. These documents are of various types, having been created for different purposes in widely varied contexts, but they are all widely acknowledged as capturing expert perceptions of quality e-learning. They are not, in the formal sense, all standards, but they are clearly heuristics.

Each of these documents was summarised into a series of individual items which were then sorted and aligned in an attempt to identify the meta-set of items. This generated 377 individual items sorted into thirteen broad categories, and then within those categories grouped by theme, resulting in the identification of forty two potential processes.

Category	No. of Themes	No. of Items
1. Expectations	3	12
2. Course design	7	63
3. Student-teaching staff communication	3	11
4. Student-peer communication	2	12
5. Active learning	4	28
6. Time on task	2	9
7. Diversity	3	40
8. Assessment	2	19
9. Learning outcomes	3	32
10. Teaching staff support	2	16
11. Programme evaluation	4	34
12. Student support	4	80
13. Miscellaneous/Technology specific	3	21
Totals	42	377

Table 9: Summary of the heuristic breakdown by category

Each of the themes was then matched with the eMM version one process set and correspondence with either a process or a dimensional characteristic of one or more processes was undertaken. When no match could be made, the theme was examined further and then expressed as a process within the evolving set.

Changes to the eMM Resulting From the Workshops

While the work on the literature survey and analysis was underway, the three international workshops described earlier were undertaken. As a result of the workshops, a number of significant improvements were made:

- New, revised and reorganised processes.
- Assessing processes by dimensions, rather than levels.
- Reflecting international differences within the eMM methodology

These are discussed in more detail in the following sections.

New, revised and reorganised processes

The brainstorming exercises undertaken during the workshops and the subsequent analysis reported above in this report identified a number of issues with the version one process set. A concern expressed by a number of participants was whether the original source documents, the Seven Principles (Chickering and Gamson, 1987) and the Quality on the Line Benchmarks (IHEP, 2000), were in fact able to completely describe the range of characteristics necessary for e-learning to succeed. This has been addressed in the current analysis in part by a greatly expanded set of heuristics being analysed, but the brainstormed ideas from the workshops also identified a number of items that appeared to be useful and appropriate, particularly as practices and these have been added to the final version two process set. These included the need to provide encouragement, opportunities, incentives and rewards to teaching staff engaging in e-learning, the need to consider the implications of intellectual property, and the need to involve and support all staff engaged in e-learning, not just those in teaching roles.

Assessing processes by dimensions, rather than levels

A key development that arose from explaining the model during the workshop has been the realization that the concept of levels used in the first version of the eMM is unhelpful (Marshall and Mitchell, 2006). The change in language has both greatly assisted in the communication of the intent of the model and also made the analysis and placement of practices within processes more rigorous and systematic.

Reflecting international differences within the eMM methodology

Reflection on the feedback from the workshop and the range of additional items that were identified has resulted in an improved appreciation of what aspects of the model are genuinely applicable in any context and how local differences can be incorporated without losing the international comparability and benchmarking aspects.

It seems clear that the place for local requirements is the practices that are used to assess capability for the processes at the different dimensions, rather than the high level processes themselves. Evolution of the process set has seen the processes come closer to the stated ideal of ‘universal truths’ of e-learning and changing them on an institutional or sector or country basis seems unhelpful.

On the other hand, the practices within the dimensions of each process necessarily must evolve as experience and evidence accumulate on effective e-learning approaches. The practices are also the place where very specific requirements such as those imposed by legislation or accreditation bodies can be reflected – superseding or complementing the generic practices that have been identified in the revised model (Marshall, 2006).

International Comparison and Revision

In late 2005 the UK Higher Education Academy (HEA) announced (<http://www.heacademy.ac.uk/benchmarking.htm>) that it was funding a pilot e-learning benchmarking exercise with the following aims:

- to provide institutions with the information to make informed plans for future development
- to allow institutions providing higher education to identify their current progress, on embedding e-learning, in relation to similar institutions
- to provide a picture of the sector as a whole in order to identify areas of strategic importance to inform the work of the JISC, the Academy and the Funding Councils

As part of the initial phase of this pilot a number of benchmarking evaluations are being undertaken using four internationally well-regarded benchmarking methodologies. The University of Manchester elected to use the eMM as the basis of the test they are conducting. The project team in the e-learning research centre at Manchester were provided with early drafts of the version two methodology and process set and in May 2006 a week of intensive analysis and improvement was undertaken with the support of the external consultant, Professor Paul Bacish. This reformulation has resulted in a significantly improved set of processes with a much more tightly defined set of definitions.

The University of Manchester is still engaged in the assessment of the model, using their own internal procedures and e-learning activities as an example, it is expected that this work will be published shortly as part of the transition to the next phase of the benchmarking pilot. Information on the current state of the work being done can be found at the project website: <http://www.elrc.ac.uk/blog/>.

Version Two of the eMM Process Set

The outcome of this redevelopment work is the version two eMM process set and the associated practices. There are thirty five processes incorporating nearly one thousand practices. The full details of these processes is supplied in the separate *eMM Version Two Process Guide* (Marshall, 2006a) and the summary description of how to apply the methodology is provided in the *eMM Version Two Process Assessment Workbook* (Marshall, 2006b), both of which are available from the eMM project website <http://www.utdc.vuw.ac.nz/research/emm/>. Table 10 provides a summary of the changes from version one to version two, including the five new processes introduced with version two, Tables 11 and 12 list the processes themselves.

Version 1	Version 2	Version 2	Version 1
L1	L1	L1	L1 L7 E5 O5
L2	L2	L2	L2 L3
L3	L2	L3	
L4	L4	L4	L4
L5	L5	L5	L5
L6	L6	L6	L6 C4
L7	L1	L7	
L8	L8	L8	L8
L9	L9	L9	L9
L10	L10 D4	L10	L10
D1	D2 D6	D1	D4 D5 D6
D2	D5	D2	D1
D3	D3	D3	D3
D4	D1	D4	L10
D5	D1	D5	D2 C1
D6	D1 S5	D6	D1
C1	D5 D6	D7	
C2	S2	S1	C5 C8 C9
C3	L9	S2	C2
C4	L6	S3	C9
C5	S1	S4	C8 O8
C6	O6	S5	C10 E7
C7	O6	S6	C10 C11
C8	S1 S4	E1	E1 E2
C9	S1 S3	E2	E1 E2
C10	S5 S6	E3	E3 E4 E6
C11	S6	O1	O1
E1	E1 E2	O2	
E2	E1 E2	O3	O2
E3	E3	O4	O3
E4	E3	O5	
E5	L1	O6	C6 C7 O4 O9
E6	E3	O7	O4 O9
E7	S5	O8	O5 O6 O7
O1	O1	O9	
O2	O3		
O3	O4		
O4	O6 O7		
O5	L1 O8		
O6	O8		
O7	O8		
O8	S4		
O9	O6 O7		

Table 10: eMM Version One and Two Process Mappings

Learning: Processes that directly impact on pedagogical aspects of e-learning	
L1.	Courses are designed to require students to engage themselves in analysis, synthesis, and evaluation as part of their course and programme requirements
L2.	Student interaction with teaching staff and other students is an essential characteristic and is facilitated through a variety of ways
L3.	Teaching staff clearly communicate how communication channels should be used during a course or programme
L4.	Teaching staff manage student expectations over the type and timeliness of responses to student communications
L5.	Feedback to student assignments and questions is constructive and provided in a timely manner
L6.	Students are instructed in the proper methods of effective research, including assessment of the validity of resources
L7.	Learning outcomes for each course are summarised in a clearly written, straightforward statement
L8.	Assessment of students communicates high expectations
L9.	Student work is subject to clearly communicated timetables and deadlines
L10.	Courses are designed to support a diversity of learning styles and to ensure accessibility
Development: Processes surrounding the creation and maintenance of e-learning resources	
D1.	Guidelines regarding minimum standards are used for course development, design and delivery
D2.	The reliability of the technology delivery system is as failsafe as possible
D3.	Learning outcomes, not the availability of existing technology, determine the technology being used to deliver content
D4.	Technical assistance in course development is available to teaching staff
D5.	Teaching staff are encouraged to use technical assistance when (re)developing courses
D6.	Teaching staff members are assisted in the transition from classroom teaching to online instruction
Coordination & Support: Processes around the day-to-day management and support of e-learning delivery	
C1.	A centralised system provides support for building and maintaining the e-learning infrastructure
C2.	Students have access to sufficient library resources that may include a 'virtual library' accessible through the WWW
C3.	Teaching staff and students agree upon expectations regarding times for student assignment completion and staff response
C4.	Students are provided with hands-on training and information to aid them in securing material from a range of sources consistent with the discipline or subject.
C5.	Students have convenient access to technical assistance throughout the duration of the course/programme
C6.	Students are provided with detailed instructions regarding the electronic media used in a course prior to commencing it
C7.	Students are able to practice with any technologies prior to commencing a course
C8.	Questions directed to student service personnel are answered accurately and quickly
C9.	A structured system is in place to address student complaints
C10.	Instructor training and assistance continues through the progression of the online course
C11.	Teaching staff are provided support resources to deal with issues arising from student use of electronically-accessed data
Evaluation: Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle.	
E1.	The programme's educational effectiveness is formatively and summatively assessed with multiple, standards based, and independent evaluations
E2.	The programme's teaching/learning process is formatively and summatively assessed with multiple, standards based, and independent evaluations
E3.	Summative data such as enrolment numbers, completion rates, and costing is used as a measure of effectiveness within course/programmes
E4.	Success of technology/innovation used as a measure of effectiveness within course/programmes
E5.	Intended learning outcomes are reviewed regularly to ensure clarity, utility, and appropriateness
E6.	Instructional materials are reviewed periodically to ensure they meet programme standards
E7.	Teaching staff capability in making the transition from classroom to online teaching is formally assessed during training
Organisation: Processes associated with institutional planning and management	
O1.	A documented set of formal criteria are used to determine access to funding and other resources which support course and programme (re)development
O2.	A documented technology plan is in place and operational to ensure quality of delivery standards
O3.	A documented technology plan is in place and operational to ensure the integrity and validity of information delivered, collected and stored
O4.	Before starting a programme, students are advised of any particular requirements of that programme to ensure they possess the personal and technical skills needed for that programme
O5.	Students are provided with supplemental course information that outlines course objectives, concepts and ideas
O6.	Students are provided with supplemental course information that outlines admission requirements, tuition and fees and other relevant administration information
O7.	Students are provided with supplemental course information that outlines requirements for additional resources such as books or other materials
O8.	Students are provided with supplemental course information that outlines student support services.
O9.	Before starting a programme, students are advised of any particular technological requirements of that programme to ensure they have access to the minimal technology required by the course design

Table 11: eMM Version One Processes

Learning: Processes that directly impact on pedagogical aspects of e-learning	
L1.	Learning objectives are apparent in the design and implementation of courses
L2.	Students are provided with mechanisms for interaction with teaching staff and other students
L3.	Student skill development for e-learning is provided
L4.	Information provided on the type and timeliness of staff responses to communications students can expect
L5.	Students receive feedback on their performance within courses
L6.	Research and information literacy skills development by students is explicitly supported
L7.	Learning designs and activities result in active engagement by students
L8.	Assessment of students is designed to progressively build their competence
L9.	Student work is subject to specified timetables and deadlines
L10.	Courses are designed to support diverse learning styles and learner capabilities
Development: Processes surrounding the creation and maintenance of e-learning resources	
D1.	Teaching staff are provided with design and development support when engaging in e-learning
D2.	Course development, design and delivery are guided and informed by formally developed e-learning procedures and standards
D3.	Explicit linkages are made in the design rationale regarding the pedagogies, content and technologies chosen
D4.	Courses are designed to support disabled students
D5.	All elements of the physical e-learning infrastructure are reliable, robust and sufficient
D6.	All elements of the physical e-learning infrastructure are integrated using defined standards
D7.	Resources created are designed and managed to maximise reuse
Support: Processes surrounding the support and operational management of e-learning	
S1.	Students are provided with technical assistance when engaging in e-learning
S2.	Students have access to a range of library resources and services when engaging in e-learning
S3.	Student enquiries, questions and complaints are collected formally and managed
S4.	Students have access to support services for personal and learning issues when engaging in e-learning
S5.	Teaching staff are provided with pedagogical support and professional development in using e-learning
S6.	Teaching staff are provided with technical support in the handling of electronic materials created by students
Evaluation: Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle	
E1.	Students are able to provide regular formal and informal feedback on the quality and effectiveness of their e-learning experience
E2.	Teaching staff are able to provide regular formal and informal feedback on quality and effectiveness of their e-learning experience
E3.	Regular formal independent reviews of e-learning aspects of courses are conducted
Organisation: Processes associated with institutional planning and management	
O1.	Formal criteria used to allocate resources for e-learning design, development and delivery
O2.	Institutional learning and teaching policy and strategy explicitly address e-learning
O3.	A documented specification and plan guides technology decisions when designing and developing courses
O4.	A documented specification and plan ensures the reliability, integrity and validity of information collection, storage and retrieval
O5.	The rationale for e-learning is placed within an explicit plan
O6.	E-learning procedures and which technologies are used are communicated to students prior to starting courses
O7.	Pedagogical rationale for e-learning approaches and technologies communicated to students prior to starting courses
O8.	Course administration information communicated to students prior to starting courses
O9.	The provision of e-learning is guided by formal business management and strategy

Table 12: eMM Version Two Processes

In comparing Tables 11 and 12 some differences are clearly apparent, the *Evaluation* process area has shrunk considerably, and the *Coordination and Support* process area is now labelled *Support*. Less apparent is that the process set is now much more focused on aspects of capability that present particular challenges to institutions engaged in e-learning. This has seen a number of processes in the *Organisation* area in particular being collapsed into process O8.

The language used in the process descriptions has been revised substantially to remove, as much as possible, any inclusion of words that imply particular ways of performing the process, or that are attempting to summarise concepts such as quality. This latter issue is problematic as the process should be done excellently, that is the goal of the eMM. Determining whether or not an institution is currently excellent is the outcome of the assessment. Use of words such as ‘proper’ or ‘clearly’ in the first version of the eMM are unhelpful as they are not open to consistent interpretation. The intention with version two has been to remove as much as possible of the value judgement to the level of the practices and to minimise interpretation at that level as much as can reasonably be done.

The greater definition of the five dimensions and re-examination of the process set has seen much of the *Evaluation* process area extracted into aspects of the fourth dimension of other processes and a re-emphasis on the need to gain feedback from both staff and students. The greater clarity in the differences between dimensions one and two also now makes the resulting assessments more discriminating, and based on the evidence from the sector reanalysis presented below, reduces the significant correlation in capability in these two dimensions observable in the first pilot evaluations (Figure 4 below).

Updated Sector Assessments

The substantial revision in the eMM that has generated version two has resulted in a substantially improved methodology and process set that should enable useful international comparison between New Zealand tertiary organisations and institutions based in many other countries. In order to enable this, it is necessary that the analysis presented in Marshall (2005) be performed again, using the current methodology and process set.

The results of that re-analysis are presented below in detail and summarised in Figure 5. It is important to emphasise that for most institutions this does not reflect a new analysis, but rather a re-analysis using the evidence collected in 2005. For some institutions this is still an accurate description of where their capability currently lies as a year is not sufficient time to change a complex institution. In some instances changes are starting to occur and it is likely that this analysis slightly underestimates their capability overall. Two new institutions have been included in the current data set and these have also been analysed with both eMM versions for consistency.

Comparing the results for the two versions in Figures 4 and 5 demonstrates the impact that the new methodology has had. In particular the focusing of emphasis on e-learning capability over general aspects of learning and teaching has seen the results decline across the sector. This is most noticeable in the *Organisation* and *Evaluation* process areas, where the absence of a large block of capability based on traditional systems and delivery approaches has had a visible result.

More subtle is the greater independence between the assessments for dimensions one and two that was noted above. This has seen the capabilities of most institutions decline across most processes, although the relative strengths and weaknesses noted in the first analysis (Marshall, 2005) are still present. Universities A, B, E and Polytechnics Z, Y and W are still clearly more capable than the remaining institutions although the greater definition now makes the relative strengths in *Support* (University A) and *Learning* (University B) more apparent. The greater strength of the five institutions appears to be a consequence of having employed dedicated staff who have as their job both an operational and a strategic responsibility. Not all of these five institutions are strong in the strategy and planning processes (O2, O5 and O9) nor in dimensions three and five, but there is a clear pattern of planned capability (dimension two) throughout the process assessments. Only nine assessments of more than partially adequate at dimension two are made for the other institutions (Universities C, D and G, Polytechnic X) and four of those are in process O8 which is strongly driven by traditional administrative systems. This compares to seventy nine assessments of largely or fully adequate capability from the institutions with dedicated e-learning staff.

As well as the relative strengths of institutions a number of patterns observed in the previous analysis remain and some additional general observations at the dimension, process and practice level can be made. Across the entire sector there still remains very little evidence of capability at dimensions four and five. This reflects the general absence of evidence collection informing a systematic and strategic engagement with e-learning. What evidence of capability that was seen at dimensions four and five was generally disconnected from the governance and leadership of institutions and there was no evidence of e-learning yet driving or responding to organisation changes.

Looking at the six completely new processes (Processes L3, L7, D7, O2, O5 and O9) it is clear that these have exposed additional weaknesses in many institutions. Process L3 illustrates the gap in the empowerment of students as autonomous and independent e-learners, and this probably connected to the general use of passive, transmission based pedagogies rather than active engagement of students (Process L7) and the lack of flexibility in the range of assessments and activities commonly used in e-learning (Process L10).

The absence of formal support for reuse and development of systems to store and manage e-learning resources (Process D7) is perhaps surprising given the high costs of developing resources and the prominence of learning objects in the e-learning research literature. This appears to reflect an ongoing ad-hoc approach to teaching design and development, with, particularly university staff seeing teaching as an independent activity undertaken in isolation by individual staff. This intuitive and informal approach is also apparent in the weak capability assessed for Process O5 across most of the sector.

	University A	University B	University C	University D	University E	University F	University G	Polytechnic Z	Polytechnic Y	Polytechnic X	Polytechnic W
L1. Courses are designed to require students to engage themselves in analysis, synthesis, and evaluation as part of their course and program requirements											
L2. Student interaction with faculty and other students is an essential characteristic and is facilitated through a variety of ways											
L3. Teaching staff clearly communicate how communication channels should be used during a course or programme											
L4. Teaching staff manage student expectations over the type and timeliness of responses to student communications											
L5. Feedback to student assignments and questions is constructive and provided in a timely manner											
L6. Students are instructed in the proper methods of effective research, including assessment of the validity of resources											
L7. Learning outcomes for each course are summarized in a clearly written, straightforward statement											
L8. Assessment of students communicates high expectations											
L9. Student work is subject to clearly communicated deadlines and timelines											
L10. Courses are designed to support a diversity of learning styles and to ensure accessibility											
Development: Processes surrounding the creation and maintenance of e-learning resources											
D1. Guidelines regarding minimum standards are used for course development, design and delivery											
D2. The elasticity of the technology delivery system is as flexible as possible											
D3. Learning outcomes, not the availability of existing technology, determine the technology being used to deliver course content											
D4. Technical assistance in course development is available to teaching staff											
D5. Teaching staff are encouraged to use technical assistance when (re)developing courses											
D6. Teaching staff are assisted in the transition from classroom teaching to online instruction											
Coordination & Support: Processes around the day-to-day management and support of e-learning delivery											
C1. A centralized system provides support for building and maintaining the e-learning infrastructure											
C2. Students have access to sufficient library resources that may include a "virtual library" accessible through the World Wide Web											
C3. Teaching staff and students agree upon expectations regarding times for student assignment completion and staff response											
C4. Students are provided with timely on training and information to aid them in securing material from a range of sources consistent with the discipline or subject											
C5. Students have convenient access to technical assistance throughout the duration of the course/program											
C6. Students are provided with detailed instructions regarding the electronic media used in a course prior to commencing it											
C7. Students are able to practice with any technologies prior to commencing a course											
C8. Questions directed to student service personnel are answered accurately and quickly											
C9. A structured system is in place to address student complaints											
C10. Teaching staff training and assistance continues through the progression of the entire course											
C11. Teaching staff are provided with support resources to deal with issues arising from student use of electronically accessed data											
Evaluation: Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle											
E1. The programme's educational effectiveness is formally and summarily assessed with multiple, standards based, and independent evaluations											
E2. The programme's teaching/learning process is formally and summarily assessed with multiple, standards based, and independent evaluations											
E3. Summative data such as enrolment numbers, completion rates, and costing is used as a measure of effectiveness within course/programmes											
E4. Success of technology/innovation used as a measure of effectiveness within course/programmes											
E5. Intended learning outcomes are reviewed regularly to ensure clarity, utility, and appropriateness											
E6. Instructional materials are reviewed periodically to ensure they meet programme standards											
E7. Teaching staff capability in making the transition from classroom to online teaching is formally assessed during training											
Organisation: Processes associated with institutional planning and management											
O1. Accredited set of formal criteria are used to determine access to funding and other resources when support course and programme (re)development											
O2. A documented technology plan is in place and operational to ensure quality of delivery standards											
O3. A documented technology plan is in place and operational to ensure the integrity and validity of information delivered, collected and stored											
O4. Before starting a programme, students are advised of any particular requirements of the programme to ensure they possess appropriate and technical skills needed for that programme											
O5. Students are provided with supplemental course information that outlines course objectives, concepts and ideas											
O6. Students are provided with supplemental course information that outlines admission requirements, tuition and fees and other relevant information											
O7. Students are provided with supplemental course information that outlines requirements for additional resources such as books or other materials											
O8. Students are provided with supplemental course information that outlines student support services											
O9. Before starting a programme, students are advised of any particular technological requirements of that programme to ensure they have access to the minimal technology required by the course design											



Figure 4: eMM Version One New Zealand Tertiary Sector e-Learning Capabilities

	University A	University B	University C	University D	University E	University F	University G	Polytechnic Z	Polytechnic Y	Polytechnic X	Polytechnic W
L1. Learning objectives are apparent in the design and implementation of courses											
L2. Students are provided with mechanisms for interaction with teaching staff and other students											
L3. Student skill development for e-learning is provided											
L4. Information provided on the type and timeliness of staff responses to communications students can expect											
L5. Students receive feedback on their performance within courses											
L6. Research and information literacy skills development by students is explicitly supported											
L7. Learning designs and activities result in active engagement by students											
L8. Assessment of students is designed to progressively build their competence											
L9. Student work is subject to specified timeables and deadlines											
L10. Courses are designed to support diverse learning styles and learner capabilities											
Development: Processes surrounding the creation and maintenance of e-learning resources											
D1. Teaching staff are provided with design and development support when engaging in e-learning											
D2. Course development, design and delivery are guided and informed by formally developed e-learning procedures											
D3. Explicit linkages are made in the design rationale regarding the pedagogies, content and technologies chosen											
D4. Courses are designed to support disabled students											
D5. All elements of the physical e-learning infrastructure are reliable, robust and sufficient											
D6. All elements of the physical e-learning infrastructure are integrated using defined standards											
D7. Resources created are designed and managed to maximise reuse											
Support: Processes surrounding the support and management of e-learning											
S1. Students are provided with technical assistance when engaging in e-learning											
S2. Students have access to a range of library resources and services when engaging in e-learning											
S3. Student enquiries, questions and complaints are collected formally and managed											
S4. Students have access to support services for personal and learning issues when											
S5. Teaching staff are provided with pedagogical support and professional development in using e-learning											
S6. Teaching staff are provided with technical support in the handling of electronic materials created by students											
Evaluation: Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle											
E1. Students are able to provide regular formal and informal feedback on the quality and effectiveness of their e-learning experience											
E2. Teaching staff are able to provide regular formal and informal feedback on quality and effectiveness of their e-learning experience											
E3. Regular formal independent reviews of e-learning aspects of courses are conducted											
Organisation: Processes associated with institutional planning and management											
O1. Formal criteria used to allocate resources for e-learning design, development and delivery											
O2. Institutional learning and teaching policy and strategy explicitly address e-learning											
O3. A documented specification and plan guides technology decisions when designing and developing courses											
O4. A documented specification and plan ensures the reliability, integrity and validity of information collection, storage and retrieval											
O5. The rationale for e-learning is placed within an explicit plan											
O6. E-learning procedures and which technologies are used are communicated to students prior to starting courses											
O7. Pedagogical rationale for e-learning approaches and technologies communicated to students prior to starting courses											
O8. Course administration information communicated to students prior to starting courses											
O9. The provision of e-learning is guided by formal business management and strategy											

	Not practised/not adequate
	Partially adequate
	Largely adequate
	Fully adequate
	Not assessed

Figure 5: eMM Version Two New Zealand Tertiary Sector e-Learning Capabilities

The lack of impact of e-learning on the governance and operation of institutions is evident in the capabilities assessed for Processes O2 and O9. There is very little evidence of systematic updating of learning and teaching policy to reflect the differences and challenges consequent to the use of e-learning nor is there much evidence of business goals and strategies driving investment in e-learning infrastructure. The lack of information provided to students across the sector on how the institution uses e-learning to support their learning (Processes O6 and O7) remains clearly evident.

The weakness in the support of disabled students is still apparent (Process D4), however the separation of *Evaluation* processes into student (Process E1) and staff (Process E2) aspects has exposed the systemic disregard of staff in current evaluation and feedback activities across the sector. The lack of evidence based practice and the use of guidelines, templates and case studies to support the work of teaching staff is still apparent. At the practice level there was almost no evidence of institutions capturing research-based evidence of successful e-learning technology or pedagogy use. The *Evaluation* area process capabilities now convey clearly the lack of systematic incorporation of e-learning into institutional evaluation and review procedures.

Professional development, training and support while of high quality, is generally optional and staff are not specifically encouraged and provided opportunities to improve their own skills. There was little evidence of rewards or other incentives for teaching staff to invest their time in developing and improving teaching, and thus student learning, in general, let alone investing the substantial time needed for e-learning.

Systems and infrastructure for e-learning remain dominated by the use of traditional LMS facilities, with little evidence of the use of standards, formal planning or the systematic analysis and design of e-learning infrastructure driven by strategic goals. At the level of practices there was little evidence of students or teaching staff being asked to provide their perspectives. The absence of any formal risk analysis and planning is also a significant concern given the increasing, if largely unremarked, dependence of institutions on their e-learning infrastructure.

Support for students and staff remains sharply disparate with University A and Polytechnic Y standing out well from the rest of the sector. The one exception remains libraries who, more than any other internal group appear to understand the changing requirements of students and staff as electronic information use grows.

The following sections give a more detailed analysis of the capabilities assessed across the sector for each process. As with the first version of the eMM, the identities of the individual institutions remain strictly confidential as do details of the analysis that might allow their identification. These sections include a short description of the expectations for the individual processes. This is a summary only and interested readers should consult (Marshall, 2006a) for the full details of each process and the associated practices at each dimension.

Learning: Processes that directly impact on pedagogical aspects of e-learning

L1: Learning objectives are apparent in the design and implementation of courses

Evidence of capability in this process is seen through the provision of a clear statement of learning objectives that clearly and explicitly specify both pedagogical approach and content of a course. These same objectives cover a range of cognitive outcomes and are formally and consistently linked throughout the course descriptions. Learning objectives should form the basis of planning and review activities and be integrated at the course, programme and institution levels.

L1: Learning objectives are apparent in the design and implementation of courses					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure L1: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

A range of capabilities were found. Institutions that had clear, well structured statements of learning objectives tended to also have a wider range of cognitive outcomes identified, other institutions tended to have learning objectives that were stated in general and inconsistent language. There was very little evidence of learning objectives being formally linked to assessment and learning tasks even when a clear statement was provided with only four of the institutions showing partially adequate capability for that particular practice. In general the learning objectives were not available until students had enrolled and started courses.

Dimension 2: Planning

Learning objectives appear to be used as a tool for structured guidance of e-learning design only in the context of formal development support, when this is not present there is no evidence that the teaching staff use learning objectives to guide their work. Institutionally this is also reflected by the absence of any use of graduate or course learning objectives to guide review processes assessing the effectiveness of e-learning courses. The requirement that learning objectives be included in course outlines is common but essentially appears to be being treated as a bureaucratic requirement, and not a tool for enhancing learning.

Dimension 3: Definition

Most institutions have a policy requirement that learning objectives be provided in course outlines but generally little formal guidance provided on what this should constitute. The guidance provided in course outline templates provided is generally focused on formatting issues rather than content and linkage through to other aspects of the design or communication process. Training in creating and using learning objectives is commonly provided but is normally optional and there is no evidence of any exemplars or case studies being provided for staff to model their e-learning design and development activities on.

Dimension 4: Management

There is little evidence across the sector of formal review processes considering the impact of learning objectives and associated structured design approaches on student learning.

Dimension 5: Optimisation

No evidence of capability, consistent with the absence of any sense that learning objectives are seen as other than bureaucratic requirements.

L2: Students are provided with mechanisms for interaction with teaching staff and other students

In this process area, capability is seen in the use of a variety of communication modes or channels and encouragement for students to engage with peers and teaching staff. It is not sufficient that tools be provided, there must also be activities designed to encourage their use and support of effective engagement. Students should be provided with information on how to access and use different communication channels or modes. They should be given a clear explanation as to why the channels or modes have been included within the course and how they will assist in achieving the learning objectives of the course. Teaching staff need support in the use of effective pedagogical strategies that take advantage of the available channels informed by research and evidence from students and staff on the utility of the different channels.

L2: Students are provided with mechanisms for interaction with teaching staff and other students					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure L2: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Generally students were provided with clear information on accessing LMS communication tools and email contact information for teaching staff. Less helpful was the provision of information on how to learn with the supplied tools. Much of what was supplied focused on technical aspects of the LMS facilities and often was simply the commercially supplied documentation. University B provided clear guidance to students on how to use tools for learning. The information was structured around how the different forms of communication could assist with the course objectives and student learning and also included guidance during the course linked to individual assessment exercises and encouraging effective use of the supplied communication facilities.

Dimension 2: Planning

Formal communication of the available communication channels was best in those institutions with formal design and development support teams, although this generally only related to communication of the technical aspects of the LMS tools. There was little evidence of structured interaction designs guiding the selection of tools and their integration into course activities. Polytechnic Y had very clear guidebook on learning online that assisted students in getting started with the online communication tools which helped provide a consistent set of expectations to staff and students.

Dimension 3: Definition

Despite the investment in LMS facilities here is very little evidence that institutions have formally defined an expectation to staff that they engage with students through online communication channels. There also appears to be no connection between policy statements describing expectations for quality learning and teaching and formal processes conveying the implications of these expectations to teaching staff. LMS use has resulted in the availability of a standard set of communication tools but there is little evidence that this has resulted in a formal consideration of how these tools should be used to enhance student learning.

Dimension 4: Management

No real evidence of capability other than at Polytechnic Y where the formal e-learning design and development process has some impact with the use of feedback and review phases. The impact of LMS communication tools does not appear to yet be an activity attracting systematic and regular review and evaluation.

Dimension 5: Optimisation

No evidence of capability.

L3: Student skill development for e-learning is provided

Evidence of capability in this process is shown by clear communication to students of the pedagogical strategy of courses and programmes. The contribution of technological tools in assisting students in attaining the learning objectives of the course or programme should be clear. Students should be supported in understanding what is expected from them as learners and in gaining the necessary generic and specific learning skills, including attaining competency with the associated technologies. Teaching staff should be supported in developing their own skills as learning facilitators able to engage the students in effective learning built on a foundation of practice, demonstrated competency and guided reflection.

L3: Student skill development for e-learning is provided					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure L3: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The learning designs of the courses assessed generally were clear and appropriate however a consistent weakness was the absence of opportunities for students to practice tasks and activities before engaging in them for assessment purposes. Consequently capabilities are assessed as weaker than might be expected. As with process L7 it appears that courses are not being designed with the goal of encouraging independent autonomous learners.

Dimension 2: Planning

Student support services aimed at improving the students' learning skills are uniformly available across the sector and clear information is provided to students on how to access this, although it is unclear how actively students are encouraged to use this support. The approach taken is passive, with no evidence across the sector that student skills for learning are formally assessed and this information used to guide teachers responses. The use of staged assessment tasks to build student skills as learners was also not evident (see also Process L8).

Dimension 3: Definition

Institutional policy support of incremental development of student skills for learning was generally poor, what stronger capability that was noted occurred in the context of a specific emphasis on learning and teaching at the policy level being generally apparent. There was little evidence of strong encouragement to teaching staff that they design assessment programmes aimed at building student's learning competencies. The training and support that was provided was normally optional and attendance not encouraged.

Dimension 4: Management

No significant evidence of capability across the sector. What little was seen was based on limited evaluations and assessments of courses developed with the assistance of specialist e-learning design and development staff rather than a specific institutional engagement with understanding the learning skills of students.

Dimension 5: Optimisation

No evidence of capability.

L4: Information provided on the type and timeliness of staff responses to communications students can expect

Evidence of capability in this process is shown by clear commitments to provide feedback and responses within a designated time period. This may include formal processes for how the different channels are used and a description of how teaching staff will respond on these channels (if at all). A clear design is apparent in the selection of the range of channels and the integration with course activities and the information provided to students on type and timeliness of responses is consistent with that design. Performance is monitored in order to ensure that the commitments being made are adhered to and resourced appropriately.

L4: Information provided on the type and timeliness of staff responses to communications students can expect					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure L4: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Generally students were provided with very little information on what they should expect from teaching staff in the way of responses to communication, either in terms of timeliness or in terms of explicit guidance as to how the different channels would be used. When stronger capability was seen it was a consequence of a formal consideration of staff and student interaction during the process of course design and development. University B stood out with the use of standard set of materials conveying how the channels were intended to be used both by students and by staff.

Dimension 2: Planning

Planning for effective communication and feedback was strong in University B and Polytechnic Y reflecting the use of a formal design and development methodology that explicitly considered interaction between teaching staff and students, including the expectations for timeliness and the associated staff and student workloads. In all other institutions this dimension was weak, reflecting a general passivity and informal approach in the use of the communication tools provided through the institutional LMS facilities.

Dimension 3: Definition

Policies governing conduct and legal aspects were generally strong but there was little evidence of engagement with the implications for student learning. In particular there was little evidence of the use of examples of effective communication and feedback strategies as a tool to guide the performance of teaching staff. There was also little evidence of support materials being created for students to use when receiving feedback from teaching staff.

Dimension 4: Management

No evidence of capability consistent with the generally passive use of LMS communication facilities.

Dimension 5: Optimisation

No evidence of capability.

L5: Students receive feedback on their performance within courses

Evidence of capability in this process is seen through the use of informal feedback through various communication channels complemented by formal assessment feedback processes such as marking rubrics. Policy should require prompt and useful feedback aimed at improving student capability in related tasks rather than just the immediate goal and teaching staff should be provided with guidelines and assistance in the provision of more effective feedback.

L5: Students receive feedback on their performance within courses					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure L5: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The feedback approaches adopted were generally strong if dominated by assessment feedback. University A in one course demonstrated a very clear and effective use of marking rubrics that included a feedback structure that clearly indicated the type of feedback students could expect and which encouraged the staff marking to provide detailed information in response to student work rather than just individual marks, sadly this was clearly not a standard approach, reflecting rather the work of a single teacher. Across the sector there is little evidence of teaching staff using a variety of feedback channels to provide more informal formative feedback to students during non-assessed activities.

Dimension 2: Planning

The use of structured interaction designs providing a range of feedback to students was seen when formal design and development support was provided to teaching staff. Despite this assistance there was little evidence across the sector of the use of staged assessment tasks designed to build student skills incrementally, although formal policies commonly noted the need for such an approach. The absence of designed opportunities for students to practice tasks and gain informal feedback from teachers and peers is consistent with the poor results for process L3. This result seems to reflect the lack of teaching staff engagement in training and support for assessment design as the capability that was seen followed from formal design and development approaches being used and supported by experts.

Dimension 3: Definition

The poor evidence of capability here reflects the disconnect between the policy requirements that staff provide effective feedback, which was generally strong, and the support provided to enable teaching staff in providing that feedback. Training and other support was normally available but was optional and with little evidence of systematic encouragement from institutional management. Across the sector there was little evidence of examples of effective feedback techniques derived from local experience being used to assist and guide teaching staff.

Dimension 4: Management

No significant evidence of capability. Student satisfaction with feedback is commonly assessed by teaching evaluations but there appears to be little systematic and operationalised assessment of the impact of e-learning on feedback quality.

Dimension 5: Optimisation

No evidence of capability.

L6: Research and information literacy skills development by students is explicitly supported

Evidence of capability in this process is seen through the provision of resources on conducting research, resources on finding content and other information via links to suitable databases, instructions on where to find suitable books and support materials provided by groups such as libraries on information literacy skills. Development of skills in identifying useful materials and more general research skills should also be reflected in the assessment tasks of a course and the associated marking and feedback rubrics. Information literacy and research skill development should be reflected in the learning objectives either implicitly or explicitly. Teaching staff are provided with templates, examples, training and support in using the range of information resources available to support student learning. Explicit guidance and support should be provided to staff and students with policies and examples on intellectual property aspects, particularly copyright and plagiarism.

L6: Research and information literacy skills development by students is explicitly supported					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure L6: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The renewed focus on research encouraged by the PBRF does not appear to have yet resulted in the explicit development of student information literacy and research skills during courses. Basic information on available resources was generally provided although in many cases this was little more than a link to the library webpages, more detailed information on using the resources for learning was, however, usually absent or limited in scope. An exception was University B which provided a page in each course containing a customised set of starting points for further research and investigation by students along with direct links to support resources and library staff who could assist the students either on-line or in person.

Dimension 2: Planning

There was little evidence of the use of formal tutorials or sessions on information literacy with the exception of University F which required that all students attend a library tutorial. The importance of research was not commonly reflected in the assessment task marking criteria and rubrics used in the sector, although the need to properly cite material and avoid plagiarism was generally strongly conveyed.

Dimension 3: Definition

Research skill development by students as a formal policy objective was not apparent. It was disappointing to note that most institutions fail to provide important information such as bibliography and citation formats clearly and consistently to students.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

L7: Learning designs and activities result in active engagement by students

Evidence of capability in this process is seen through course and programme designs that provide students with authentic and personally relevant contexts for their learning. E-learning technologies and pedagogies should be flexibly designed so as to allow incorporation of student experience and knowledge. Analysis and reflection should be encouraged and practised rather than recall and information retrieval. Teaching staff should be supported in developing the skills needed to facilitate e-learning approaches that build engagement through active learning pedagogies rather than replicating passive, traditional learning environments.

L7: Learning designs and activities result in active engagement by students					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure L7: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Consistent with the observations in processes L1 and L8 the formal provision of assistance in course design to teaching staff clearly results in both a better use of staged activities and assessment tasks and a clearer overall communication to students of how the course is designed to support their learning. It was notable that the majority of courses made limited attempts to explicitly connect assessment tasks with other course activities.

Dimension 2: Planning

There were very few examples of any attempt to explain to students how the activities and the course design were assisting them in achieving the goals and objectives of the courses. The use of a formal e-learning design and development methodology clearly helped, with University B in particular clearly communicating to students the underlying learning design rationale used to guide the selection and development of the course resources and activities.

Dimension 3: Definition

Weak capability evident across the sector as a consequence of optional training and support for teaching staff combined with little in the way of incentives, support or encouragement to invest the necessary time and effort. There was also little evidence of policy guidance and strong direction that courses actively engage students. University E had the best policy in this area but there was little evidence of systematic actions being taken to support the implementation of that policy.

Dimension 4: Management

No evidence of systematic measurement of the ability of e-learning to engage students was evident in the sector.

Dimension 5: Optimisation

No evidence of capability.

L8: Assessment of students is designed to progressively build their competence

Evidence of capability in this process is seen through the use of assessment programmes designed to support students in achieving the learning objectives and which build capability progressively with opportunities for feedback and reflection. Policy and guidelines should encourage the use of a mix of assessment techniques throughout the course and encourage the use of challenging tasks to motivate performance and learning.

L8: Assessment of students is designed to progressively build their competence					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure L8: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

There was very little evidence of the use of structured assessment tasks designed to build student capability progressively. In general, assessment tasks used throughout the sector were limited in type and isolated from other tasks and the activities of the course. There were few examples of innovative assessment tasks building on the technologies available. Students were normally provided with timely formal feedback on assessment outcomes, however support for their practicing the tasks first and getting informal feedback from other students and teaching staff before attempting assessment was much less evident.

Dimension 2: Planning

The communication of assessment tasks and their requirements was strong as would be expected, however little information was provided to students on the linkages between assessment tasks and with the other course activities and objectives. The notable exceptions were when a formal e-learning design and development methodology was used. The use of automatic plagiarism detection systems in most institutions was apparent.

Dimension 3: Definition

As with process L7 weak capability evident across the sector following from limited use of incentives, support or encouragement for teaching staff to engage in the optional training and support provided. There was very little evidence of policy guidance and systematic direction from institutions ensuring that courses have clearly structured and staged assessment designs.

Dimension 4: Management

Little evidence of capability with no evidence of systematic collection of feedback from teaching staff or evaluation of the impact of particular assessment strategies on student learning.

Dimension 5: Optimisation

No evidence of capability.

L9: Student work is subject to specified timetables and deadlines

Evidence of capability in this process is seen by the provision of a clear timetable that relates all of the elements of a course together and communicates the logic underlying the design of the various activities. Particularly in online courses, there should be frequent pointers and reminders to students as to where they should be focusing their energies and the upcoming deadlines that they should be aware of. During the design of materials, explicit consideration should be given to student and staff workload expectations and the impact that this has on the timing of elements of the course.

L9: Student work is subject to specified timetables and deadlines					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure L9: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Some form of standard timetable and description of the workload associated with a particular course is routinely supplied by every institution. The clarity and availability of this information varied dramatically however and detailed timetables were not normally available until after enrolment. Timetable information was normally supplied in conjunction with assessment deadlines but was often not conveyed in a way that communicated the relationship between tasks and activities. In many cases the information was not repeated in multiple locations to remind students.

Dimension 2: Planning

Clear timetables using a common template were normally apparent in course outlines, however it was often not clear how the workloads for the timetabled tasks were being determined or how students could negotiate variances to assessment deadlines. The structured relationships between the timing of different elements of the courses was not conveyed well to students in many cases. There was no evidence of students being encouraged to plan their own workloads and prepare in advance for periods of intensive work prior to particular deadlines and little evidence of their being encouraged to seek support and training in effective time management strategies..

Dimension 3: Definition

While the use of timetables is commonly a standard requirement in policy and course templates there is little evidence of formal assessment of student workloads or the coordination of workloads across courses and programmes. While most institutions had a standard means of relating expected workload to courses this was not normally conveyed to students explicitly. Little use of examples of effective course workload planning and communication strategies as tools for teaching staff development and support was apparent.

Dimension 4: Management

There was no evidence of systematic measurement of student workloads and the impact of different e-learning technologies and pedagogies on student and staff work patterns.

Dimension 5: Optimisation

No evidence of capability.

L10: Courses are designed to support diverse learning styles and learner capabilities

Evidence of capability in this area is seen through course design and implementation practices that use a variety of complementary pedagogical approaches to support student learning, including a variety of media, assessment types and communication channels. Teaching staff should be enabled and supported in being open to flexible teaching and learning methods and should support and encourage students negotiating or using alternative learning approaches that are better suited to their personal circumstances. Policies and guidelines for courses should explicitly incorporate an expectation of diversity in learning styles and learner capabilities being supported proactively, rather than being reacted to in response to student complaints.

L10: Courses are designed to support diverse learning styles and learner capabilities					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure L10: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

It was notable that the avoidance of bias and stereotypes was generally strong but that the use of a variety of media and learning tasks was not as strong. Very little evidence of intentional practice as reflected by little formal communication of diversity support to students. The formal e-learning design and development methodology used by University B had a clear impact following from the explicitly flexible pedagogical design used and communicated to students, however in general there was very little evidence that courses were receptive to students adopting alternative learning approaches.

Dimension 2: Planning

Generally poor support across the sector for students with a diversity of learning needs falling outside of mainstream expectations. Little information is formally supplied to students on how courses are designed to support a range of learning styles and approaches reflecting the essentially rigid and reactive designs implemented. There was no evidence that the available technologies were being used creatively and flexibly, rather a passive adoption of standard LMS features was the norm.

Dimension 3: Definition

Policy statements requiring the support of diversity and the absence of bias were clearly apparent as are the expectation that courses and teachers support a range of student capabilities to learn. There was, however, little evidence of structured approaches being adopted to support teaching staff in developing the necessary skills or of examples or templates being used to assist teaching staff in so doing. Polytechnic Y demonstrated best practice in the policy area with a formal requirement that all courses provide materials in a wide range of formats and very clear instructions provided to students on how they could get access to alternative materials and assistance with their learning.

Dimension 4: Management

Very little evidence of capability, students can provide feedback on this area but it is generally not collected or used in a structured way.

Dimension 5: Optimisation

No evidence of capability, only one institution showed any evidence of using diversity requirements when selecting technologies for use.

Development: Processes surrounding the creation and maintenance of e-learning resources

D1: Teaching staff are provided with design and development support when engaging in e-learning

Evidence of capability in this process is seen in the availability of technical assistance and staff development for the full range of technologies that are provided as standard in the institution, along with expert assistance in the design of the pedagogical approaches for courses. Access to this support is managed to ensure efficient and equitable use of time and the achievement of strategic goals as well as short term requirements. Effective approaches in the institutional context are communicated through examples, case studies, standards and guidelines customized for the institution, as well as during training for teaching staff.

D1: Teaching staff are provided with design and development support when engaging in e-learning					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure D1: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Capability at this dimension essentially depended on whether or not the institution had invested in a formal e-learning design and development support team. Most of those who did (Universities A, B and E, Polytechnic Y) had the resources to provide support to teaching staff designing and developing e-learning courses and projects, otherwise very little support was possible.

Dimension 2: Planning

As with dimension one, capability on this dimension depended on whether or not an investment in a formal e-learning design and development support team had been made. Interestingly, there was no evidence of specifically contracted staff being used on a course by course basis to compensate for the lack of internal investment. Irrespective of any investment in formal design and development support there was little evidence of risk assessments being undertaken as part of the design and development of e-learning initiatives.

Dimension 3: Definition

There was little evidence in the sector of teaching staff being provided with the tools to effectively run e-learning design and development projects themselves. Very little training was provided and there was little evidence of formally developed standards, guidelines and templates being used to support teaching staff. There is some evidence of the use of formal standards in those institutions with some type of formalised design and development support but this was limited to their use by expert staff rather than as a tool for promulgating good practice more widely within the institution.

Dimension 4: Management

Little evidence of capability. Universities B and E, and Polytechnic Z have some evidence of quality assurance and the use of feedback from teaching staff regarding the effectiveness of the support provided but this is very informally collected and not particularly strongly followed through with planning and resourcing activities.

Dimension 5: Optimisation

No evidence of capability.

D2: Course development, design and delivery are guided and informed by formally developed e-learning procedures and standards

Evidence of capability in this area is seen through the use of consistent, documented practice that reuses previous experience within the institution to build capability. Formal standards are used where available to inform and guide practice and ensure quality and reusability of materials. These standards and guidelines are communicated widely within the institution to encourage wider adoption by teaching staff.

D2: Course development, design and delivery are guided and informed by formally developed e-learning procedures and standards					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure D2: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Very weak capability noted across the sector with little investment in developing materials for the independent use of teaching staff in e-learning design and development as noted in process D1. University B stood out as having a clearly defined and described design and development methodology which was provided and supported in a fashion intended to promote its adoption by teaching staff. There was no evidence of formally defined external e-learning standards or guidelines being used to inform e-learning design and development outside of the dedicated e-learning design and development teams employed by Universities A, B and C, and Polytechnics Y and Z.

Dimension 2: Planning

Capability tracked with the investment by institutions in formal design and development support (Universities A, B and C, and Polytechnics Y and Z). There was little evidence across the sector of any systematic programme of rewards and incentives to encourage teaching staff engagement with formal e-learning design and development.

Dimension 3: Definition

As with dimension two, capability tracked with investment in formal design and development support. Procedures and standards were used somewhat by the dedicated e-learning staff and there was a limited amount of optional training and support provided to teaching staff, although it was notable that very little in the way of quality assurance support was provided to teaching staff. Generally expertise in e-learning design and development, including project management and quality assurance, is residing with experts rather than being communicated in a structured way to teaching staff to use themselves.

Dimension 4: Management

Very little evidence of capability other than at University E which had some relatively informal feedback and quality assurance activities which do not appear to have generated any significant institutional strategic response (note the absence of capability at dimension five). There was very little evidence that the costs and benefits of e-learning development were being systematically assessed even in those institutions with a formal investment in design and development support.

Dimension 5: Optimisation

No evidence of capability.

D3: Explicit linkages are made in the design rationale regarding the pedagogies, content and technologies chosen

Evidence of capability in this area is seen with the use of explicit design processes and plans that link technology decisions with defined student learning outcomes and graduate attributes. This should also include making the underlying design rationale and pedagogy apparent to students when they are introduced to how the technology will be used in the particular course. Teaching staff are provided with templates, examples, training and support in using the range of technologies available to support student learning in a range of contexts and disciplines.

D3: Explicit linkages are made in the design rationale regarding the pedagogies, content and technologies chosen					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure D3: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Capability in this process was very weak, reflecting the relatively limited use of structured and formalised design and development methodologies even in those institutions with a dedicated e-learning support team. Only University B clearly conveyed to students how the elements of the course and the supporting technologies were integrated and designed to support their learning. In most cases there was little or no evidence of formal design playing a part in the creation of e-learning courses.

Dimension 2: Planning

There was almost no evidence of planning in the implementation of learning designs, other than in the two institutions with dedicated e-learning design and development support teams. Consistent with the observations made in process L1 there was little evidence of learning objectives being used to guide the selection and development of e-learning technologies and pedagogies. There was also no evidence of students being involved in the planning of e-learning projects and initiatives.

Dimension 3: Definition

Very little evidence of formal engagement by institutions in the structured design of learning. Tools such as learning objectives or formal design plans are not being used to guide technical and pedagogical decisions and while limited training is provided by some institutions, it is optional and not supported by encouragement, opportunities or incentives for teaching staff to invest their time.

Dimension 4: Management

Very little evidence that the institutions are formally reviewing the linkages between the use of e-learning technologies and pedagogies and the impact on student learning outcomes.

Dimension 5: Optimisation

No evidence of capability.

D4: Courses are designed to support disabled students

Evidence of capability in this area is seen through design and implementation practices that use a variety of complementary approaches to support student learning, including a variety of media. Accessibility should be explicitly considered during the design process and standards such as those provided by the W3C (<http://www.w3c.org/WAI/>) used to ensure compliance. Formal and regular reviews involving students as key stakeholders should be conducted both of courses and the supporting standards, templates and staff development materials.

D4: Courses are designed to support disabled students					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure D4: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Despite the legislative requirement that all courses be accessible to disabled students, capability was disappointingly weak. The use of alternative media and learning activities is somewhat apparent but it is clear that little consideration is given formally to the needs of disabled students when courses are being designed and developed. What little support that is provided appears to be a consequence of other decisions, such as use of a particular LMS, rather than a planned decision to meet the full range of potential student requirements. Very little communication to students is evident regarding what steps have been taken to ensure accessibility.

Dimension 2: Planning

A noticeable feature of this process is the gap in capability arising at dimension two compared with dimensions one and three. This reflects the existence of reasonable policies and teaching approaches with little formal or systematic planning to ensure that delivery is sustainable and fully effective. There was very little evidence that disability access is planned or that courses are tested with students to identify potential issues prior to delivery. All institutions had a means for students to self identify if they had a disability but this appears to result simply in a post-facto remediation approach being adopted, something that would be very problematic with some designs. This also fails to address the issue of students being reluctant to identify themselves as disabled, a problem aggravated by the poor communication of the contents and expectations of courses prior to commencement (processes O6 and O7).

Dimension 3: Definition

Generally institutions provide a support service for disabled students and institutional policies require that this be provided and that disabled students are accordingly able to participate equally in most if not all courses. Across the sector this is not complemented by detailed information for students on the range of support options available in particular courses or by assistance to teaching staff in ensuring that their courses are accessible to disabled students. The approach taken by institutions supporting disabled students can be characterised as reactive, rather than proactive, responding only when students complain of problems.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

D5: All elements of the physical e-learning infrastructure are reliable, robust and sufficient

Evidence of capability in this process is seen through the creation and use of an integrated infrastructure with hardware, software and teaching facilities able to be easily accessed by staff and student, design processes that include explicit consideration of reliability aspects when choosing technology and the basing of this decision on evidence of reliability collected in the institutional context whenever possible. Course designs include consideration of alternatives to be used by teaching staff when technology fails and ensuring there are support procedures in place to deal with potential failures. Standards and guidelines are used to communicate which technologies have been proven reliable and regular monitoring and reporting is used to prove and sustain reliability. The selection of new technologies is done with reference to formal standards and the ability for them to be integrated within the existing infrastructure.

D5: All elements of the physical e-learning infrastructure are reliable, robust and sufficient					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure D5: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Capability in this process was generally strong, dominated by the dependence on the standard services provided by central IS groups in the different institutions. As well as maintenance of the central LMS this also included related systems and facilities such as networks, specialist servers for video and similar technology. Exceptions were Universities B and F where a single LMS did not dominate delivery and the alternatives used were not formally managed.

Dimension 2: Planning

The growth in dependence on LMS facilities has been rapid across the sector and there is now a need for explicit consideration of issues of redundancy and reliability as substantial amounts of student and course information are now stored in these systems. The varied results here suggest that there is room for improvement in a number of institutions. Those with a stronger capability were using either a formal outsourcing arrangement or had a dedicated e-learning design and development support team ensuring that the core systems were robust and reliable, there was however little evidence of formal risk assessments guiding decisions, other than at University B.

Dimension 3: Definition

Performance was generally poor reflecting the relatively rare use of service level agreements as tools to manage internal IT service provision. There was also little evidence of a research base or the use of formally defined external standards informing the selection, use and maintenance of e-learning technologies.

Dimension 4: Management

Very little capability was seen, consistent with the observations in dimension two, other than in the context of a formal outsourcing agreement. Despite the dependence of many institutions on e-learning as core business there was little evidence of systematic and formal reporting and monitoring of the performance, reliability and robustness of e-learning systems and infrastructure.

Dimension 5: Optimisation

No evidence of capability.

D6: All elements of the physical e-learning infrastructure are integrated using defined standards

Evidence of capability in this area is seen through the use of consistent, documented practice that reuses previous experience within the institution to build capability. Formal standards are used where available to inform and guide practice and ensure quality and reusability of materials. These standards and guidelines are communicated widely within the institution to encourage wider adoption by teaching staff.

D6: All elements of the physical e-learning infrastructure are integrated using defined standards					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure D6: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The very weak capability identified at dimension one of this process is a consequence of the need for LMS facilities and other e-learning infrastructure to interoperate with existing systems for student administration and general IT services. There is otherwise, essentially no evidence that external standards are having any impact on e-learning design and development decisions across the sector.

Dimension 2: Planning

No evidence of capability.

Dimension 3: Definition

No evidence of capability.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

D7: Resources created are designed and managed to maximise reuse

Evidence of capability in this process is seen through the creation of metadata standards and templates along with repositories for storing and accessing course resources for reuse. Teaching staff should be provided with training and support in the creation and reuse of resources as well as incentives to both create reusable resources in the first place as well as enable reuse. Intellectual property aspects of resource creation and use should be addressed explicitly at a policy and employment level and all staff involved in the design, (re)development and delivery of courses must be trained and supported in understanding the implications of intellectual property in their work. Ongoing design and development of the physical e-learning infrastructure should be done with an awareness of reuse as well as an appreciation of the rapid pace of change and development in this area.

D7: Resources created are designed and managed to maximise reuse					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure D7: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Evidence of capability in this process was only seen in those institutions that employed dedicated staff for e-learning design and development. In those institutions it was clear that the intention was to ensure that this investment was maximised through reuse, although it was notable that reuse was generally limited to reuse by expert staff rather than general use by the teaching staff of the institution.

Dimension 2: Planning

There was little evidence of institutional strategies or initiatives supporting or encouraging reuse of e-learning resources, including rewards or incentives to staff reusing or creating reusable materials. The capability observed was the consequence of dedicated design and development support staff ensuring their work was maintainable, reusable and cost-effective although no specific learning object repositories had been established to support wider access to the resources created.

Dimension 3: Definition

No evidence of was seen across the sector of institutional policies regarding archiving and long term storage of course information and e-learning resources for reuse. There was also no evidence of the use of content management systems or repositories across the sector, LMS facilities are fulfilling aspects of this function by default but not in a managed or sustainable way. The very weak process capability noted is a consequence of employment contracts defining default positions for intellectual property ownership in those institutions with dedicated e-learning development staff and in the polytechnics, the situation was more ambiguous in the universities where academics commonly retain ownership of traditional teaching materials. There was little evidence that institutions are formally considering intellectual property issues in the context of e-learning design and development, raising the risk of either incorrect use of copyright materials or unclear ownership of resources created.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

Support: Processes surrounding the support and operational management of e-learning

S1: Students are provided with technical assistance when engaging in e-learning

Evidence of capability in this process is seen in the provision of information on how to get assistance with technology. This should consist of contact information for both telephone and email support as well as self-help facilities such as web pages and documentation. It should convey how student requests will be treated and the timeframe within which they can expect assistance. Course specific information should be supplied when technologies are used other than those formally and normally required and supported by the institution. Policies and guidelines should communicate the extent of support available and the timeframes within which support is provided. Support staff are provided with templates, examples, training and support in using the range of resources available to assist students.

S1: Students are provided with technical assistance when engaging in e-learning					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure S1: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Capability was generally poor throughout the sector and dependent primarily on the teaching staff delivering courses and on the support provided for LMS facilities through web pages. Substantive support for students appears to be built upon services designed to support on-campus facilities such as computing laboratories, rather than being designed specifically to meet the needs of students engaged in e-learning. Little information and support was provided to students through online communication channels other than email, although one institution provided a limited synchronous chat facility during business hours. It was clearly apparent that in most cases student technical support was designed around a model of face-to-face delivery rather than a planned support of e-learning from off-campus.

Dimension 2: Planning

There is little evidence in most institutions of a systematic attempt to address the e-learning technical support needs of students. In most cases support was limited to a set of web pages of varied quality and usefulness and a help desk available via email and telephone during normal business hours. Polytechnic Y and University A were exceptions with clear instructions provided in the enrolment materials and online and a service available over extended hours.

Dimension 3: Definition

Capability was essentially absent across the sector with only Polytechnic Y clearly and formally defining standards and procedures for student support.

Dimension 4: Management

Polytechnic Y and University A made use of regular reporting and monitoring of support activities but there was little evidence of capability elsewhere.

Dimension 5: Optimisation

No evidence of capability.

S2: Students have access to a range of library resources and services when engaging in e-learning

Evidence of capability in this process is seen through the provision of a full range of library facilities and associated support and training information to assist students with their use. Information on using these services is provided both through the central library website as well as directly within courses where it is customized to reflect the needs of the particular discipline and learning outcomes.

S2: Students have access to a range of library resources and services when engaging in e-learning					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure S2: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Generally, the services provided by institutional libraries are comprehensive and include help and support designed for students. The weakness apparent in the sector is that individual courses are not guiding and assisting students in making use of the library services, normally students are simply provided with a link to the library from the LMS, rather than the individual courses. As noted in process L6, the services provided by the libraries are generally strong but there is little encouragement provided from within courses to assist the students in learning how to make effective use of the library. There is a presumption that students know how to access the library and will know when to do so.

Dimension 2: Planning

The institutional libraries generally provided a range of services and support that were designed to meet the needs of students engaged in e-learning. There is little evidence of these being acknowledged and explicitly linked from individual courses. The expectation appears to be that students will use a general library link and find the information and services for themselves. A notable exception was University B, where students were provided with a very useful set of pages through their library for each course. These pages contain a customized set of starting points for further research and investigation by students along with direct links to support resources and library staff who could assist the students either on-line or in person.

Dimension 3: Definition

Very weak, with little evidence in general that institutions are defining minimum standards for access to library services irrespective of the mode of delivery.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

S3: Student enquiries, questions and complaints are collected formally and managed

Evidence of capability in this process is seen in the provision of instructions to students in all courses on where to communicate any concerns they might have about any aspect of their learning. This should either be a single student help desk or a clear list that provides alternatives and indicates how these are to be used, such as particular contacts for technical issues and others for learning concerns or complaints. Policy should require the provision of this information in some standard way and guidelines should be provided on how student communications are to be handled, including timeframes and record-keeping. Teaching and support staff are provided with templates, examples, training and support in handling student complaints.

S3: Student enquiries, questions and complaints are collected formally and managed					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure S3: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Capability in this process was weak, reflecting the use of pre-existing formal disputes procedures without consideration of the impact that the move to e-learning is having on systems and procedures. Most institutions did not provide students with information on who to contact in regard to specific issues, and there appears to be a lack of awareness that students might have the need to raise issues with the staff or the institution that require formal treatment and tracking. The existing formal grievance procedures are generally adequate but in day to day use would normally be excessive or inappropriate and they do not usually consider the implications of e-learning approaches, particularly the possibility that the students might never attend the physical campus. It was also notable that generally teaching staff are not provided with support or resources in handling student concerns appropriately or effectively.

Dimension 2: Planning

There was very little evidence of formal and systematic planning to manage student issues in most institutions, with the notable exception of University A and Polytechnic Y who both provided clear and formal contact points, resolution procedures and managed the collection of student concerns. There was no evidence of formal risk assessments concerning the handling of student issues and concerns being conducted within the sector.

Dimension 3: Definition

University A and Polytechnic Y were the only institutions having any evidence of formal management and standards for addressing concerns and issues raised by students engaged in e-learning. There was a limited amount of information provided to teaching staff on effective feedback, but this was clearly insufficient.

Dimension 4: Management

Only University A showed any evidence of regular monitoring and reporting of student issues and concerns resulting from e-learning.

Dimension 5: Optimisation

No evidence of capability.

S4: Students have access to support services for personal and learning issues when engaging in e-learning

Evidence of capability in the process is seen in clear documentation, complying with a consistent institutional template, setting out the information necessary for accessing all available student services. Policy should require that this information be accurate, regularly reviewed and provided to students in advance of enrolment. Templates should be provided to ensure a consistent organisation and content. Elements that are standard to all courses should use wording prescribed by policy.

S4: Students have access to support services for personal and learning issues when engaging in e-learning					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure S4: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Information on the range of student support services provided by institutions is generally clear and available from enrolment materials, websites and course outlines in a consistent fashion. This information is, however, usually separated from the rest of the course outline into its own section and there is no evidence of courses linking relevant support directly to individual activities and assessment tasks. An additional limitation is that in most cases personal and learning support is either not available to students engaged in e-learning or that it fails to address e-learning specific aspects of student learning.

Dimension 2: Planning

Course outlines generally include a set of standard information on the available personal and learning support services using a clear and consistent language and providing explicit information on how to access the services. While the services seem very useful there is little evidence that the support queries are managed and tracked formally and there is almost no evidence that support aspects are being considered when e-learning projects are being designed and developed.

Dimension 3: Definition

Generally institutions define a range of personal and learning support services for students which are communicated in the enrolment materials, websites and course outlines but these are not usually adapted for support of e-learning. There is no evidence of this support being subject to formally defined service level agreements. It is also notable that teaching staff are not formally involved in mediating student access to support and there is very little evidence of encouragement to link courses to student support facilities other than through general statements.

Dimension 4: Management

Little evidence of capability, University A has some monitoring and regular reporting arising from their support systems.

Dimension 5: Optimisation

No evidence of capability.

S5: Teaching staff are provided with pedagogical support and professional development in using e-learning

Evidence of capability in this process is seen through the use of formal staff capability assessments during training and as part of the design and development process for courses and projects. Evidence from these assessments should be used to determine additional support and training allocations. Design and development plans should include formal processes for ongoing support of teaching staff and courses. Policy and guidelines should mandate staff capability assessments and require their use in ongoing staff development. Regular overview reports of capability should inform strategies for ongoing resourcing and development of e-learning.

S5: Teaching staff are provided with pedagogical support and professional development in using e-learning					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure S5: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Capability in this process was very weak. While most institutions provide some form of professional development and training for teaching staff this is generally optional and not explicitly linked with the use of particular e-learning technologies or pedagogies. It was also noted that little consideration is given to enabling teaching staff in their supporting students using e-learning pedagogies and technologies effectively.

Dimension 2: Planning

There was very little evidence of formally planned support in e-learning pedagogies being provided when teaching staff are involved with e-learning courses. What structured support that was available was generally limited to technical aspects of major systems such as LMS facilities and there was little evidence of support being based on an examination of the needs arising from technology use in particular courses. There was little evidence of rewards or incentives being used to encourage staff engaging in innovative e-learning projects or initiatives. Nor was there evidence of the use of research into local e-learning initiatives as a tool for improving e-learning design, delivery and support..

Dimension 3: Definition

Very little evidence of capability, in particular there is little evidence that the abilities of teaching staff to engage in e-learning are formally assessed and responded to in a systematic way. Much of the training and support provided is optional and teaching staff are not provided with incentives or rewards for engaging with it. Even in the institutions that provided formal e-learning design and development there was little evidence of examples, templates and case studies being used to assist teaching staff in being more effective

Dimension 4: Management

Very little evidence of capability, University C has collected information on the support needs of teaching staff but there is little evidence that this is influencing investment or planning for support.

Dimension 5: Optimisation

No evidence of capability.

S6: Teaching staff are provided with technical support in the handling of electronic materials created by students

Evidence of capability in this process is seen with the provision of facilities and support during the design and development of projects, including documentation and training for staff as well as templates and other materials for use with students. Policy and guidelines should require and support this. Student attainment of skills in this area should be part of the overall learning objectives in line with their acquisition of research and information literacy skills.

S6: Teaching staff are provided with technical support in the handling of electronic materials created by students					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure S6: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The generally poor capability seen across the sector is consistent with the absence of formal and systematic response to the use of e-learning. Most institutional systems and support appears to be designed and maintained unchanged from traditional paper-based information handling despite the widespread use of electronic document creation and delivery tools by staff and students. Most institutions and staff are struggling with the implications of students submitting assessed work electronically and responses are normally limited to the use of standard LMS facilities to collect material which is then commonly printed out and returned in hard copy to students.

Dimension 2: Planning

The capability observed here is essentially a consequence of the use of systems such as LMSs and plagiarism detection services rather than explicit or formal consideration of information use by students. There is little evidence in most institutions of e-learning design and development activities systematically addressing the creation and use of electronic materials by students. Worryingly, despite the large amount of student information being stored in LMS facilities there was little evidence of formal and systematic auditing and risk assessments being undertaken to ensure that the information was securely and appropriately stored.

Dimension 3: Definition

There was very little evidence of a formal consideration of the needs of teaching staff supporting information use by students. Some training is usually available, usually from libraries, but its use is generally optional and not encouraged by institutional policies or strategies. The use of electronic delivery is growing but there are significant issues with the statutory copyright licenses and electronic delivery that are not evident in institutional policy and strategy and which are likely to cause significant disruption in the future.

Dimension 4: Management

No evidence of any systematic attempt to identify the operational impact of increased electronic information use by institutions.

Dimension 5: Optimisation

No evidence of capability.

Evaluation: Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle

E1: Students are able to provide regular formal and informal feedback on the quality and effectiveness of their e-learning experience

Evidence of capability in this process is seen in the inclusion of a formal student evaluation plan in the design and development of projects and courses. This plan should include conducting multiple formal evaluations, both summative and formative, in a standard way that allows for comparison of results between projects and over time. Information on how the evaluation results are being used to improve the quality and effectiveness of their learning should be provided to students. Policy and guidelines should require that student evaluations to be independently conducted and provide standard forms that they should take. The results of the evaluations should be used to inform ongoing and new development, and to support resources and strategy. Teaching staff are provided with templates, examples, training and support in using the range of evaluation resources available to support student learning.

E1: Students are able to provide regular formal and informal feedback on the quality and effectiveness of their e-learning experience					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure E1: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Performance in this process can be characterised as the use of traditional evaluation procedures applied without consideration of the use of e-learning technologies or pedagogies. The evaluation methodologies are essentially sound but are struggling to address the requirements of e-learning delivery, particularly the issue of students not attending on-campus sessions and poor response rates from postal or online surveys. A particular challenge is found when conducting formative evaluations with students engaged in e-learning at a distance and it is likely that institutional evaluation and review processes will need to be modified to take advantage of e-learning approaches themselves if they are to be representative of the student population.

Dimension 2: Planning

Very weak capability was observed across the sector. Those institutions with formal e-learning design and development methodologies benefited from the quality assurance and review procedures adopted. A consistent weakness was that the information collected is normally kept confidential to individual courses and projects, there was little evidence of systematic comparisons within an institution or any reporting back to students. There was also almost no evidence that student requirements for e-learning are formally collected before engaging in most e-learning design and development initiatives.

Dimension 3: Definition

Institutions are required to evaluate their teaching regularly and this is apparent with respect to traditional delivery. Planning and systematic consideration of the impact of e-learning is essentially non-existent. The facilities and support for individual staff evaluating e-learning initiatives generally exists but the outcomes are disconnected from institutional strategy and planning activities.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

E2: Teaching staff are able to provide regular formal and informal feedback on quality and effectiveness of their e-learning experience

Evidence of capability in this process is seen in the inclusion of a formal staff evaluation plan in the design and development of projects and courses. This plan should include conducting multiple formal evaluations, both summative and formative, in a standard way that allows for comparison of results between projects and over time. Information on how the evaluation results are being used to improve the quality and effectiveness of their work should be provided to teaching staff. Policy and guidelines should require that staff evaluations to be independently conducted and provide standard forms that they should take. The results of the evaluations should be used to inform ongoing and new development, and to support resources and strategy.

E2: Teaching staff are able to provide regular formal and informal feedback on quality and effectiveness of their e-learning experience					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure E2: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

There is almost no evidence across the sector of systematic and regular feedback being collected from teaching staff engaged in e-learning initiatives. The little that is being done is essentially isolated and often not reported in a way that allows for systematic analysis.

Dimension 2: Planning

Consistent with dimension one there was very little evidence of capability, with only Polytechnic Y having a process of formal testing and evaluation involving staff. There was also no evidence of teaching staff being rewarded and encouraged in their adoption of e-learning pedagogies and technologies.

Dimension 3: Definition

Almost no evidence of teaching staff being formally invited to provide regular feedback information on their experiences of e-learning. There was also little support for teaching staff researching and reflecting on their own experiences of e-learning.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

E3: Regular formal independent reviews of e-learning aspects of courses are conducted

Evidence of capability in this process is seen through the use of formal data collection processes that are incorporated into design and development and which allow for regular reporting and analysis of the effectiveness of the technologies used. These processes should be standards based and designed to support comparisons over time and between courses and projects. Policy should require the collection and reporting of this information and the results used to inform ongoing and new development and support resources and strategy. Formal content and materials review plans should be used during the design and development of projects and courses. Policy and guidelines should require these reviews be conducted formally and provide guidance on what aspects require checking

E3: Regular formal independent reviews of e-learning aspects of courses are conducted					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure E3: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The prevalence of informal measures and anecdotes in measuring the effectiveness of e-learning and the absence of detailed analysis is clearly apparent in the capability assessed for this process across the sector. There is very little evidence of the systematic use of readily available summative data from the central LMS facilities and similar tools in formally assessing the effectiveness of e-learning projects and courses.

Dimension 2: Planning

Little evidence was seen of planned reviews during e-learning design and development reflecting the generally ad-hoc approach taken. Generally reviews, if any, are informal and anecdotal rather than empirical in design and independently conducted. Some institutions made use of self reports from teaching staff involved in particular e-learning initiatives but these had little value as strategic planning documents as they were not validated or evidence based.

Dimension 3: Definition

Little evidence of systematic reviews of e-learning being undertaken regularly across the sector. The review approaches in use were clearly based on traditional delivery and have yet to explicitly address the use of e-learning technologies and pedagogies.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

Organisation: Processes associated with institutional planning and management

O1: Formal criteria used to allocate resources for e-learning design, development and delivery

Evidence of capability in this process is seen in the provision of formal funding and resourcing criteria and guidelines, mandated by policy, which provide consistency and clarity in the allocation of resources. Access to support is managed by these criteria to ensure efficient and equitable use of time and the achievement of strategic goals as well as short term requirements. Effective approaches in the local context are communicated through examples, case studies, standards and guidelines, customised for the institution, that demonstrates the benefits of the criteria used.

O1: Formal criteria used to allocate resources for e-learning design, development and delivery					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure O1: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The formal design and development approach adopted by University B was the strongest in this process. Access to support and development resources were controlled through a competitive process that involved clear criteria, independent assessment of proposals and an overall strategic focus. The design process used was outlined along with standard questions for consideration when developing projects. University E was also strong but provided less information and guidance to staff on the criteria used and there was less explicit consideration of department and faculty strategies in the selection process. In the absence of an investment in dedicated e-learning support facilities, capability in this process was essentially non-existent.

Dimension 2: Planning

As with dimension one, capability in this process correlated with the investment in dedicated e-learning support staff who clearly positioned their work to ensure that it integrated well with the e-learning infrastructure of the institution and was able to be maintained.

Dimension 3: Definition

Those institutions with formal design and development support generally had criteria defined for how this was accessed, usually involving a formal application process and project selection criteria linked to strategic outcomes at the programme and institution level. There was, however, little support provided for staff in making these applications and no evidence of applications being stored and made available for reuse when projects were successful or being analysed when projects failed.

Dimension 4: Management

Those institutions with formal design and development support demonstrated some evidence of reviews and quality assurance but these were usually informal rather than part of a systematic and formal consideration of effectiveness of e-learning.

Dimension 5: Optimisation

University B was notable in showing one of the few examples of using evidence from e-learning project outcomes to explicitly inform strategic decision making and investment, otherwise there was no evidence that e-learning has impacted on institutional governance activities across the sector.

O2: Institutional learning and teaching policy and strategy explicitly address e-learning

Evidence of capability in this process is seen in the provision of a complete and redeveloped set of institutional strategies and policies incorporating a thoughtful and strategic assessment of the contribution e-learning can make to the institution, disciplines, staff and students. Staff involved in e-learning design and (re)development projects and initiatives need support and guidance in effectively applying the revised policies and strategies and ideally they, along with students, should be involved in the (re)development of the policies and strategies.

O2: Institutional learning and teaching policy and strategy explicitly address e-learning					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure O2: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The evidence of capability in this process was very weak, there appears to be a significant disconnect across the sector between learning and teaching policy generally and the consideration of e-learning, which appears to be dominated by technology aspects rather than pedagogical concerns. Even when there was a consideration of e-learning to achieving the learning and teaching goals of the institution there was little communication of this to staff and students, further reducing the likelihood of any systematic and sustained benefit arising from e-learning projects and initiatives.

Dimension 2: Planning

Linkages between e-learning and learning and teaching strategy correlated with the existence of dedicated e-learning design and development support staff. It is unclear whether the existence of this investment was a result of strategic focus on e-learning or if it was a consequence of having staff who can engage effectively with the issues and influence policy. There was no evidence across the sector that students are actively and formally involved in ensuring their needs are being met through strategic consideration of e-learning.

Dimension 3: Definition

No evidence of capability.

Dimension 4: Management

University B demonstrated some evidence of staff and student feedback being used to guide strategy development, but this was informal rather than part of a systematic and formal consideration of the contribution of e-learning to the institutions learning and teaching goals.

Dimension 5: Optimisation

University B was notable in showing one of the few examples of using evidence from e-learning project outcomes to explicitly inform strategic decision making and investment, otherwise there was no evidence that e-learning has impacted on institutional governance activities across the sector.

O3: A documented specification and plan guides technology decisions when designing and developing courses

Evidence of capability in this process is seen in the use of a formally documented technology plan that is used to guide the selection of technologies appropriate to the local context. Formal institutional standards are used where available to inform and guide the plan. This should include existing technologies that are defined as standard by the institution and for which there is clear evidence of effectiveness and ability to be supported. The plan, along with the associated standards and guidelines, is communicated widely to encourage wider adoption and compliance throughout the institution. Policy should mandate compliance with the technology plan and explicit reference to it should be made in processes for the resourcing and development of e-learning resources.

O3: A documented specification and plan guides technology decisions when designing and developing courses					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure O3: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The absence of documented technology plans informing e-learning projects and initiatives is clearly apparent across the sector. Only Polytechnic Y identified a technology plan aimed at supporting e-learning and ensuring that delivery standards were maintained. At best, other institutions had a defined set of standard technologies, such as an LMS, that were used by a central group to support e-learning development but the processes used to select, develop and maintain these technologies were not documented.

Dimension 2: Planning

In general e-learning technology decisions are being made as a consequence of the LMS facility and the requirements of interoperability with other systems such as student records and core IT. The rationale and constraints linking these decisions are not normally formally documented, instead depending on the knowledge and skills of the IT staff involved.

Dimension 3: Definition

There is little evidence across the sector of formal integration between IT planning and the learning and teaching goals of the institution. There is no evidence that teaching staff and students are actively and systematically involved in ensuring the systems meet their learning and teaching needs and also no evidence of decisions being informed by a researched evidence base or risk assessment.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

O4: A documented specification and plan ensures the reliability, integrity and validity of information collection, storage and retrieval

Evidence of capability in this process is seen in the use of a formally documented technology plan considering information integrity and reliability. This should include assessments of the security of information from intentional and unintentional loss, protection of privacy and student information, versioning and consistency with other systems such as student records or enrolments. Information provided by the institution, teaching staff and students should be included, as well as explicit consideration of copyright implications, including the rights of students, and the reporting required by licences. There should be policy and procedures in place to deal with potential failures or compromises. Standards and guidelines should be used to communicate which technologies have been proven reliable and regular monitoring and reporting used to prove reliability and identify potential problems. Teaching staff are provided with templates, examples, training and support in maintaining course information to ensure its validity and reliability.

O4: A documented specification and plan ensures the reliability, integrity and validity of information collection, storage and retrieval					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure O4: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Despite the adoption and investment in LMS facilities and the substantial growth in the amount of student and course information stored in these systems there appears to be no formal and systematic consideration of the integrity of information storage and retrieval. Much of the information in these systems is essential to the business and vulnerable to both intentional and unintentional loss or corruption but there appears to be no evidence of formal testing or validation being undertaken. It is important to note that institutional LMS facilities are managed in line with other institutional systems but in many cases growth in usage appears to have overtaken risk management systems. There is also the issue that many individual e-learning initiatives use systems that are not formally managed and this is a substantial business risk in those institutions.

Dimension 2: Planning

Capability was very weak across the sector with a clear dependence on LMS authentication and backup facilities without formal assessment of risks or consideration of strategies to cope with failures. Individual e-learning initiatives showed no evidence of systematic consideration of the issues.

Dimension 3: Definition

Very weak across the sector reflecting the dependence on the feature sets of LMSs without formal consideration of information integrity and validity issues. No evidence of auditing or the use of content management and reporting systems.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

O5: The rationale for e-learning is placed within an explicit plan

Evidence of capability in this process is seen in definition and use of an explicit course or programme e-learning development plan. This plan should be formally developed and endorsed by the institutional leadership. Alignment with institutional strategies and plans is essential as is the consideration of business issues such as risk assessments and quality assurance. Teaching staff should be supported in both the development of plans and their application in specific contexts.

O5: The rationale for e-learning is placed within an explicit plan					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure O5: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Other than at University B and E, there is no evidence that the selection of technologies to support e-learning design, development and delivery is being driven in a coherent and planned way. Decisions seem to be made on an ad-hoc basis reflecting the personal preferences and experience of teaching staff rather than on the basis of a programme or institutional plan.

Dimension 2: Planning

While Universities B and E had some evidence of systematic planning, across the sector there was no evidence of student involvement in planning for their needs or of institutional leadership providing oversight and approval of e-learning technology choices.

Dimension 3: Definition

No evidence of capability.

Dimension 4: Management

Very little evidence of formal planning for e-learning evident across the sector other than a limited amount of review and quality assurance being undertaken by Universities B and E.

Dimension 5: Optimisation

No evidence of capability.

O6: E-learning procedures and which technologies are used are communicated to students prior to starting courses

Evidence of capability in this process is seen with the publishing of clear statements describing the use of various media and technologies and the requirements this will impose on students. This description should also provide access to any support information or documentation. All of this information should be provided for students in public course listings or catalogues prior to enrolment and also in enrolment packs. Policy should require that this information be provided and maintained. Institutional guidelines should set in place how teaching and administrative staff communicate standard technologies and media used in courses. Instructions for use, minimum requirements, and support of standard technologies should be provided and maintained through a central repository linked to the course requirements statement.

O6: E-learning procedures and which technologies are used are communicated to students prior to starting courses					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure O6: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Performance of this process was very poor. Students are provided with very little information in advance on technology and other requirements e-learning course. What little information that is provided is generally limited to basic information about LMS facilities and requirements without any specific linkages to the activities undertaken in particular courses. Polytechnic Y easily demonstrated the best practice in the sector with a clear statement in a consistent format on technology use and requirements that was available through their website to all interested students prior to enrolment. Similar information was provided in the enrolment materials along with minimum requirements for access to computers and specifications for equipment when appropriate. Also useful was a short skills assessment that guided students in whether they possessed the minimum skills required and provided suggestions for what to do to improve skills prior to enrolment, an aspect that was absent elsewhere in the sector.

Dimension 2: Planning

Other than from Polytechnic Y, detailed information was provided to students on technology use but only after they have enrolled in courses and can access the course outlines. Despite this, there was little evidence of students being provided with organised opportunities to prepare themselves to use technology effectively as part of courses.

Dimension 3: Definition

Only Polytechnic Y had a formal plan and processes for ensuring that students were informed of technology requirements prior to enrolment. Beyond this there was little evidence of structure in the information provided. One problem was the use of compliance reporting criteria on technology use, such as 'web supported' or 'web enhanced' which have little meaning to students and do not provide them with enough detail to prepare themselves with.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

O7: Pedagogical rationale for e-learning approaches and technologies communicated to students prior to starting courses

Evidence of capability in this process is seen in the incorporation of clear statements describing the use of various media and technologies and the requirements that this will impose on students. This description should also provide access to any support information or documentation. All of this should be provided publicly for students prior to enrolment and preferably also in enrolment packs. Policy should require that this information be provided and maintained along with guidelines that demonstrate how to communicate information on the standard technologies and media used in courses. Instructions for the use and support of standard technologies should be provided and maintained through a central repository.

O7: Pedagogical rationale for e-learning approaches and technologies communicated to students prior to starting courses					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure O7: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

Consistent with the limited use of learning objectives (process L1), there was little evidence across the sector of explicit communication of the pedagogical designs and rationales underpinning individual courses. University B and Polytechnic Y provided clear pedagogical rationales, otherwise at most it was implied but not clearly expressed to students. Only Polytechnic Y communicated this information in advance to students.

Dimension 2: Planning

Limited information on pedagogical rationales was provided in most course outlines once students enrolled but otherwise there was little capability evident. There was little evidence other than at University B and Polytechnic Y of systematic attempts to convey the linkages between technologies and pedagogies.

Dimension 3: Definition

Other than at Polytechnic Y there was very little systematic consideration evident of how and why technology was being used in courses and programmes. Across the sector there was little strategic or policy guidance ensuring that the linkages with the pedagogical approach and learning outcomes were explicitly communicated to students.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

O8: Course administration information communicated to students prior to starting courses

Evidence of capability in the process is seen in clear documentation, complying with a consistent institutional template, setting out the course and institution administrative information. Policy should require that this information be accurate, regularly reviewed and provided to students in advance of enrolment. Templates should be provided to ensure a consistent organisation and content. Elements that are standard to all courses should use wording prescribed by policy.

O8: Course administration information communicated to students prior to starting courses					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure O8: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The uniformly strong result found across the sector for this process reflects the use of standard enrolment processes and information packs for all courses. Information was provided clearly and consistently via websites, enrolment materials and course documentation.

Dimension 2: Planning

Capability was uniformly strong building on existing administrative processes but with no evidence of consideration of the impact e-learning is having or of any risks to the institution that may arise from the use of technology. Pre-enrolment listings for courses should provide much more information than they currently do about the technology expectations that will be placed on students and how the pedagogical approach adopted may differ significantly from what they might otherwise expect.

Dimension 3: Definition

Generally administrative information is well supplied via websites, enrolment materials and course documentation, these are normally supplied via defined templates and use relatively consistent language. There is however, little evidence that teaching staff are provided with formal assistance in ensuring they can support students with administrative issues or of systematic consideration of changes in procedures that are necessary once courses are delivered using e-learning technologies and pedagogies.

Dimension 4: Management

No evidence of capability.

Dimension 5: Optimisation

No evidence of capability.

O9: The provision of e-learning is guided by formal business management and strategy

Evidence of capability in the process is seen through the alignment of e-learning investments with institutionally developed and endorsed e-learning strategies and technology plans. Important elements include a formal business development plan along with a detailed risk assessment and mitigation strategy. All staff involved in the design, (re)development and delivery of e-learning projects and initiatives need to be involved in the development of these plans and strategies and fully aware of the implications for their own work. The plans and strategies need to be dynamic documents building on a growing evidence base of locally relevant initiatives and projects linked with formal reviews, evaluations and quality assurance outcomes.

O9: The provision of e-learning is guided by formal business management and strategy					
	1	2	3	4	5
University A					
University B					
University C					
University D					
University E					
University F					
University G					
Polytechnic Z					
Polytechnic Y					
Polytechnic X					
Polytechnic W					

Figure O9: Comparison of process capability across the New Zealand sector

Dimension 1: Delivery

The business impact and engagement of the institutional leadership in how e-learning is changing learning and teaching is not very strong. Universities A, B and E, and Polytechnics Y and Z show evidence of engagement by senior managers but in the other institutions it is clear that e-learning is not yet seen as a key aspect of the institutions business direction. This is a critical determinant of capability across the entire process set, particularly at dimension three and in the provision of resources for dedicated e-learning design and development support.

Dimension 2: Planning

Linkages between e-learning and learning and teaching strategy correlated with the existence of dedicated e-learning design and development support staff. It is unclear whether the existence of this investment was a result of strategic and business focus on e-learning or if it was a consequence of having staff who can engage effectively with the issues and influence policy and business planning activities. There was no evidence across the sector that students are actively and formally involved in ensuring their needs are being met through the use of e-learning.

Dimension 3: Definition

Generally weak capability seen with little evidence of e-learning having an impact on governance and business planning activities or incorporation of e-learning into formal planning and reviews.

Dimension 4: Management

University A provided some evidence of reporting on the financial and operational impact of e-learning investment but there was little to suggest the sector was engaging in a systematic collection of evidence to inform investment in e-learning.

Dimension 5: Optimisation

No evidence of capability.

Web-based Data Collection and Analysis System

One of the goals of the current project was to make self-assessments of e-learning capability possible. The creation of the detailed *eMM Version Two Process Assessment Workbook* (Marshall, 2006b) provides a mechanism for enabling self-assessments as well as supporting the work of external assessors. These paper materials are intended to be complemented with a web-based system for conducting and (under conditions of strict confidentiality and anonymity) sharing analyses, capable of providing guidance for institutions and also acting as a mechanism for ongoing comparison and analysis of the sector as a whole.

The revision of the eMM that has resulted in version two, and the detailed lists of practices in particular mean that it is feasible for a web-based data entry and analysis process to be undertaken. An initial system with a basic set of functionality has been created and is described below. It is intended that this system will evolve over the coming year as more data is entered by participating institutions. Access to the system is restricted and accounts can be obtained by contacting the project lead (stephen.marshall@vuw.ac.nz) or by completing the account creation form on the project web site (<http://www.vuw.ac.nz/research/emm/>).

It is important to emphasise that, while self-assessments can be conducted using the *eMM Version Two Process Assessment Workbook* (Marshall, 2006b) or this web system, substantial organisational change is unlikely to occur without external assistance and critical evaluation of the institutional capability by an independent assessor. The self-assessment process is, however, useful in gaining an appreciation of how the eMM works, the types of evidence needed to determine capability and whether or not major strengths or weaknesses are likely to be identified by a fully independent assessment.

System Design

Users

The web system is designed to support four types of use:

- Users interested in finding out details of the capabilities assessed in the sectors represented, initially limited to New Zealand institutions, this will ultimately include the ability to compare between sectors internationally;
- Users interested in finding out about the eMM methodology and process by exploring a hypothetical example (The University of the South Pacific) in detail;
- Users performing self-assessments of their own institution or organisation;
- Users performing external assessments of other institutions or organisations.

Platform

The system is hosted permanently and securely on a web server maintained by Victoria University of Wellington with access controlled by password. Access to the system itself is secure and restricted to the administrators. Users will only be able to access public information or those of their own institution, the identities of participating institutions are maintained in strictest confidence as has been done in this report and all associated documentation.

The eMM websystem is designed to be accessed by web browser and is built using Java Servlet Pages, HTML, CSS and Javascript so as to minimise any special requirements made upon the end user.

Data design

The database schema is shown in Figure 6. Significant effort has been taken to ensure that this schema will allow the system to evolve as the eMM itself evolves and as the need for different types of analysis are catered for. This includes the ability to conduct longitudinal analyses as time-series assessment data becomes available.

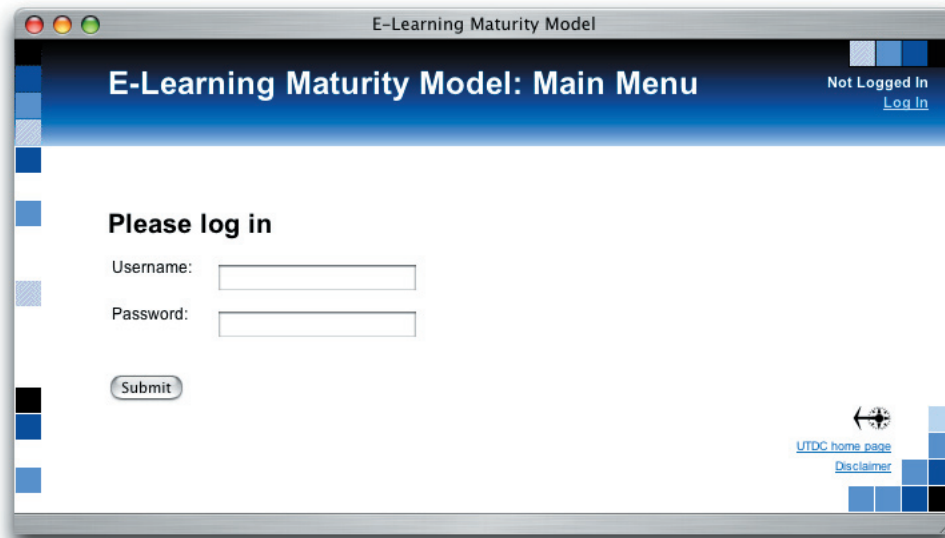


Figure 7: eMM Web System Login Screen

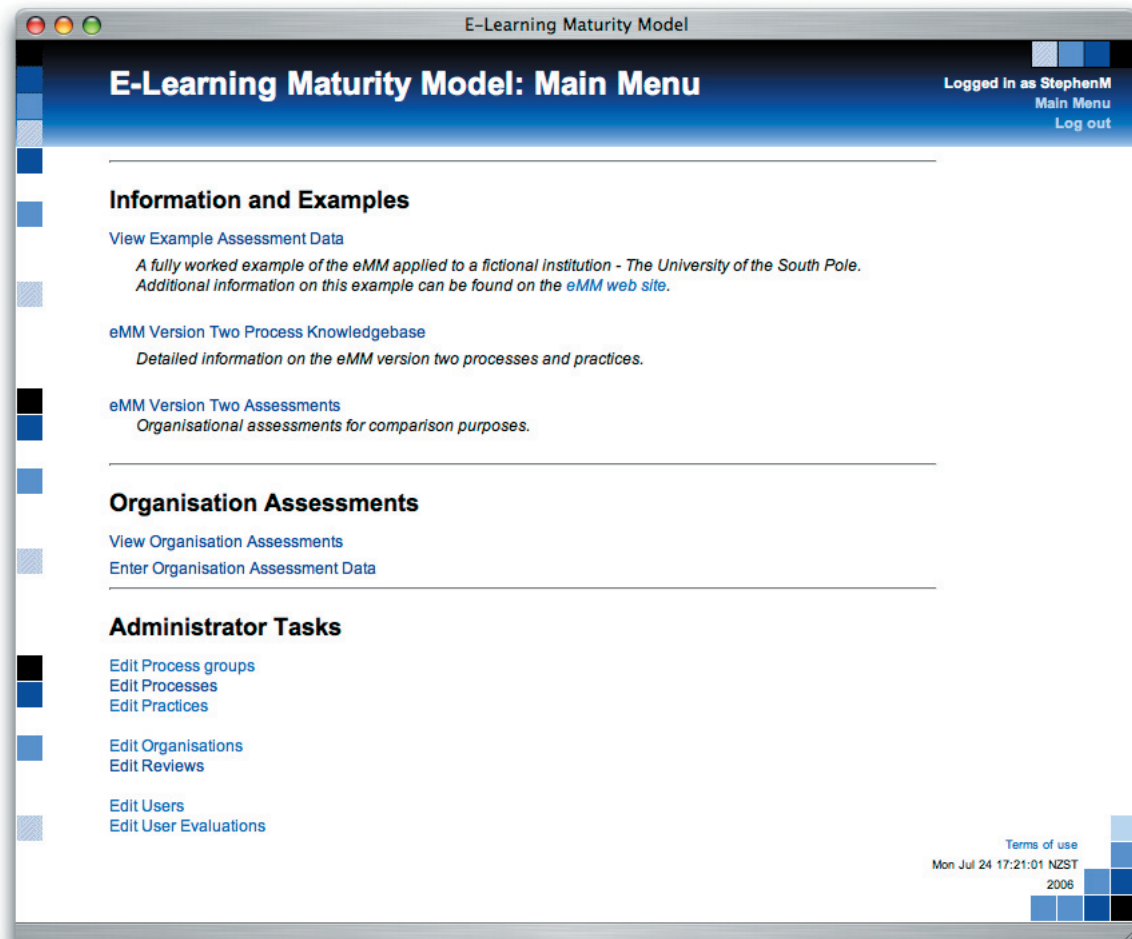


Figure 8: eMM Web System Main Menu

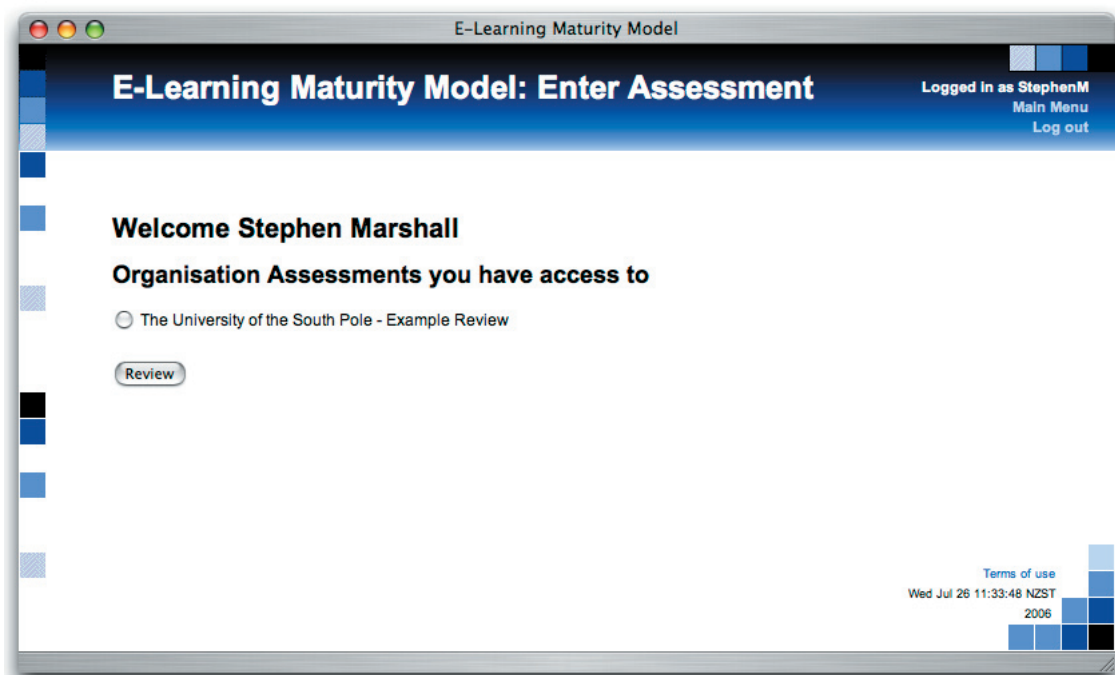


Figure 9: eMM Web System Assessment Menu

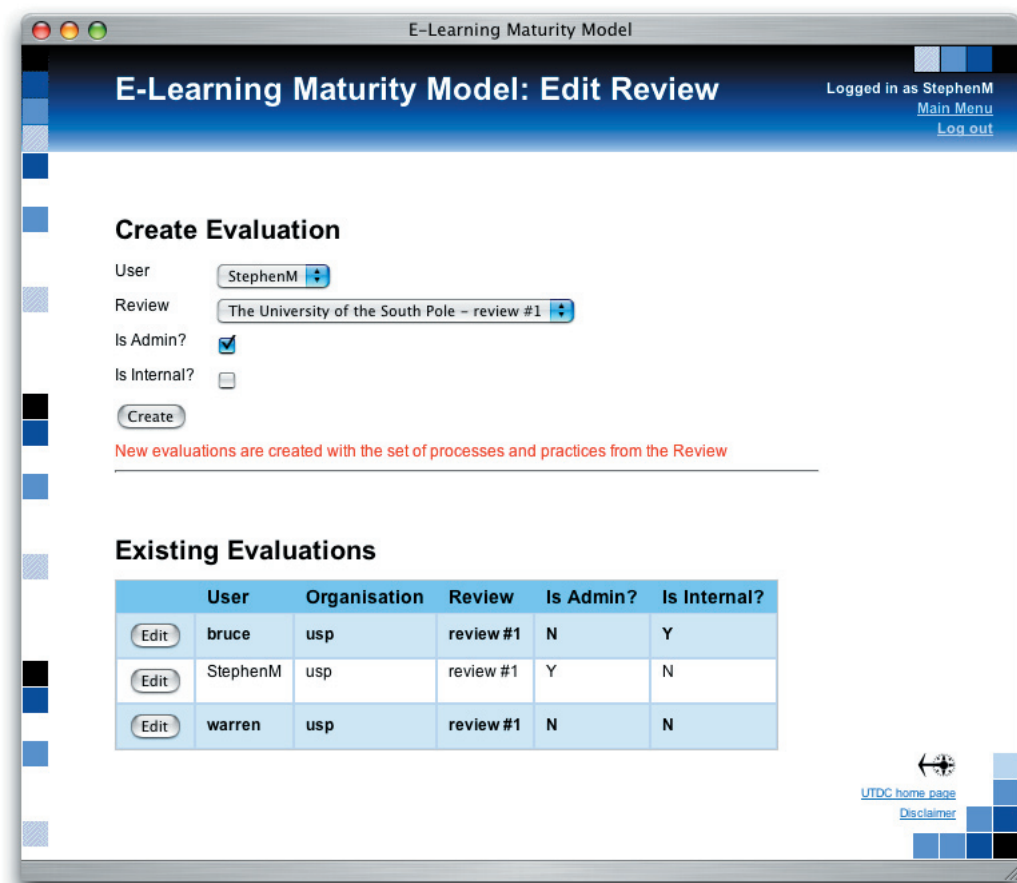


Figure 10: eMM Web System Editing Review Access

E-Learning Maturity Model

E-Learning Maturity Model: Enter Assessment

The University of the South Pole - review #1

Logged in as StephenM
[Main Menu](#)
[Log out](#)

[Main Menu](#) | [Log out](#) | [Edit Details](#) | [eMM Description](#)

Learning

L1: Learning objectives

Dimensions	Process Assessment	
Delivery	Largely Adequate	
Practice example	Assessment	Notes
Learning objectives are provided explicitly in the formal descriptions of the course provided to students, including the summary versions provided prior to enrolment as well as within detailed course prospectuses or syllabi.	Largely Adequate	Clear sections for course objectives and skills provided in course outlines and in template documents.
Learning objectives are linked explicitly throughout learning and assessment activities using consistent language.	Partially Adequate	Similar but different objectives stated for assessment tasks, no formal and direct linkage.
Learning objectives for individual courses or modules are explicitly linked to wider programme or degree objectives and institutional graduate attributes.	Not Adequate	No evidence of graduate attributes being used.
Learning objectives are aimed at supporting student cognitive outcomes that go beyond recall and acquisition of knowledge.	Largely Adequate	Dominated by recall, but some evidence of higher cognitive objectives in the assessment.
Course workload expectations and assessment tasks are consistent with	Partially Adequate	

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Figure 11: eMM Web System Assessment Data Entry

E-Learning Maturity Model

E-Learning Maturity Model: Version Two Processes

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Label	Focus
Learning	
L1:	Learning objectives are apparent in the design and implementation of courses
L2:	Students are provided with mechanisms for interaction with teaching staff and other students
L3:	Student skill development for e-learning is provided
L4:	Information provided on the type and timeliness of staff responses to communications students can expect
L5:	Students receive feedback on their performance within courses
L6:	Research and information literacy skills development by students is explicitly supported
L7:	Learning designs and activities result in active engagement by students
L8:	Assessment of students is designed to progressively build their competence
L9:	Student work is subject to specified timetables and deadlines
L10:	Courses are designed to support diverse learning styles and learner capabilities
Development	
D1:	Teaching staff are provided with design and development support when engaging in e-learning
D2:	Course development, design and delivery are guided and informed by formally developed e-learning procedures and standards
D3:	Explicit linkages are made in the design rationale regarding the pedagogies, content and technologies chosen
D4:	Courses are designed to support disabled students
D5:	All elements of the physical e-learning infrastructure are reliable, robust and sufficient
D6:	All elements of the physical e-learning infrastructure are integrated using defined standards
D7:	Resources created are designed and managed to maximise reuse
Support	
S1:	Students are provided with technical assistance when engaging in e-learning
S2:	Students have access to a range of library resources and services when engaging in e-learning
S3:	Student enquiries, questions and complaints are collected formally and managed
S4:	Students have access to support services for personal and learning issues when engaging in e-learning
S5:	Teaching staff are provided with pedagogical support and professional development in using e-learning

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Figure 12: eMM Web System Process Knowledgebase

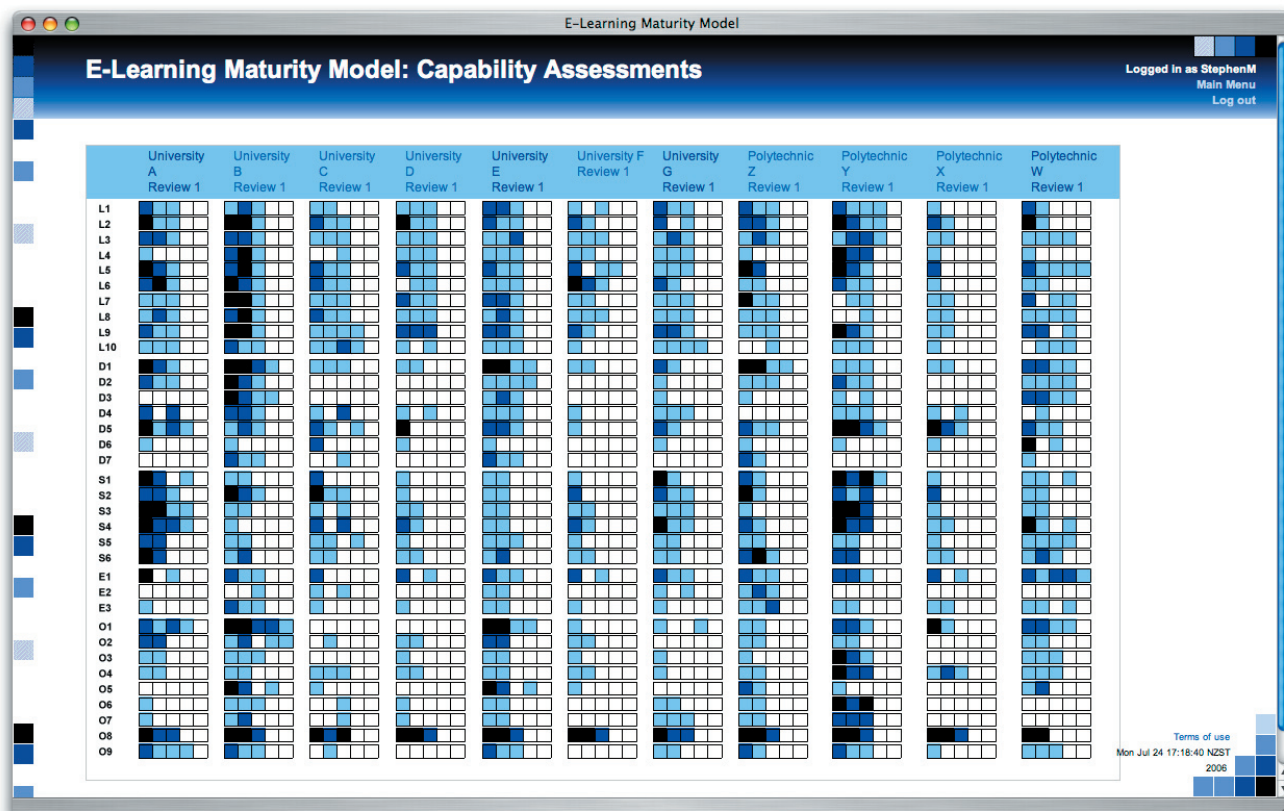


Figure 13: eMM Web System Version 2 Assessments

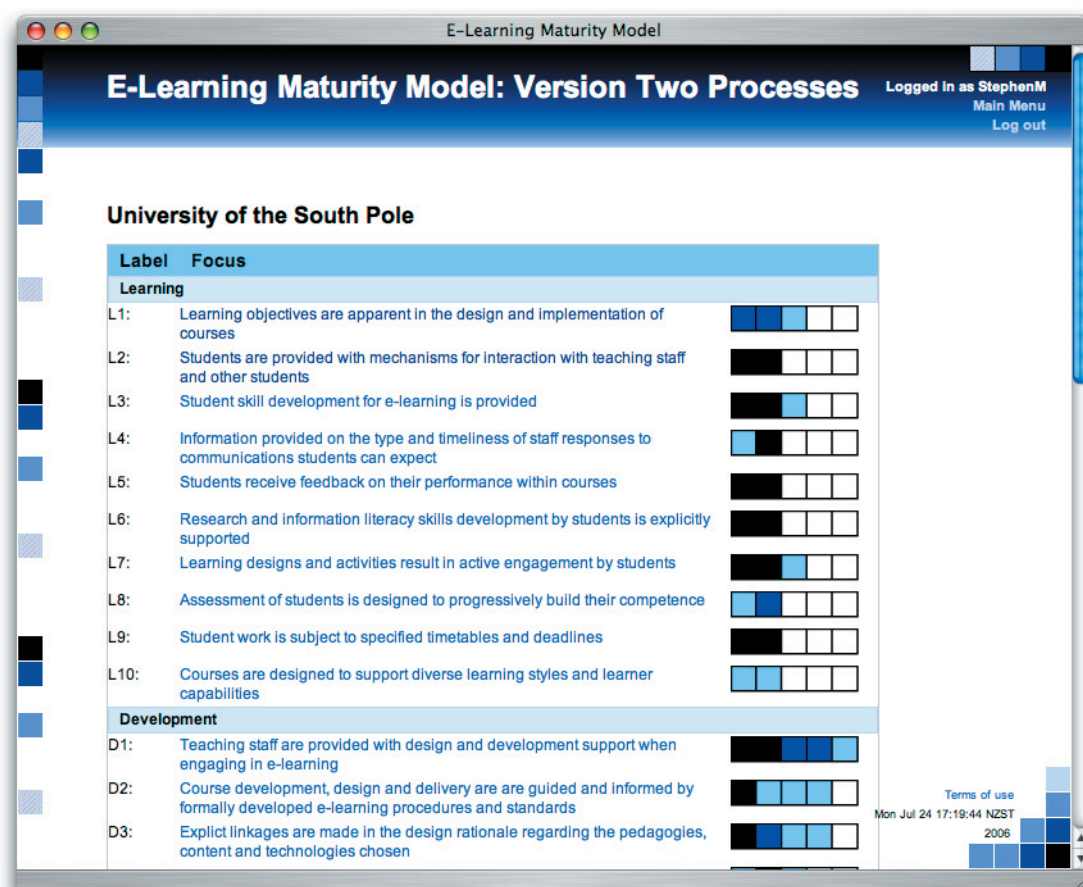


Figure 14: eMM Web System Example Institution Assessment

E-Learning Maturity Model: Version Two Process

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Main Menu
Log out

University of the South Pole

L1: Learning objectives are apparent in the design and implementation of courses

Learning outcomes are results of learning that mainly derive from educational intentions, or learning objectives. They clearly describe the learning content, the actions to be taken or performed, and how these will be assessed (Laurillard, 2002). Quality learning objectives clearly and explicitly specify both pedagogical approach and content, are accompanied by a flexible and responsive teaching attitude to diverse learning processes and styles, and assess authentic practice, which engages learner ownership (Harden, 2002). High-quality learning outcome achievement accompanies a more transferable and higher level of understanding of a subject (Prosser and Trigwell, 1999). Good documentation of learning objectives is explicit about pedagogical strategies, ideals, and values, looks for learning processes rather than testing for content knowledge, accepts interdisciplinary work and diverse outcomes, and considers team as well as individual achievement (Salmon, 2000). Clear, explicit specification of personal, transferable subject outcomes is commensurate with quality of learning experience and learner success (Allan, 1996). The writing of learning outcomes must relate generically and specifically to the level of the programme or course, and achievement is assessed to be either complete, or not, but grades may provide feedback on the quality of work. Outcome statements constitute an active verb and its object in a contextual or conditional phrase and describe either declarative knowledge, or performative skill/knowledge synthesis capability, which are categorised as 'knowledge and understanding' or 'skills and other attributes' (Holmes, 2004, p. 14). Finally, detailed planning for learning outcomes can benefit from revisions of Bloom's (1956) cognitive taxonomy that afford access to more current, complex and complete knowledge of learning processes (Anderson et al., 2001; Dettmer, 2006; Tomel, 2005).

Process Assessment

University of the South Pole

Practice Assessments

Delivery	
Learning objectives are provided explicitly in the formal descriptions of the course provided to students, including the summary versions provided prior to enrolment as well as within detailed course prospectuses or syllabi.	☒
Learning objectives are linked explicitly throughout learning and assessment	☐

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Figure 15: eMM Web System Example Institution Process Assessment

E-Learning Maturity Model: Version Two Practice

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Main Menu
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L1: Learning objectives are apparent in the design and implementation of courses

Delivery

Learning objectives are provided explicitly in the formal descriptions of the course provided to students, including the summary versions provided prior to enrolment as well as within detailed course prospectuses or syllabi.

Practice Assessments

University of the South Pole

Course objectives and skills (p12). Course web page (p73). Online course catalogue (p82).

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Figure 16: eMM Web System Example Institution Practice Assessment

Future Work

The eMM has already made contributions both in the understanding of the e-learning capability within individual New Zealand tertiary institutions and across the New Zealand sector as a whole, and internationally as part of a wider scholarship around institutional change and the contribution made by e-learning benchmarking.

Within the New Zealand sector, anecdotal feedback from the participating institutions suggests that the analysis provided by the eMM has been accepted and is starting to support a systematic and strategic improvement in the quality of e-learning provided to our students. A future goal is to gather empirical evidence of the impact of the eMM and to thus improve the ability of the model to motivate sustainable and effective change.

An obvious future direction is the expansion into other countries, providing the potential not only of international benchmarking of e-learning but also the sharing of exemplars and ideas nationally and internationally. From the beginning, the eMM has been intended to provide a mechanism for articulating and sharing those critical things that enable technology to facilitate improved student learning outcomes:

“the model might form the basis for an ongoing discussion within the e-learning community with a view to identifying the key practices necessary for achieving improvements in e-learning activities“ (Marshall and Mitchell, 2002)

Finally, it is hoped that the current web system will ultimately provide a mechanism for collecting ideas and contributions from collaborators and colleagues interested in the goal of improving e-learning capability. The outcomes of this research are freely available from the project web site <http://www.utdc.vuw.ac.nz/research/emm/> in the hope that this will facilitate investigation and further development internationally.

References

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Appendix A: Data Collection Ethics Approval Documentation

DATE: August 17, 2004
TO: Dr Stephen Marshall
FROM: Dr Allison Kirkman, Convener, Human Ethics Committee

SUBJECT: APPLICATION FOR ETHICAL APPROVAL: No 73/2004 Determination of New Zealand Tertiary Institution E-Learning Capability: An application of an E-Learning Maturity Model

Thank you for your application for ethical approval, which has now been considered by the Standing Committee of the Human Ethics Committee.

Your application has been approved and this approval continues until 31 December 2006. If your data collection is not completed by this date you should apply to the Human Ethics Committee for an extension to this approval.

Best wishes with the research.

Allison Kirkman
Convener

E-Learning Process Capability Determination

Information for Participants

This questionnaire is intended to assist the process of conducting an e-learning process capability determination. This research is being undertaken to better understand the factors which result in the ability of tertiary institutions to effectively deliver e-learning in New Zealand pedagogically, administratively and to a diverse range of learners, so as to inform strategic and operational planning and decision making at the institutional and sector-wide levels.

You are invited to participate in this research and to have the e-learning process capability of your institution assessed using the model developed by the investigators. All information collected through this process will remain confidential to you, your institution and the project team performing the analysis under the direction of Dr. Stephen Marshall. Information collected will only be reported to third parties in a summary or aggregate manner that ensures confidentiality and anonymity of results.

You are asked to supply information about your institution generally and also specific information on **three** separate e-learning projects or e-learning supported courses/units undertaken recently by your institution. This information will be used to generate a preliminary analysis of e-learning process capability. The project team members may then visit in person and work with you to refine the preliminary report through the addition of extra evidence and analysis, if you indicate your willingness to so do below. No personal information is collected or used in this research.

The approach being used is an evidence-based one and depends on documentary and similar evidence of how e-learning projects or courses are conducted; this will be used to support the individual analysis results in detail. All documents will be treated in the strictest confidence and will be destroyed on completion of this project.

You will be provided with a final analysis document that will be confidential to your institution and the project team. Information from the analyses of participating institutions will be reported publicly and to the Ministry of Education (the project funder) only in anonymous and/or summary form in order to inform understanding of e-learning capability nationally and to demonstrate the utility of the approach being used. All participating institutions will have an opportunity to comment on confidential drafts of these documents prior to their release so as to correct any errors or maintain confidentiality.

If you have any questions or concerns please feel free to contact the project team leader:

Dr Stephen Marshall

University Teaching Development Centre, Victoria University of Wellington

PO Box 600, Wellington

(04) 463 5205 (ph)

Stephen.Marshall@vuw.ac.nz

An electronic copy of the questionnaire and this information sheet is available from [Stephen. Marshall@vuw.ac.nz](mailto:Stephen.Marshall@vuw.ac.nz) on request

E-Learning Process Capability Determination

Please read and retain the information sheet and if you are prepared to be involved in this study, complete and return the consent below to:

Dr Stephen Marshall
University Teaching Development Centre, Victoria University of Wellington
PO Box 600, Wellington
(04) 463 5205 (ph)
Stephen.Marshall@vuw.ac.nz

Consent to participate in study

Name of Institution: _____

Your name: _____

Signature: _____ Date: _____

☐ I would be prepared to be visited by the project team in order to refine the initial analysis

Appendix B: Workshop Ethics Approval Documentation

TO Dr Stephen Marshall
FROM Dr Allison Kirkman, Convener, Human Ethics Committee
DATE June 18, 2006

SUBJECT Approval: No136/2005, Development of E-Learning Maturity Model Processes and Practices

Thank you for your application for ethical approval, which has now been considered by the Standing Committee of the Human Ethics Committee.

Your application has been approved and this approval continues until 31 December 2007. If your data collection is not completed by this date you should apply to the Human Ethics Committee for an extension to this approval.

Best wishes with the research.

Allison Kirkman
Convener

E-Learning Maturity Model Workshop Brainstorming

Information for Participants

During this workshop you will be asked to engage in a variety of brainstorming and discussion exercises. These are aimed at improving your understanding of the e-Learning Maturity Model (eMM) and its possible applications to your own institutional context.

As part of this process we hope you will identify ways to improve the model. In order to allow your ideas to be incorporated into the model we need your express permission to record and retain your contributions.

No information identifying individuals or institutions will be published or used. Information collected will be reported only in aggregate form and used to refine the model. The collective contribution of workshop attendees will however be acknowledged in any publications that arise from this exercise. Suggestions for new material or improvements to the eMM model and processes will be used to refine the eMM methodology and model.

If you do not wish to have your contributions recorded and used beyond this workshop, please use the white post-it notes when contributing to the brainstorming exercises. Not consenting will in no way affect your ability to participate in this workshop or to make use of the model and outcomes of this work.

Your workshop contributions ensure that the model reflects the shared understanding e-learning practitioners and experts have when identifying and supporting high quality e-learning. Individuals interested in ongoing collaboration or involvement in the research are invited to contact the project leader, Stephen Marshall.

If you have any questions or concerns please feel free to contact the project team leader:

Dr Stephen Marshall

University Teaching Development Centre, Victoria University of Wellington

PO Box 600, Wellington

(04) 463 5205 (ph)

Stephen.Marshall@vuw.ac.nz

Thank you for your time. We hope you enjoy the workshop.

E-Learning Maturity Model Workshop Brainstorming

Participant Consent Form

Please read and retain the information sheet. If you are prepared to have your contributions used, please sign this form below and use the coloured post-it notes supplied for your contributions during the workshop.

If you do not wish to have your contributions used beyond this workshop, please use only the white post-it notes when contributing to the brainstorming exercises. Not consenting will in no way affect your ability to participate in this workshop or to make use of the model and outcomes of this work.

Please return the form to the workshop facilitator before the end of the session.

Consent to participate in study

Your name:

Signature: Date:

☐ I would like to have my contribution personally acknowledged in any publication directly reporting on the outcomes of this workshop.

If you tick this box, please supply your email address below as well so you can be contacted to discuss the form of acknowledgement

Your email address:

Appendix C: Workshop evaluations

The workshop was attended by a total of 23 people. All participants were invited to complete an evaluation form asking four questions. A total of 12 completed evaluation forms were received containing a mix of formative feedback that is summarised below in Table 1.

1. What specific aspects of this session did you find most useful/helpful?

ACODE Workshop

The initial brainstorm: Much of the discussion

Initial brainstorm and ad-hoc ???

Identifying the criteria

Initial brainstorm and categorization > virtual institutional profile

Discussion and interpretations with peers

The first bit of brainstorming

Listening to people talk about their key current interests and concerns

Seeing practice examples for each level on the process sheets

Sharing of ideas and finding out there was a common understanding. The structured approach to classification

Exploration of processes and levels

Sticky papers

ASCILITE Workshop

Discussion/questions

Introduction to methodology

Trying to apply it

Discussion on the model - explanation of its origin and achievements

Outline of the model. Workbook

Stephens' enthusiasm and comprehensive understanding of the potential and limits of the methodology

Manchester Workshop

Helped focus on problem with assessment of e-learning and the criteria to ask questions against a list of values

Gaining an understanding of the process

Balanced, good more or less complete if somewhat (necessarily) superficial. Good dip of toe in the water.

Use of actual documentaion in assessment

Overview of the process and working through it - the whole workshop was really engaging

As part of the support staff, I have a better understanding of what the assessors will be looking for, and therefore should be able to help them

Working through the evaluation of a candidate process

Group sessions

The workshop mode was well done - I've never been to a workshop where actual work is done. This alone was the best feature!

Workshops/group work. Quite challenging. Very useful

Talking through the model and its use

Identifying our own processes and matching evidence to these processes

2. If this workshop was to be offered again, how could it be improved?

ACODE Workshop

Multiple paths need to be tried as ways to move through the middle stages

1. longer 2. more correlated with institutional documents maybe

Clump the ideas first then refine words for levels, then try to assign to eMM categories

Stop after phase 1 (as above) and examine how each groups categorization compares with other groups and model.

Clear understanding of levels from the outset and to identify the stickers with levels from the start

I thought the process was a bit long and involved. I think we should have been able to make up our own categories for the 2nd and 3rd parts

Spend more time on the emerging classifications/structures/conceptual maps and then compare these with the existing model

Review the model completely first and just do 1 post-it exercise

More brainstorming at beginning to make the drilled down activities easier to put the data into

Different coloured books, page numbers

I believe that the second stage completion i.e. fitting the compiled groups of info onto the pre-determined list, was inconsistent with the process of allowing the brainstorm to establish outcomes

It seemed to go very well!

ASCILITE Workshop

More time for second exercise (Evaluating Penguin course)

Could explain all the different documents that were on the table when we walked in

Limit time of the paper exercises and allow participants opportunity to relate the model to their own context not just generic or the set example

Very tough to do as a generic half day session, perhaps a full day?

Manchester Workshop

It worked very well

Possibly a more detailed case study but generally I thought it was excellent

Consideration of possible sources of evidence. Consideration of what needs to be put in place in order to improve USP, say

Potentially tailored to include data or x refer to work in the host institution if its for a closed group from that organisation

Very engaging, but perhaps encourage people further to bring their own documents

Some structured guidelines for the exercises in addition to the example material

UKHE version of USP case study

Go through the workshops a little faster in order to give time for a 2nd try

Working in smaller groups/pairs - so more processes are covered and more feedback from other

groups to get different perspectives

3. What kind of follow-up would be most helpful to you?

ACODE Workshop

Opportunity to work again with all original postit comments (e.g via web resources)

Further discussion

Refine criteria and bring back

Summary of data

Feedback on the analysis of the process and outcomes of today

Results of everyone's brainstorming

Any kind of report comparing these outcomes with other work on the model

Give us the list of outcomes

ASCILITE Workshop

Online discussion. Chance to email Stephen

Examples of reports/case studies. Further discussion

Have reports and associated papers following on available to participants (emailed)

being kept up to date on the development and final model details. Having an FAQ for people doing this exercise in their own universities

Discussion of relationship to other organisational assessment models

Will watch and participate where I can as the model gets exposure in Australian context

Manchester Workshop

A simple plan and summary would be useful

Being kept apprised of how it was being applied at UoM

Up to us to use it

Shared research/development plan with DL. Later discussion to follow on this

Involvement in the process at Manchester

Reviewing the 'real' work in our institutions

Continued dialogue e.g. at AL7-C

Provision of materials distributed for keeping would be helpful

Follow it up at my own institution

Internal use of model

4. Other comments, critiques, or suggestions?

ACODE Workshop

Keep up the good work. There are ways forward and they will emerge from this exploratory work.

Will be in touch

Maybe the 5 high levels, development, organisation etc aren't the most appropriate?

Well done!

Open-ended start went to unsatisfactory and inappropriate constraints and categories. Nevertheless was a good learning experience!

I suspect there's a slightly different model that may have emerged if there had been a different process. It would be good to return to this and try to find this model and then compare it with yours.

More limited example

ASCILITE Workshop

Interesting. I'd like to see e.g. a panel discussion with other points of view

Thanks

Well done. Thanks

Nice manner and a nice group to work with!

Manchester Workshop

Change slide 15 so that the colours scheme for each process is different from the 'score' colour scheme and move the label on the process block up. I think this will make it less confusing? Also on slide 17 put numbers 1-5 at top of process block. Another question - would be useful to explain how you get academic staff buyin to the data collection process as it seems very time consuming! Thanks.

Seems to be pitched at the right level for newly interested parties and more experienced working in same group

Excellent workshop

A very useful workshop and the opportunity to experience the eMM together with the future participants in our institutions e-benchmarking pilot. A really good day, thanks Hilary

Very informative. A reasonable introduction. I just need more practice!

Very interesting, thank you

Understanding Model (Manchester workshop only)

I have a good idea of the process

I hope so! Better than it was at any rate!

Yes. And better for the workshop

getting better

Yes - more so than my brief reading

Not yet - but with more practice/experience I'll get there

Clearer

Better understanding

Getting there!!

Largely adequate!

A clear initial understanding - yes. Need to put it into practice

Yes

Relevance to Work (Manchester workshop only)

Yes it's very difficult to measure e-learning against values. This method could help in giving evidence indicating the quality

Yes, but particularly at a school level rather than faculty or institution. I think some important strategic decisions would be necessary if you want faculty or institutional 'picture'

Yes. In the same way as already used and at different levels

This is where it gets interesting...how it can be *applied* at what level this can explicitly occur to retain value

Yes - we need some form of benchmarking here at manchester

Yes, the road to process improvement

Use at international level

Some, but there is difficulty with generating a representative group of programmes. Even in a small university such as manchester

Yes, potentially

Yes - benchmarking our e-learning capability but also capability in other areas

Yes - we are using it in the pilot!

Appendix D: ACODE Workshop Practice Mapping

Each item identified in the workshop brainstorming exercise is listed against each process it relates to. The same item may appear in more than one process as indicated by the black text. The 'x' character in the dimension indicates a match with aspects of the process at that dimension. Grey boxes indicate items that are effectively the same as the item above and are thus not reassessed by dimension.

Processes and Items Learning

Dimension

1 2 3 4 5

L1. Learning outcomes

Assessment. Following Briggs, ensure course objectives are embedded in assessment tasks – alignment is key

Course outlines are mandatory for all courses; includes learning outcomes

Clearly defined, realistic & achievable learning outcomes.

Clear learning objectives, personal transferable outcomes & academic skill outcomes.

x				
	x			
x				
x				
3	1	0	0	0

L2. Interaction

Learning is content and process. &L7

x				
1	0	0	0	0

L3. Skill development

Student training & support. & S1/4

Students receive orientation to online learning.

Academic learning skills support for students

Student support materials about being an e-learner, not about technology. &

Recognition that students need learning support as well as IT support & S1

Students are prepared for learning experiences. & S4

Students supported in using the technology. & S1

Students supported in accessible technology. & S1

[IT] literacy levels of students when using technology. & S1

Software training for staff & students.

Workshops for students about new technologies and apps.

Students should have orientation activity to the e-learning platform

	x			
x				
x	x			
x	x			
x				
4	3	0	0	0

L4. Responsiveness

Roles & responsibilities of students & instructors – setting expectations for

chat etc.
Timeliness of response to student intervention in the system, & communicating expectations of these

x	x			
x				
2	1	0	0	0

L5. Feedback

Feedback to students.

Encourage staff to give timely feedback to students.

Timeliness of response to student intervention in the system, & communicating expectations of these

x				
	x			
1	1	0	0	0

L6. Info-literacy skills

Library support for learners

Ability to detect plagiarism and collusion &S6

	x			
	x	x		
0	2	1	0	0

L7. Active engagement

Group activities that allow sharing of ideas – Teacher.

Learning is content and process. &L2

x				
x				

$$\overline{20000}$$

x				
x				
2	0	0	0	0

X				
---	--	--	--	--

	x	x		
1	1	1	0	0

1 1 1 0 0

X				
---	--	--	--	--

x				

X				
X				

X				
---	--	--	--	--

x				
4	0	0	0	0

19 8 2 0 0

D1. Design and development support

X				
---	--	--	--	--

	X			

		X		
--	--	---	--	--

	X			

--	--	--	--	--

		X		

1	2	2	0	0
---	---	---	---	---

D2. Procedures and standards

Standards & guidelines for use of technology.

Materials development people identified/connected/[linked]/ to/by facilities

&D1 &D7

PHASING (implementation)

Use iterative formative evaluation for course development. &D1 &E3

Road testing and evaluating technology to reduce risks on implementation.

Collaborative approach to T&L e-technology implementation. &D1 &S5

x				
x				
	x			
	x			
			x	
	x			
2	3	0	1	0

D3. Design rationale

Course authors are aware of technological constraints/access.

Curriculum alignment. Aims –outcomes. Activity – assessment etc. Using appropriate ICT's.

Relationship to graduate attributes and other forms of blended learning.

Apply technology to enhance students' learning experience and social experience in a holistic manner.

Effective teaching practices that can benefit from the affordances of e-learning technologies.

Consistent – institution wide – design criteria.

Emphasise need for staff to be involved as designers in the learning experience not just in the delivery and facilitation of it.

	x			
x				
	x			
x				
x				
		x		
			x	
3	2	2	0	0

D4. Disability support

Students supported in accessible technology.

x				
1	0	0	0	0

D5. Reliable, robust and sufficient infrastructure

Adequate infrastructure

Technology must work so that it's not an issue/stands in the way of learning.

IT infrastructure = robust stable & scalable.

Support of robust educational technologies

The technology involved must be sufficiently simple that it does not detract from teachers thinking about their teaching. &D6

Analyse log files

Strategies to evaluate new technology. &O3 &D6

Financial & resource support that recognises maintenance and ongoing development. &O1

Provide & foster playpen environment for emerging technologies

There must be a common learning platform across the institution that is interoperable with other systems, scalable, and of sufficient functionality to meet teaching requirements generally. &D5

One LMS used throughout institution &D6

Navigation must be sufficiently simple and common across courses so students do not regard it as an obstacle to using the learning platform. &S1

Single electronic entry points.

Interoperable, seamless learning environment. &D6

x				
x				
x				
			x	
	x			
		x		
	x			
	x			
x				
			x	
4	3	1	2	0

D6. Integrated infrastructure

Systems & infrastructure

IT & e-learning architecture & infrastructure. &O3 &O4

Hub & spoke centre/area links & communication needed in ongoing way.

Networking & communication potential of online environment is utilised.

IT infrastructure = robust stable & scalable.

Support of robust educational technologies

High level academic to coordinate liaison between IT, library, registrar, academic development, production etc.

[illegible]

x				
x				
x				
	x			
	x			
		x		
		x		
3	3	2	0	0

16 15 8 4 0

[illegible]

One stop shop for 'Help' for O/L students. &S

2	3	1	1	0

Library support for learners. & L6

Student training & support. &S1-4

Student support materials about being an e-learner, not about technology.

Student support free (e.g. toll-free phone numbers) for the student. &S2-4
&S1-4

Provision of appropriate support for learners &S

Student understanding level of support &S

Students are prepared for learning experiences. &S

Understanding & supporting the 'whole' T7L experience for O/L students &S

Provide resources online that give guidance. &S

Grow FAQ's and knowledge base customised to needs. &S

Student & staff 24x7 support. &S

24x7 (or appropriate) IT support. &S

Clear statement regarding accessibility & support e.g. 24/7 or 12/5? &S

One stop shop for 'Help' for O/L students. &S

Provision of central services to faculties via a constantly negotiated faculty service agreement. &S

Collaboration between library, ITS and academic support areas in provision of helpdesk support. &S1-4

Student support is shared & integrated. <S &S1-4

x				
x				
	x			
x				
		x		
	x			
3	2	1	0	0

Student training & support. & S1-4

Provision of appropriate support for learners &S

Student support free (e.g. toll-free phone numbers) for the student. &S1-4

Student understanding level of support &S

Student support materials about being an e-learner, not about technology. &S

Students are prepared for learning experiences. &S

Understanding & supporting the 'whole' T7L experience for O/L students &S

Provide resources online that give guidance. &S

Grow FAQ's and knowledge base customised to needs. &S

Student & staff 24x7 support. &S

24x7 (or appropriate) IT support. &S

Clear statement regarding accessibility & support e.g. 24/7 or 12/5? &S

Seamless escalation path for student queries: Tech, Pedagogy, Life.

Support Students: Ensure one point of contact to handle all incoming queries.

One stop shop for 'Help' for O/L students. &S

Collaboration between library, ITS and academic support areas in provision of helpdesk support. &S1-4

Student support is shared & integrated. &S1-4

Provision of central services to faculties via a constantly negotiated faculty service agreement. &S

Students are prepared for learning experiences. &S

Provision of appropriate support for learners &S

Recognition that students need learning support as well as IT support

Student support materials about being an e-learner, not about technology. &S

Understanding & supporting the 'whole' T&L experience for O/L students &S

Student training & support. & S1-4

X				

Student support is shared & integrated. &S1-4

x				
	x			
	x			
x				
x				
		x		
	x			
x				
4	4	1	0	0

Central unit with faculty based staff to assist with academic needs
communicate policies & practices, assist with faculty teaching plans &
priorities.

[illegible]

Clear copyright statements & guidelines, including students attaching documents to discussion lists. &O4

		x		
4	2	3	1	0
22	18	11	4	0

Evaluation

E1. Student evaluation and feedback

Student evaluation feedback used for CI

Common feedback & evaluation mechanism

feedback from students.

Feedback on achievement of learning outcomes – from students staff & staff

Response to data. &E

				x
			x	
x				
x				
	x			
2	1	0	1	1

E2. Staff evaluation and feedback

Connecting people from different disciplines.

Feedback on achievement of learning outcomes – from students staff & staff

Share understanding gained by use of new technology and pedagogy.

Build multiple communities of practice among academic staff groups.

Response to data. &E

Ownership of direction by both academic & general staff. . &O9

			x	
x				
	x			
	x			
	x			
	x			
1	4	0	1	0

E3. Reviews of courses

Take account of the whole context, not just access stats (pedagogy, environment, aims, outcomes).

Centralised monitoring to ensure quality across the organisation.

Use iterative formative evaluation for course development. &D2 &D1

Response to data. &E

x				
			x	
			x	
	x			
1	1	0	2	0
4	6	0	4	1

Organisation

O1. Resource allocation

Allocation of appropriate & timely funding.

Appropriate funding.

\$\$

ICT initiatives & [??] are adequately resourced.

Aligning budgets with actual costs.

Central resourcing.

Consideration given to resourcing (human & material) for the development of digital learning resources for all modes of delivery.

Financial & resource support that recognises maintenance and ongoing development. &D5

Strategies in T&L or e-learning strategic plan linked to targeted grants/funding to facilitate e-learning.

Cooperation of all stakeholders to support the e-learning strategies.

Roles + budget responsibility + support by faculty, library, ITS, student services, OLTR. &O2 &O3 &O9

x				
	x			
		x		
		x		
		x		
1	1	3	0	0

O2. e-Learning policy and strategy

Definition & policy for e-learning.

Strategic plan at institutional level which is realistically translated into action plans throughout the institution.

x				

x				
x				
x				
x				
x				
5	0	0	0	0

[illegible]

Will to commit.

Executive understanding of cost-benefit of e-learning.

Sufficient funding to support institutional goals in e-learning.

Understanding at all levels of the organisation. &O2

'Buy in' by the academic structures of the university. . &O2

Ownership of direction by both academic & general staff. . &E2

Get buy-in at significant level – faculty & school

IT people need to get reward from good T&L outcomes, (not just from IT security & reliability).

Careful & skilled change management designed to evolve organisational culture/s

Faculty service agreement negotiated firstly on published university e-learning priorities.

Roles + budget responsibility + support by faculty, library, ITS, student services, OLTR. &O2 &O3 &O1

Shared vision and shared action plans (and action) from ITS, T&L, & library,

x				
x				
	x			
	x			
x				
		x		
		x		
		x		
6	2	5	1	0

20 9 17 4 0

Dimensions

81 56 38 16 1
42% 29% 20% 8% 1%

Appendix E: ASCILITE Workshop Practice Mapping

Each item identified in the workshop brainstorming exercise is listed against each process it relates to. The same item may appear in more than one process as indicated by the black text. The 'x' character in the dimension indicates a match with aspects of the process at that dimension. Grey boxes indicate items that are effectively the same as the item above and are thus not reassessed by dimension.

Learning	Dimension				
	1	2	3	4	5
L1. Learning outcomes					
L2. Interaction					
L3. Skill development					
DEVT Provide resources to support e-learning & D2	x				
Don't try to teach academics the technology, teach them how to teach it to their students. & S1		x			
	1	1	0	0	0
L4. Responsiveness					
L5. Feedback					
L6. Info-literacy skills					
L7. Active engagement					
L8. Assessment					
Agreed institutional approach to assessment – levels, ???, modes, ???			x		
	0	0	1	0	0
L9. Timeliness					
L10. Diversity					
Awareness and discussion of 'accessibility' as an issue & D4.		x			
The organisation manages diversity in T&L and can support this		x	x		
	0	2	1	0	0
	1	3	2	0	0
Development					
D1. Design and development support					
Capture their initial enthusiasm to milk it for what its worth. & S5		x			
Employs an educational designer to assist staff in development. (needs more!) & S5	x				
Teachers are given time to think, do, evaluate and reflect. They have optional support available. & S5		x			
Ensure new technologies are accommodated and training offered. & S5			x		

Establish exemplars of best practice of e-learning. The organisation has clear responsibilities for & trust of staff. i.e. it supports professionalism & S5 S6

		x		
1	2	2	0	0

D2. Procedures and standards

DEVT Provide resources to support e-learning. & L3

x				
1	0	0	0	0

D3. Design rationale

Faculty aligned educational design and development teams
Integrated teams (academic, support & library) to develop courses.

	x			
	x			
0	2	0	0	0

D4. Disability support

Awareness and discussion of 'accessibility' as an issue. &L10

x				
1	0	0	0	0

D5. Reliable, robust and sufficient infrastructure

Student lab infrastructure well-maintained.
Provide a system that is reliable. (fast, responsive, scalable etc).
The technology 'just works'
Ensure the IT system capability re sustainability of access at peak load.
Centralised technology systems

x				
x				
x				
3	0	0	0	0

D6. Integrated infrastructure

Open pd opportunities to all staff not just academics. & D7 S1

		x		
0	0	1	0	0

D7. Reusability

Provide regular 'technology for learning' updates. & S5
Open pd opportunities to all staff not just academics. & D6 S1

		x		
		x		
0	0	2	0	0

6 4 5 0 0

Support

S1. Technical support for students

Don't try to teach academics the technology, teach them how to teach it to their students. & L3

Open pd opportunities to all staff not just academics. & D6 D7

		x		
0	0	1	0	0

S2. Library access for students

S3. Student enquiries, questions, complaints

S4. Personal/learning support for students

S5. Pedagogical support for staff

Give educational technologists a voice. & S6

	x			
--	---	--	--	--

)				
al				
s				
h				
r				
e	x			
0	2	0	0	0

	x			
al		x		
	x			
h	x	x		
r				

0 3 2 0 0

0 5 3 0 0

Evaluation

o	x				
n	x				
t			x		
x					
	2	1	0	1	0

	x			
	x			
t			x	
x				
	1	2	0	1

E3. Reviews of courses

Evaluation of innovations & changes to understand their impact.

Quality control processes that address issues of flexibility & distance.

Provide regularly collected course feedback to education support staff (don't keep it secret). E1-3

E-learning and other teaching are evaluated in a truly integrated way. E1-3

x				
			x	
			x	
x				
2	0	0	2	0

5 3 0 4 0

Organisation

O1. Resource allocation

O2. e-Learning policy and strategy

Managers admit they need to learn about this and stop doing 'nothing' because it feels safer. & O9

x	x			
1	1	0	0	0

O3. Technology plan

Strong commitment to LMS.

T&L technologies must comply with overall IT governance.

Research led teaching means digital research support systems overlap with e-learning systems.

	x			
	x			
	x			
0	3	0	0	0

O4. Reliability, integrity validity of information

Content' is openly available to all so the universities community obligations are really addressed. The expertise is in dealing with the domain.

	x			
0	1	0	0	0

O5. e-Learning plan

Stop ed decisions being made by managers.

Stop ed decisions being made by IT experts

	x			
	x			
0	2	0	0	0

O6. Technology info for students

Statement of rights and responsibilities (students).

Formal ongoing induction for students.

		x		
	x			
0	1	1	0	0

O7. Pedagogy info for students

Statement of rights and responsibilities (students).

Formal ongoing induction for students.

		x		
	x			
0	1	1	0	0

O8. Admin info for students

Statement of rights and responsibilities (students).

Formal ongoing induction for students.

		x		
	x			
0	1	1	0	0

O9. Business management and strategy

Secure executive ownership of policy/process development to prevent ad-hoc responses.

x				

E-learning adoption & meta-learning grows organically in a diverse institution with appropriate fertilizer and trusses.

(e-learning) policy & policy review frameworks.

Get executive ownership of e-learning direction at an institutional level.

Online presence for every course.

Managers admit they need to learn about this and stop doing 'nothing' because it feels safer. & O2

1	0	0	0	0
2	10	3	0	0
14	25	13	4	0
25%	45%	24%	7%	0%

Appendix F: Manchester Workshop Practice Mapping

Each item identified in the workshop brainstorming exercise is listed against each process it relates to. The same item may appear in more than one process as indicated by the black text. The 'x' character in the dimension indicates a match with aspects of the process at that dimension. Grey boxes indicate items that are effectively the same as the item above and are thus not reassessed by dimension.

	Dimension				
	1	2	3	4	5
Learning					
L1. Learning outcomes					
Alignment of: Outcomes, assessment, activities/events, resources	x				
Course outlines are mandatory for all courses; includes <u>learning outcomes</u>		x			
Clearly defined, realistic& achievable learning outcomes.	x				
Use of objectives/learning outcomes					
Clear learning objectives, personal transferable outcomes & academic skill outcomes.					
	2	1	0	0	0
L2. Interaction					
Good (regular) and speedy online staff-student communication		x			
Learning is content and process. &L7					
Undertaking thorough surveys of student needs both for knowledge aspects and delivery aspects				x	
Ask Me students and Involve Me students		x			
	0	2	0	1	0
L3. Skill development					
Supporting learners in acquiring the required skill set	x				
For students opportunities for formative self tests	x				
Ability to submit coursework online	x				
Undertaking thorough surveys of student needs both for knowledge aspects and delivery aspects				x	
	3	0	0	1	0
L4. Responsiveness					
Expectations should be communicated to students regarding their participation online	x				
Good (regular) and speedy online staff-student communication					
Students understand what support is available to them, where/how to obtain it, what response times to expect					
	1	0	0	0	0
L5. Feedback					
Good (regular) and speedy online staff-student communication	x				
Students should have individual feedback on their performance	x				
	2	0	0	0	0
L6. Info-literacy skills					
L7. Active engagement					
Learning and teaching practice supports e-learning effectively & D1 D2	x				

x				
2	0	0	0	0

x				
1	0	0	0	0

x				
1	0	0	0	0

x				
x				
x				
3	0	0	0	0

15 3 0 2 0

x				
		x		
	x			
x				
x				
	x			
x				
4	2	1	0	0

		x		
x				
x				
	x			
			x	
2	1	1	1	0

Development planning exercises should include all aspects of good project management practice

		x		
		x		
x				
x				
	x			
2	1	2	0	0

Anchor? Development in tools and environments

Anchored? Staff development activities

Ensure technology doesn't get in the way

Technology functions as a single tool amongst many

Staff able to make choices about tools

Reliance of courses on IT should be planned before delivery and IT departments involved

Student and other stakeholder requirements should be connected and analysed prior to major course development or change decision being made/ implemented

D4. Disability support

D5. Reliable, robust and sufficient infrastructure

e-learning system must be reliable

Technology must be always available

IT infrastructure in place

IT infrastructure that works and is appropriate

The technology should be robust and accessible

IT systems must be as good as those in outside organisations

Technology functions as a single tool amongst many & D6

Resource provision electronic whiteboards, projectors, computers

Lecture theatre and virtual e.g. digital drop boxes

Institutional IT policy must allow use of peer-to-peer software & D6

Change management process for student management systems is in place and responsive

e-learning should not increase overall complexity of 'the system' & O3 O5

x				
x				
	x			
x				
3	1	0	0	0

D6. Integrated infrastructure

IT infrastructure is supportive of teaching approaches

A coordinated approach to all online delivery is taken: registration, library, timetabling, room booking

Technology functions as a single tool amongst many & D5

Lecture theatre and virtual e.g. digital drop boxes

Institutional IT policy must allow use of peer-to-peer software & D5

Standard e-learning platform (but shouldn't be exclusive)

x				
x				
x				
x				
4	0	0	0	0

D7. Reusability

Work towards future proofing material

x				
1	0	0	0	0

16 5 4 1 0

Support

S1. Technical support for students

e-learning computer system must be, or rapidly become familiar to students

Students should have a consistent IT understanding/skill-set

Plan student support requirements & S2 S3 S4

Undertaking thorough surveys of student needs both for knowledge aspects and delivery aspects & L2 L3 S2

x				
x				
	x			
			x	

Students understand what support is available to them, where/how to obtain it, what response times to expect & L4 S2 S3

The location of student support services should be available & S2 S3 S4

Support infrastructure that isn't geared around concept of full-time student based in Manchester & S2 S3 S4

x				
x				
4	1	0	1	0

S2. Library access for students

Excellent electronic resources e.g. library

Undertaking thorough surveys of student needs both for knowledge aspects and delivery aspects & L2 L3 S1

Plan student support requirements & S1 S3 S4

Students understand what support is available to them, where/how to obtain it, what response times to expect & L4 S1 S3

The location of student support services should be available & S1 S3 S4

Support infrastructure that isn't geared around concept of full-time student based in Manchester & S1 S3 S4

x				
			x	
	x			
x				
x				
3	1	0	1	0

S3. Student enquiries, questions, complaints

Plan student support requirements & S1 S2 S4

Students understand what support is available to them, where/how to obtain it, what response times to expect & L4 S1 S2 S4

The location of student support services should be available & S1 S2 S4

Support infrastructure that isn't geared around concept of full-time student based in Manchester & S1 S2 S4

	x			
x				
x				
2	1	0	0	0

S4. Personal/learning support for students

Student induction should really empower students as internet users

Student support should be easily accessible and responsive

Students understand what support is available to them, where/how to obtain it, what response times to expect & L4 S1 S2 S3

The location of student support services should be available & S1 S2 S3

Support infrastructure that isn't geared around concept of full-time student based in Manchester & S1 S2 S3

Plan student support requirements & S1 S2 S4

x				
x				
x				
x				
	x			
4	1	0	0	0

S5. Pedagogical support for staff

Ensure staff understand what e-learning is

Staff development to support e-learning

Teaching staff are properly trained in learning technologies & D1 S6

Training for new staff on pedagogic design of courses

Integrated staff development

Online experiential learning for teaching staff

Training for support staff & S6

e-learning development should involve the appropriate teaching staff

Learning and teaching practice supports e-learning effectively & L7 D1 D2

e-learning support staff (pedagogic)

Facilities to use multi-media resources & D1

Know where to turn for help

Experts (at various levels) in university to make sure it's done properly (guidance, resource, ongoing advice, etc.)

x				
x				
x				
x				
x				

It must be possible to derive research outcomes from (large scale) e-learning activities

		x		
			x	
	x			
x				
6	1	1	1	0

Quality process must facilitate innovation in e-learning

Good practice is rewarded

Staff engaged in e-learning must gain career benefit

e-learning researchers must be {regarded/celebrated? as relevant to operational e-learning

Consider how you can sell me 'real' story not the 'efficient' story corporate affairs would prefer & D1

S6. Technical support for staff

Integrated staff development

Teaching staff are properly trained in learning technologies & D1 S5

Staff development should use same e-learning principles as in student courses & D1 S5

Ensure staff understand what e-learning is

Training for support staff & S5.

Students should be given power to choose and create own content

Programme developments might assume learners will be active producers of own content & O4

x				
x				
2	0	0	0	0

21 5 1 3 0

Evaluation

E1. Student evaluation and feedback

Teaching is evaluated by students

There is real feedback of aspects of course performance (learning activity, assessment) to planning

e-learning should be evaluated

Specific 'e' feedback should be consistently elicited from students and ACTED ON

Making use of student feedback (l/v/6)

Quality control: before, during, and after delivery

Involving students in course design

Developing partnerships with staff and students

x				
			x	
	x			
	x			
1	2	0	1	0

E2. Staff evaluation and feedback

Peer evaluation of teaching and materials

There is real feedback of aspects of course performance (learning activity, assessment) to planning

e-learning should be evaluated

Organisation learns from practitioners

Quality control: before, during, and after delivery

Opportunities (fora) for sharing good practice

			x	
x				
			x	
	x			
1	1	0	2	0

E3. Reviews of courses

General step change in thinking for all staff

e-learning should be evaluated

Evaluation policies/practice in place

Evaluation of policy/practice impact are undertaken regularly – enabling rather than judgmental

x				
x				

- Embedded quality enhancement process
- QA processes need to reflect/incorporate e-learning
- Quality control: before, during, and after delivery
- All e-learning must have a life cycle for quality purposes
- Quality processes must facilitate innovation in e-learning

2 0 0 1 0

4 3 0 4 0

Organisation

O1. Resource allocation

MONEY! For new developments

E-learning should be costed

x				
x				
2	0	0	0	0

O2. e-Learning policy and strategy

e-learning strategy & O9

(Also at Faculty and school level) Institutional strategy and implementation plan

e-learning must be considered in all strategies and govt. agendas (WP,EO,DIS,FOZ) & O9

Common institutional aims (e.g. MCR 2015??) & O9

The need for e-learning should be identified

Ensure planning management and delivery connected traceability

Policy and policies are disseminated meaningfully to practitioners and practitioners buy-in to policy and policies

User groups with actual power/influence?

Multi-stakeholder teams for planning

Policies should be clear and transparent

General step change in thinking for all staff

Allow 'creatives' to contribute to creation of policy and practice

Don't think of institutional policy and practice as 'all there is 'What learning is taking place outside the box and how can you facilitate this

Allow for flexibility/adaptability of processes/policies/procedures

Work towards change. We live in a change culture & O3 O9

A 'bendier' box

A 10x5 grid of squares. The top row is labeled 'x' on the left. The bottom row is labeled 'x' on the left. The bottom row of labels is '2 0 0 0 0'.

O3. Technology plan

Work towards change. We live in a change culture & O2 O9

Reliance of courses on IT should be planned before delivery and IT departments involved

e-learning should not increase overall complexity of 'the system' & D5 O5

x				
x				
x				
3	0	0	0	0

O4. Reliability, integrity validity of information

Programme developments might assume learners will be active producers of own content &
S6

	x			
0	1	0	0	0

O5. e-Learning plan

e-learning should not increase overall complexity of 'the system' & D5 O3

x				
1	0	0	0	0

Students understand what is expected of them & O7

x					
	1	0	0	0	0

Students understand what learning and teaching strategies will be included and are indicated in order to enable them to participate effectively

x				
	1	0	0	0

Electronic enrolment is efficient, students are enrolled in sufficient time

x				
	1	0	0	0

e-learning must be considered in all strategies and govt. agendas (WP,EO,DIS,FOZ) & O2

Align infrastructure service requirements across the institution managed organisation and unit

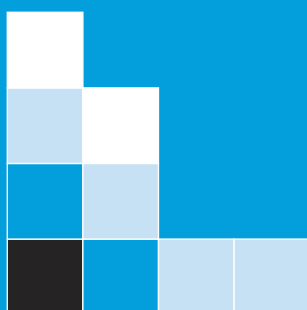
Key posts and resources are made for priority areas and that expertise transferred appropriately as/when that area becomes activated

x				
	x			
		x		
x				
x				
x				
x				
5	1	1	0	0

16 2 1 0 0

72 18 6 10 0

68% 17% 6% 9% 0%



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