## E-Learning Maturity Model

# Process Descriptions

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# Contents

## 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 |
| MLE | Managed Learning Environment |
| 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 |


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## Intellectual Property Statement

# Introduction

This *eMM Process Guide* provides a detailed description of the processes and practices that underpin the e-learning Maturity Model (eMM) methodology (Marshall and Mitchell, 2004).

The processes and practices listed here are from version 2.3 of the eMM, the most recent version is always available from http://www.utdc.vuw.ac.nz/research/emm/. Details of the eMM methodology are provided in Marshall and Mitchell (2006), and in greater detail in Marshall (2006a). Practical assistance and worksheets for conducting self-assessments are provided in the *eMM Process Assessment Workbook* (Marshall, 2006b). Electronic copies of all of these documents are available from the eMM website: http://www.utdc.vuw.ac.nz/research/emm/.

This document is divided into five sections, corresponding to the five eMM process areas, *Learning*, *Development*, *Support*, *Evaluation* and *Organisation*. Within these sections the individual processes are described along with a review of the evidence supporting their inclusion in the eMM.

The evolution of the eMM that has resulted in the current set of processes and practices is provided in Marshall (2006a). Over time it is hoped that this document will grow and evolve, incorporating evidence from assessments conducted using the eMM in a wide variety of institutions and contexts as well as the rich and growing international body of research on e-learning.

## 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, 2006a). 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).

## Key eMM concepts

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 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 Capability Maturity Model (CMM, Paulk *et al*., 1993) and SPICE (Software Process Improvement and Capability dEtermination, El Emam *et al*., 1998; SPICE, 2002). 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.

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. Capability includes the ability of an institution to sustain e-learning support of teaching as demand grows and staff change.

## Processes

Building on the SPICE model, the eMM divides the capability of institutions to sustain and deliver e-learning up into five major categories or process areas (Table 1). 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. 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 1:** eMM 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 have 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 (Marshall, 2006a) and this has resulted in the set of processes in Table 2, and which are described in detail in this document.

## Dimensions of capability

A key development that arose from the evaluation of the first version of the eMM is that the concept of levels used was unhelpful (Marshall and Mitchell, 2006). The use of levels implies a hierarchical model where capability is assessed and built in a layered way. 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 organization that has developed capability on all dimensions for all processes will be more capable than one that has not. Capability at the higher dimensions that is not supported by capability at the lower dimensions will not deliver the desired outcomes; capability at the lower dimensions that is not supported by capability in the higher dimensions will be ad-hoc, unsustainable and unresponsive to changing organizational and learner needs.

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

| | |
|---|---|
| **Learning:** ***Processes that directly impact on pedagogical aspects of e-learning*** | |
| L1. | Learning objectives guide the design and implementation of courses |
| L2. | Students are provided with mechanisms for interaction with teaching staff and other students |
| L3. | Students are provided with e-learning skill development |
| L4. | Students are provided with expected staff response times to student communications |
| L5. | Students receive feedback on their performance within courses |
| L6. | Students are provided with support in developing research and information literacy skills |
| L7. | Learning designs and activities actively engage students |
| L8. | Assessment is designed to progressively build student 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 by e-learning procedures and standards |
| D3. | An explicit plan links e-learning technology, pedagogy and content used in courses |
| 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. | E-learning resources 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 are provided with library facilities when engaging in e-learning |
| S3. | Student enquiries, questions and complaints are collected and managed formally |
| S4. | Students are provided with personal and learning support services when engaging in e-learning |
| S5. | Teaching staff are provided with e-learning pedagogical support and professional development |
| S6. | Teaching staff are provided with technical support in using digital information 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 feedback on the quality and effectiveness of their e-learning experience |
| E2. | Teaching staff are able to provide regular feedback on quality and effectiveness of their e-learning experience |
| E3. | Regular reviews of the e-learning aspects of courses are conducted |
| **Organisation:** ***Processes associated with institutional planning and management*** | |
| O1. | Formal criteria guide the allocation of resources for e-learning design, development and delivery |
| O2. | Institutional learning and teaching policy and strategy explicitly address e-learning |
| O3. | E-learning technology decisions are guided by an explicit plan |
| O4. | Digital information use is guided by an institutional information integrity plan |
| O5. | E-learning initiatives are guided by explicit development plans |
| O6. | Students are provided with information on e-learning technologies prior to starting courses |
| O7. | Students are provided with information on e-learning pedagogies prior to starting courses |
| O8. | Students are provided with administration information prior to starting courses |
| O9. | E-learning initiatives are guided by institutional strategies and operational plans |

**Table 2:** eMM Version Two Processes and Process Areas

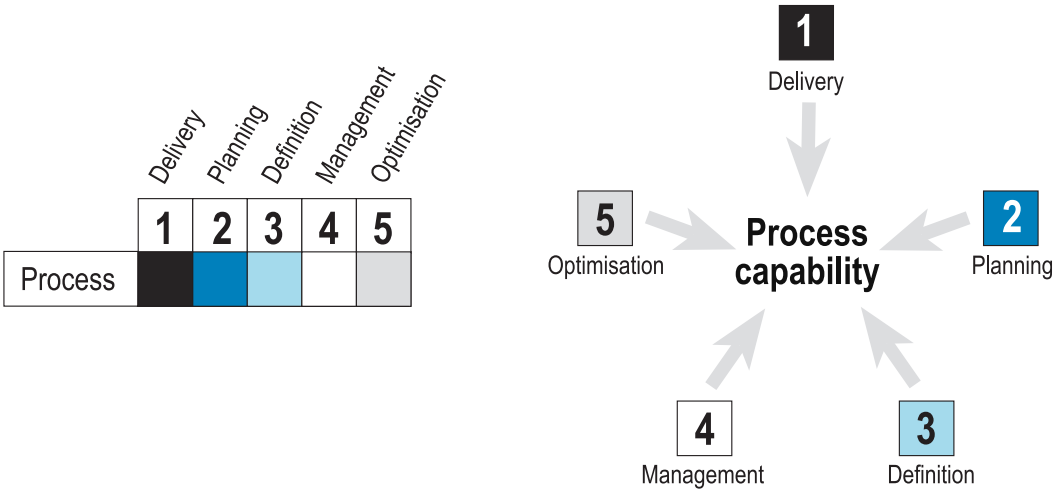


**Figure 1**: eMM Process Dimensions

**Dimension 1** (Delivery) is concerned with the creation and delivery 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 emphasise 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 process outcomes 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 is further broken down within each dimension into practices that are either essential (listed in bold type) or just useful (listed in plain type) in achieving the outcomes of the particular process from the perspective of that dimension. These practices are intended to capture the key essences of the process as a series of items that can be assessed easily in a given institutional context. The practices are intended to be sufficiently generic that they can reflect the use of different pedagogies, technologies and organisational cultures. The eMM is aimed at assessing the quality of the processes - not at promoting particular approaches.

The use of these detailed lists of practices provides a way of making explicit the essential aspects of the eMM processes which can then be used to develop action plans and strategies addressing aspects of particular weakness or opportunity for a sector or institution. They are also essential in enabling self-assessments as set out in Marshall (2006b).

Along with the practice statements each process description includes exemplars of practice performance (Figure 2). These exemplars are designed to assist the assessment process by providing examples of capability performance. It is important to emphasise that there are many alternative ways of demonstrating capability

and the experience and judgment of the assessor should always take priority. The intention in supplying the exemplar statements is to reduce any potential ambiguity that might arise from the phrasing of the practice statement.

| Process L1. Learning objectives guide the design and implementation of courses | | |
|---|---|---|
| **Assessment** | | **Practices** |
| 1 | See also: D3 (2) & O7 (2) | **Course documentation includes a clear statement of learning objectives.**<br>☐ *No formally stated learning objectives apparent in the course information supplied to students.*<br>☐ *Formally stated learning objectives provided to a limited extent, either as narrative descriptions of the course outcomes or only in documentation provided after enrolment.*<br>☐ *Formally stated learning objectives normally provided in course documentation available prior to enrolment but are missing in some cases or inconsistently provided in the range of course documents.*<br>☐ *Formal statement of course learning objectives clearly and consistently provided in course documents, including those available prior to enrolment, individual objectives clearly distinguished from general course description and information.* |
| | See also: L8 (1) & D3 (2) | **Learning objectives are linked explicitly throughout learning and assessment activities using consistent language.**<br>☐ *No use of learning objectives apparent in the course information supplied to students beyond a formal statement or description.*<br>☐ *Assessments and learning activities contain implicit, incomplete and inconsistent linkages to course learning objectives.*<br>☐ *Most, but not all, assessments and learning activities contain explicit linkages to course learning objectives or restate learning objectives using different wording.*<br>☐ *Formal statement of course learning objectives clearly and explicitly linked in all assessments and learning activities using consistent language.* |

**Figure 2**: eMM Capability Assessment Practices and Exemplars

When conducting an assessment each practice is rated, with reference to the exemplars, for performance from 'not adequate' to 'fully adequate' (Figure 3). 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.

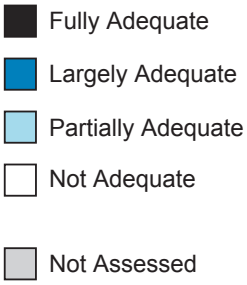


**Figure 3**: eMM Capability Assessments (based on Marshall and Mitchell, 2003)

A rating of Not Adequate indicates that there is currently no evidence of the practice occurring in the institutional context, nor usually a recognition of the practice outcomes in normal institutional activities. It suggests that the institution needs to acknowledge the practice outcomes and assign responsibility for their achievement formally.

A rating of Partially Adequate indicates that major shortcomings or limitations in practice outcomes are evident. This commonly occurs as a result of a failure to formally assign responsibility for their achievement, or as a consequence of using outdated or face-to-face systems in the context of e-learning.

A rating of Largely Adequate indicates that the practice outcomes are being achieved but that more formalisation is needed to ensure sustainability, or that a more systematic consideration of activities has been lacking. This can occur as a result of an aging first generation of e-learning systems or investment not being actively re-examined and maintained.

A rating of Fully Adequate indicates that the process outcomes are currently being clearly and sustainably addressed and achieved. This is not an excuse for complacency as the rapid pace of change in e-learning means ongoing focus and investment is necessary in all areas, however, it does suggest that new resources or investment can useful be directed elsewhere in the immediate future.

The practices have been deliberately designed to minimise variation in determining capability but this is necessarily an exercise of judgement and it is also very useful to note what evidence underpins the assessment as this provides both an insight into ways in which capability can be achieved in different contexts and a starting point for considering improvements.

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

This process area has as its goal the attainment of the highest quality learning outcomes possible for students. The individual processes are directed at preserving the essential aspects of an effective learning environment that apply regardless of the technologies used, the pedagogical approaches incorporated or the disciplinary domain.

| **Learning:** ***Processes that directly impact on pedagogical aspects of e-learning*** | |
|---|---|
| L1. | Learning objectives guide the design and implementation of courses |
| L2. | Students are provided with mechanisms for interaction with teaching staff and other students |
| L3. | Students are provided with e-learning skill development |
| L4. | Students are provided with expected staff response times to student communications |
| L5. | Students receive feedback on their performance within courses |
| L6. | Students are provided with support in developing research and information literacy skills |
| L7. | Learning designs and activities actively engage students |
| L8. | Assessment is designed to progressively build student competence |
| L9. | Student work is subject to specified timetables and deadlines |
| L10. | Courses are designed to support diverse learning styles and learner capabilities |

**Table 2:** eMM Version Two *Learning* Processes

# Process L1.

*Learning objectives guide the design and implementation of courses*

## Process Background

It is commonly accepted that having clearly defined learning objectives and learning outcomes is integral to effective teaching and to student achievement. Bloom (1956) has contributed significantly to this understanding. His cognitive taxonomy hierarchically arranges knowledge in relation to cognition as 'analysis, synthesis and evaluation' to frame educational objectives for learning outcomes. However, recent revisions have adapted, expanded and extended this model to account for new knowledge about learning processes (Anderson *et. al.*, 2001; Dettmer, 2006; Tomei, 2005). Anderson et al. (2001) reframe knowledge and cognition into two dimensions to better reflect their interrelationship and to provide a matrix table for more effective planning. They also update the terminology and structure by changing 'comprehension' to 'understanding' and 'analysis, synthesis, and evaluation' to 'analyze, evaluate and create' (p. 268). The verbalizing of these descriptions emphasise the interactions involved. Dettmer (2006), with a concern for constructivist pedagogy and interactive learning approaches, enhances the established cognitive, affective, psycho(sensori) motor domains by adding a social domain to attend to inter-intrapersonal relations. Together these synthesize 'into a unified domain of thinking, feeling, sensing/ moving, and interacting to optimize potential and self-fulfilment for all students' (p. 70). Tomei (2005) adopts Bloom's (1956) taxonomy of 'domains of teaching' (p. 1) but defines a new technology domain that accommodates instructional objectives. This technology domain involves six levels: literacy – understanding technology; collaboration – sharing ideas; decision making – solving problems; infusion – learning with technology; integration – teaching with technology; tech-ology the study of technology (p. 90). In short, these new works adapt traditional structures to suit current knowing and learning processes and are significant and important for the detailed planning of objectives and outcomes in e-learning situations.

However, there is some confusion over the terminology regarding objectives and outcomes in that they are often used interchangeably, but this can be partially resolved by considering objectives as intentions of instruction and outcomes as products of learning.

**Learning objectives** are the 'pre-specified intended outcomes of a course, program, process, or policy…. Objectives tend to be more specific than goals' (Wheeler and Haertel, 1993, p. 96). Their purpose is to clarify the scope, extent, and effects of teaching and learning so they must be 'precise, challenging and complete' (Laurillard, 2002, p. 183). Typically, they comprise the stated learning aim and a list of defined actions the learner will take and/or perform to produce and/or achieve the outcomes of the aim for assessment. A learning objective must clearly communicate not only the content of the aim and the action to be taken, but also how what it describes can be assessed as having been achieved (Laurillard, p.182).

Harden (2002) also clearly differentiates between objectives and outcomes. He identifies five areas of difference (specification detail, specification emphasis, mode of classification, regard for result, ownership) in which objectives are characterised against outcomes, and the latter consistently show more utility for teaching and learning. Those characteristics are: intuitive and user friendly; flexibility; recognises authentic practice; assesses achievement; engages ownership. He concludes 'that both terms…describe educational intentions and achievements…what is more important than the term employed is what it is used to describe', that is, the characteristics he describes as 'learning outcomes' (pp. 154-5). This then suggests that learning objectives relate to process, and outcomes define expected results. However, although writers try to address objectives and outcomes separately, they inevitably acknowledge their interrelationship.

**Learning outcomes** are 'the products of instruction or exposure to new knowledge or skills' (Wheeler and Haertel, 1993, p. 82). When documented for a course or programme of learning, they 'specify what learners' new behaviours will be after a learning experience. They state the knowledge, skills, and attitudes that the students will gain…[they] begin with an action verb and describe something observable and measurable' (British Columbia Institute of Technology, 2003/1996, p. 2). Further, learning outcomes should be specified in relation to an appropriate teaching-learning taxonomy model that includes all relevant domains, dimensions, and levels of knowledge and learning processes. This points to the interrelationships between learning objectives and outcomes.

Prosser and Trigwell (1999) specify what this means for student achievement. Referring to research that relates learning approaches to outcomes, they report that students who achieve high-quality learning outcomes have more complete and more complex understandings of a subject, which are transferable to new contexts, than students who achieve lesser quality learning outcomes (p. 109).

Joanna Allan (1996) also contributes to our understanding of the objectives/outcomes relationship. She observes that '[o]utcomes may subsume learning objectives, but the two are not synonymous and learning outcomes are not fettered by the constraints of behaviourism…which is antithetical to higher education' (p. 3 & 104). She calls for 'uncoupling…the assessment of learning outcomes from the notion of a standard of performance [which] places a greater emphasis on the specification of assessment tasks and the criteria by which judgements will be made, thereby forcing both the student and the teacher to examine and articulate the relationship between learning outcomes, assessment and the experience of learning' (p. 104). She differentiates between 'generic academic outcomes' that 'make use of information' (understanding), 'analyse' (analysis), 'think critically' (evaluation) and 'synthesise ideas and information' (synthesis), and involve 'key transferable skills' that identify abilities including literacy, numeracy, organising and gathering information, technology use, autonomy, and cooperation (pp. 107-8). Allan concludes that 'The more subject-specific, personal transferable and academic outcomes are clearly expressed, the more the learner is able to concentrate on what he/she needs to know in order to succeed on a given course or module…. The challenge…is now to harness the use of learning outcomes to view learning from the perspective of the learner, rather than the lecturer, and thereby to enrich the quality of the learning experienced' (pp. 104-5). This learner-learning focus highlights the significance of Dettmer's (2006) concern for inter/intra relationships in the *Four Domains of Learning and Doing*.

In considering the importance of objectives for online learning, Salmon (2000) sets out practitioner resources and advises that objectives should do the following: Be explicit about instructional strategies, and underpinning ideals and values; look at learning processes rather than testing for transmitted content; accept diverse outcomes rather requiring uniform results; recognise effective achievement of tasks and outcomes; consider team as well as individual success; acknowledge interdisciplinary work and understandings of complexity (pp. 120-1).

Further to this, Holmes (2004) presents a comprehensive guideline to understanding, writing and using learning outcomes. Firstly, learning outcomes need to relate generically and specifically to a particular programme or course level. Specific outcomes are assessed as achieved or not, but grades may be assigned to represent quality of work for feedback purposes (p. 4). Secondly, outcomes components should involve an aligned teaching learning strategy that includes: an explicitly stated learning intent; processes and resources that enable achievement and demonstration of the outcome; assessment criteria for determining completion of achievement and level of performance (p. 5). Thirdly, an outcome statement comprises an active verb, its object, and a contextual or conditional phrase. Fourthly, outcomes are either declarative and demonstrate knowledge, or performative and show skill/knowledge synthesis capabilities (p. 10). Fifthly, outcomes are categorised as either 'knowledge and understanding' or 'skills and other attributes', noting that 'knowledge and understanding are more difficult to express using learning outcomes than skills and other attributes' (p. 14).

L1

## Practices

Learning outcomes are results of learning that mainly derive from educational intentions or learning objectives, which 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; Tomei, 2005).

Table L1-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **Course documentation includes a clear statement of learning objectives.** |
| ☐ *No formally stated learning objectives apparent in the course information supplied to students..* |
| ☐ *Formally stated learning objectives provided to a limited extent, either as narrative descriptions of the course outcomes or only in documentation provided after enrolment.* |
| ☐ *Formally stated learning objectives normally provided in course documentation available prior to enrolment but are missing in some cases or inconsistently provided in the range of course documents.* |
| ☐ *Formal statement of course learning objectives clearly and consistently provided in course documents, including those available prior to enrolment, individual objectives clearly distinguished from general course description and information..* |
| **Learning objectives are linked explicitly throughout learning and assessment activities using consistent language.** |
| **See also**: L8(1), D3(2) & O7(1) |
| ☐ *No use of learning objectives apparent in the course information supplied to students beyond a formal statement or description.* |
| ☐ *Assessments and learning activities contain implicit, incomplete and inconsistent linkages to course learning objectives.* |
| ☐ *Most, but not all, assessments and learning activities contain explicit linkages to course learning objectives or restate learning objectives using different wording.* |
| ☐ *Formal statement of course learning objectives clearly and explicitly linked in all assessments and learning activities using consistent language.* |
| Learning objectives are linked explicitly to wider programme or institutional objectives. |
| ☐ *No linkage to wider programme or institutional objectives.* |
| ☐ *Learning objectives linked implicitly, incompletely or inconsistently during design and development to wider programme or institutional objectives.* |
| ☐ *Learning objectives are linked to wider programme or institutional objectives in most but not all courses, or only stated subsequent to course design and development.* |
| ☐ *Formal linkages made in design and development activities between all course learning objectives and wider programme or institutional objectives.* |
| Learning objectives support student outcomes beyond the recall of information. |
| ☐ *Learning objectives only cover recall of information.* |
| ☐ *Learning objectives dominated by recall with few addressing other outcomes.* |
| ☐ *Learning objectives address student outcomes other than recall in most but not all courses.* |
| ☐ *Learning objectives formally and systematically address a range of student outcomes.* |
| Course workload expectations and assessment tasks are consistent with course learning objectives. |
| ☐ *No linkage between course workload and assessment design and learning objectives.* |
| ☐ *Learning objectives linked implicitly, incompletely or inconsistently during course workload and assessment design and development.* |
| ☐ *Learning objectives and course workload expectations are linked during the design and development of most, but not all courses.* |
| ☐ *Learning objectives are formally and systematically linked with course workload and assessment design and development.* |

## Planning

**Course documentation templates require the clear statement of learning objectives.**

- ☐ *No requirement for learning objective statements in document templates.*
- ☐ *Document templates require limited or unspecified information on learning objectives or suggest that learning objectives be optionally supplied.*
- ☐ *Document templates provide clear guidance on learning objective statements but use is inconsistent and compliance incomplete or not enforced.*
- ☐ *Clear templates provided requiring inclusion of statements of learning objectives in course documentation in a consistent manner with compliance enforced.*

**Learning objectives guide e–learning design and (re)development decisions regarding content and activities.**

**See also**: D3(2), O6(2) & O7(2)

- ☐ *No use of learning objectives to guide content and activity decisions during e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of learning objectives to guide content and activity decisions during e-learning design and (re)development.*
- ☐ *Learning objectives explicitly guide content and activity decisions during e-learning design and (re)development, but are treated as subordinate to technical goals, or not linked to design and development decisions.*
- ☐ *Learning objectives explicitly guide content and activity decisions during e-learning design and (re)development and are formally linked to design and development decisions.*

**Learning objectives guide e–learning design and (re)development decisions regarding technology and pedagogy.**

**See also**: D3(2), O6(2) & O7(2)

- ☐ *No evidence of learning objectives in design and (re)development documents and planning activities.*
- ☐ *Inconsistent or informal use of learning objectives in design and (re)development documents and planning activities.*
- ☐ *E–learning design and (re)development activities reference learning objectives for most, but not all, projects and activities.*
- ☐ *E–learning design and (re)development activities formally and consistently reference learning objectives in selecting and implementing e-learning technologies and pedagogies used.*

Institutional reviews monitor the linkages between course learning objectives and wider programme or institutional objectives.

- ☐ *No review of course learning objectives.*
- ☐ *Inconsistent or informal monitoring of course learning objectives during institutional reviews.*
- ☐ *Most, but not all institutional reviews consider the linkage between course learning objectives and wider programme or institutional objectives.*
- ☐ *Institutional reviews formally and systematically address the linkage between course learning objectives and wider programme or institutional objectives.*

Institutional reviews are guided by course learning objectives when assessing course structure, learning design and content.

- ☐ *No review of course structure, learning design and content.*
- ☐ *Inconsistent or informal consideration of course learning objectives during institutional reviews of course structure, learning design and content.*
- ☐ *Most, but not all institutional reviews consider the impact of course learning objectives on course structure, learning design and content.*
- ☐ *Institutional reviews formally and systematically address the linkage between course learning objectives and course structure, learning design and content.*

E-Learning design and (re)development is guided by a researched evidence base of effective learning objectives and associated e-learning activities.

- ☐ *No use of research evidence during e-learning design and development.*
- ☐ *Inconsistent or informal incorporation of research evidence on effective learning objectives and associated e-learning activities during e-learning design and development.*
- ☐ *Research evidence on effective learning objectives and associated e-learning activities guides most, but not all, e-learning design and development projects, or research is not kept in an evidence base for reuse in different projects or provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *E-learning design and development activities are formally and explicitly linked to a researched evidence base of effective learning objectives and associated e-learning activities with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

E–learning design and (re)development plans formally link learning objectives to institutional strategic and operational plans.

- ☐ *No linkage to institutional strategic and operational plans.*
- ☐ *Learning objectives linked implicitly, incompletely or inconsistently during design and development to institutional strategic and operational plans.*
- ☐ *Learning objectives are linked to institutional strategic and operational plans in most but not all courses, or only stated subsequent to course design and development.*
- ☐ *Formal linkages made in design and development activities between all course learning objectives and institutional strategic and operational plans.*

Staff are provided with assistance when engaged in e-learning design and (re)development.

**See also**: L7(2)

- ☐ *No e-learning design and development assistance provided.*
- ☐ *E-learning design and development assistance provided informally and/or inconsistently.*
- ☐ *E-learning design and development assistance provided formally but only to a minimal extent or on a generic basis.*
- ☐ *E-learning design and development assistance provided formally with the extent of provision and its availability determined by the needs of the staff and the requirements of the particular initiative.*

L1

## Definition

**Institutional policies require that a formal statement of learning objectives is part of all course documentation provided to students.**

- ☐ *No policy requirement for learning objective statements.*
- ☐ *Policies require limited information on learning objectives or suggest that learning objectives be optionally supplied.*
- ☐ *Policies require communication of learning objectives but do not specify a consistent formal statement.*
- ☐ *Clear, formal, policy requirement for inclusion of statements of learning objectives in course documentation in a consistent manner.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on developing learning objectives that address the full range of cognitive outcomes appropriate to the discipline, pedagogical approach and students.**

- ☐ *No training, guidelines or examples of learning objectives provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to the design and (re)development of courses.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on using learning objectives to guide e-learning design and (re)development.**

**See also**: L6(3)

- ☐ *No training, guidelines or examples of using learning objectives to guide e-learning design and (re)development provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples of using learning objectives to guide e-learning design and (re)development provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples of using learning objectives to guide e-learning design and (re)development provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples of using learning objectives to guide e-learning design and (re)development provided to all teaching staff with the requirement that they be used prior to the design and (re)development of courses.*

Teaching staff are provided with support resources (including training, guidelines and examples) on assessing student achievement of learning objectives.

- ☐ *No training, guidelines or examples of assessing student achievement of learning objectives provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples of assessing student achievement of learning objectives provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples of assessing student achievement of learning objectives provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples of assessing student achievement of learning objectives provided to all teaching staff with the requirement that they be used prior to the design and (re)development of courses.*

Institutional e-learning policies are guided by institutional learning objectives for all students.

- ☐ *No institutional learning objectives or no linkage to objectives made in e-learning policies.*
- ☐ *Institutional e-learning policies have informal or inconsistent linkages to institutional student learning objectives, or are stated without evidence of impact on the policy content.*
- ☐ *Linkages between e-learning policies and institutional student learning objectives are apparent in some policies or only cover a subset of the student objectives, or are used in a generic and non-specific way to influence the policy content.*
- ☐ *Formal, detailed and systematic linkages are made between e-learning policies and institutional student learning objectives.*

Staff are provided with a researched evidence base of effective learning objectives and associated e-learning activities.

- ☐ *No research evidence base of effective learning objectives and associated e-learning activities provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular learning objectives and associated e-learning activities.*
- ☐ *Research evidence base of effective learning objectives and associated e-learning activities provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective learning objectives and associated e-learning activities provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

## Management

**Compliance with policies, standards and guidelines governing the incorporation of learning objectives in e-learning design and development activities is regularly monitored.**

- ☐ *No monitoring of compliance with policies, standards and guidelines governing the incorporation of learning objectives in e-learning design and development activities.*
- ☐ *Infrequent or informal monitoring of compliance with policies, standards and guidelines governing the incorporation of learning objectives in e-learning design and development activities.*
- ☐ *Formal monitoring of compliance with policies, standards and guidelines governing the incorporation of learning objectives in e-learning design and development activities, but without minimum expectations for compliance enforced.*
- ☐ *Formal monitoring of compliance with policies, standards and guidelines governing the incorporation of learning objectives in e-learning design and development activities undertaken regularly with minimum expectations for compliance enforced.*

**A variety of qualitative and quantitative metrics are used to assess student achievement of course learning objectives.**

- ☐ *No collection of information on student achievement of learning objectives.*
- ☐ *Inconsistent, informal and variable use of available information on student achievement of learning objectives.*
- ☐ *Assessment of student performance against learning objectives undertaken regularly using either quantitative or qualitative measures, or by staff involved in the development or delivery of the course.*
- ■ *Regular, independent, assessment of student performance against learning objectives undertaken after completion of courses using both qualitative and quantitative measures.*

Course learning objectives are regularly monitored to ensure that they address the full range of cognitive outcomes.

- ☐ *No monitoring of the range of outcomes addressed by course learning objectives.*
- ☐ *Limited, inconsistent or informal monitoring of the range of outcomes addressed by course learning objectives, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the range of outcomes addressed by course learning objectives, but reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the range of outcomes addressed by course learning objectives.*

Course learning objectives are regularly monitored to ensure that they are effective.

- ☐ *No monitoring of the effectiveness of course learning objectives.*
- ☐ *Limited, inconsistent or informal monitoring of the effectiveness of course learning objectives, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the effectiveness of course learning objectives, but reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the effectiveness of course learning objectives.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ■ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Financial costs and benefits of delivering course learning objectives are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of course learning objectives.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of course learning objectives, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of course learning objectives, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of course learning objectives.*

Feedback collected regularly from students regarding the effectiveness of e-learning activities.

**See also**: L7(4)

- ☐ *No feedback collected from students on the effectiveness of the e-learning activities.*
- ☐ *Limited, inconsistent or informal student feedback on the effectiveness of the e-learning activities collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all e-learning activities or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ■ *Formal, independent, student feedback on the effectiveness of the e-learning activities collected and reported regularly from all e-learning courses.*

Feedback collected regularly from staff regarding the effectiveness of e-learning activities.

**See also**: L7(4)

- ☐ *No feedback collected from staff on the effectiveness of the e-learning activities.*
- ☐ *Limited, inconsistent or informal staff feedback on the effectiveness of the e-learning activities collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all e-learning activities or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ■ *Formal, independent, staff feedback on the effectiveness of the e-learning activities collected and reported regularly from all e-learning courses.*

## Optimisation

**Information on student achievement of learning objectives guides e-learning design and (re)development.**

- ☐ *No use of information on student achievement of learning objectives during e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of information on student achievement of learning objectives during institutional e-learning design and (re)development.*
- ☐ *Information on student achievement of learning objectives explicitly guides institutional e-learning design and (re)development, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ■ *Information on student achievement of learning objectives explicitly guides institutional e-learning initiative planning and is formally linked to design decisions.*

Institutional learning objectives are guided by learning and teaching strategic plans.

- ☐ *No institutional learning objectives defined.*
- ☐ *Institutional learning objectives linked informally or inconsistently to institutional learning and teaching strategic plans.*
- ☐ *Institutional learning objectives are linked formally, but generically, to the institutional learning and teaching strategic plans.*
- ■ *Institutional learning objectives are linked formally, systematically and in detail to the institutional learning and teaching strategic plans, with each learning objective clearly guided by particular strategic goals and objectives.*

**Table L1-1**: Descriptions of process practices by capability dimension

## Process L2.

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

### Process Background

Interaction is key to effective learning, particularly when not engaged in face to face teaching (Anderson, 2003). A common criticism of e-learning is the isolation students suffer from and the need to provide effective communication channels. Interaction is a complex educational process that is particularly important for effective e-learning and which has complex meanings that must be defined to enable its effective practice (Anderson, 2003). Moore (1989) defines three types of interaction: learner-content, learner-instructor and, learner-learner. The latter is 'inter-learner interaction, between one learner and other learners, alone or in group settings, with or without the real-time presence of an instructor' (p. 4). Anderson and Elloumi (2004), working towards an online learning theory, offer a similar model of educational interactions between learner content and teacher that they categorise as 'student-teacher; student-student, student-content' (p. 53). They also include teacher-teacher, student-student, and content-content interactions, and all interactivity is situated in learner centred, knowledge centred, assessment centred, and community centred contexts (p. 35). For Hillman *et al*. (1994) interaction also involves a medium, and they propose a further learner-interface interaction category is required.

Vrasidas and McIssac (1999) provide some ideas on what this might involve. They discuss factors influencing online interactivity, which they identify as 'learner control, transactional distance…feedback, and social presence' (p. 24). Learner control is said to consist of: 'independence, power and support' (p. 24); with independence relating to freedom of choice; power relating to capabilities for engaging with learning; and support relating to resources that enable participation. Transactional distance (Moore, 1973) refers to the psychological and physical effects of teacher-learner geographic separation, which are influenced by structure – design of a course – (more structure increases transactional distance), and dialogue between teacher-learner (more dialogue decreases transactional distance). Feedback describes responses to students about their learning assignments and activities, and has direct effects on student satisfaction. And, social presence indicates how much a learner feels part of an online community (p. 24). Vrasidas and McIssac (1999) conclude: Firstly, that there is need for mandatory training in the conventions, etiquette, and operations of online conferencing systems, and that a survey of student capabilities would help to identify those most in need of support; secondly, that lack of prompt feedback to students discouraged and limited their online discussion participation: 'Unless students receive immediate feedback, they feel they are posting to the network without any response' (p. 33).

Salmon (2000) highlights the importance of interactivity, proposing a model of online teaching and learning, which characterises interactivity over five steps of learning. At stage one, access and motivation, interaction is minimal and focused on the learner resolving technical and operational issues and the teacher welcoming and encouraging the learner. Stage two, online socialisation, sees the sending and receiving of messages contribute to learners' familiarisation with the technical, cultural, and social environments. Stage three, information exchange, involves increased interaction with both people and course content, and in 'searching [and] personalizing software [for] facilitating tasks and supporting use of learning materials' (p. 26). Stage four, knowledge construction, is intensively interactive and engages teacher and learners in conferencing for facilitating collaborative learning processes. At stage five, development, interaction decreases as learners attend more to 'individual learning responsibilities, using links beyond closed conferences, and teaching/learning interaction focuses on supporting and responding activities (p. 26). Salmon observes that although the online environment, with its lack of visual cues, is 'new and potentially alien…for many participants', others find that it provides freedom, for expression, and from distractions (p. 28).

Picciano (2002) proposes that the relationship between learning outcomes and interaction is a 'complex pedagogical phenomenon in need of further study' (p. 33). He reports that 'research literature regarding the importance of interaction in education especially in Web-based distance learning is extensive' (p. 22). His work on the distinction between interaction and presence is cited by Garrison and Cleveland-Innes (2005) who note that 'simple interaction, absent of structure and leadership, is not enough' (p. 145).

Their research looks at relationships between approaches to learning (deep and surface) and interactivity. Citing studies on the relation between teaching presence and perceived learning they propose that learner – teacher interaction is stronger than learner – learner and that learning approaches 'provide a framework for understanding the complex web of relations between learning context and learning processes that result in particular outcomes for individual students' (p. 137). They demonstrate an interrelationship between learning approaches, interaction, and outcome quality that is affected by the 'confluence of social, cognitive, and teaching presence—that is, interaction among ideas, students, and the teacher [where] [t]eaching presence provides the structure (design) and leadership (facilitation/ direction) to establish social and cognitive presence (i.e., community of inquiry)' (p. 144). Referring to earlier work (Garrison and Anderson, 2003) on design, facilitation, and direction, they set out 'guidelines for creating and sustaining cognitive presence in an online educational environment' (p. 145). They call for more study of qualitative aspects of online interaction and identify 'reflective and collaborative properties of asynchronous, text-based online learning [as] well adapted to deep approaches to learning' (p. 145).

In discussing interaction and immediacy in online learning, Woods and Baker (2004) propose an alternative framework that adds proximity to the notions of presence and transactional distance. They define immediacy as behaviours that reduce perceptions of distance and foster a sense of closeness between people, and they add a learner–environment category to Moore's (1989) learner–content, learner–teacher, and learner–learner situations. Woods and Baker argue that interaction and immediacy are intertwined and comment that much of the research focus on interaction concerns its dyadic subjects and objects rather than its complex processes. There is a need, they say, for a more nuanced model to distinguish between dyadic (transactive) and more dynamic (interactive) communication. In their view transaction is a limited singular engagement for a specific need or purpose, whereas interaction is an ongoing plural engagement that exceeds a transaction. They conclude that there is need to distinguish between 'particular dyadic communication and…genuine interpersonal and contextual interaction…to improve the online educational experience'. The challenge here is to increase understandings of this more dynamic interpretation of interactivity.

Bouhnik and Marcus (2006) also follow the notion of four types of interaction: learner-content; learner-teacher; learner-learner; learner-system. They propose a model that envisions a content and system environment within which the teacher is situated at the peak of a learning pyramid which interconnects teacher-learner and learner-learner communication (p. 304). They note that all interactions are interrelated and 'intertwined with the course content' and comprise 'interconnected roads on the e-learning map' (pp. 303-4).

For Anderson and Elloumi (2004) the plurality of the many modes and styles of interactivity is a critical function of online learning that they see enhancing the learning experience (p. 55). Situating effective learning in learner centred, knowledge centred, assessment centred, and community centred contexts (p. 35), they propose three primary forms of interaction (student-teacher; student-student, student-content), but also include secondary teacher-teacher, student-student, and content-content interactions. They describe the latter as a new mode in which content interacts with information sources and afford other capabilities (p. 48). They argue that 'deep and meaningful learning' is achievable provided a high level of one of the three primary interaction forms is available (p. 54).

To summarise, interaction is a complex but key process for e-learning (Anderson, 2003) and understanding the complexity of interactivity is crucial for its effective practice (Moore, 1989). Three main vectors of interactivity are described: types, influences, and intensity. Interaction types include: learner-content, learner-instructor, learner-learner (Moore, 1989); a learner-interface type (Hillman *et al.*, 1994); and a learner-environment type (Woods and Baker, 2004). Influencing factors include learner control, transactional distance…feedback, and social presence (Vrasidas and McIsaac, 1999). Learner control being the independence, power and support available to the learner, transactional distance (Moore, 1973), concerning separation of teacher-learner interaction, or immediacy (Woods and Baker, 2004), and feedback being responses to students' work, which can affect satisfaction and performance. Salmon's (2000) five step model sees the intensity of learners' interactivity increase from obtaining access and motivation, through gaining online socialisation skills, to exchanging information, then intensifying in discussing knowledge, before decreasing with the learner awareness of individual responsibilities.

Discussions of learning community interactivity emphasise collaborative approaches to interaction that encourage deep learning (Garrison and Cleveland-Innes, 2005; Muirhead, 2004; Ng and Murphy, 2005; Picciano, 2002). Furthermore, a 'metaknowledge' can help interacting learners to generate new collaborative views of information, which 'rise above' (Scardamalia and Bereiter, 2003) previous understandings and open to 'idea improvement' through critical thinking (van Alst, 2006). Interaction types are interrelated and intertwine content to form 'interconnected roads on the e-learning map' (Bouhnik and Marcus, 2006). Interaction and immediacy also intertwine learner-environment interactivity, which fosters learners' perceptions of their close proximity to content, teaching, learning and other learners, in dynamic, plural, ongoing engagement (Woods and Baker, 2004).

## Practices

In this process, evidence of the use of a variety of communication modes or channels and encouragement for students to engage with peers and teaching staff is used to determine capability. It is not sufficient that tools be provided, there must also be activities designed to encourage their use and support of effective engagement such as set out by Salmon (2000). 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.

As with a traditional face-to-face class, it is the responsibility of the teaching staff to set the 'ground rules' and expectations for the communication undertaken in a particular course (Ramsden, 2003). Particularly, while many students are unfamiliar with e-learning, it is necessary for them to get clear information on how to use the communication channels effectively and appropriately (Palloff and Pratt, 2001; Harasim *et al.*, 1995). Communicating expectations early is also essential if staff workloads are to be managed (Waterhouse and Rogers, 2004).

Table L2-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **Courses provide a variety of mechanisms for interaction between staff and students.** |
| ☐ *No mechanism for interaction between staff and students provided.*<br>☐ *Interaction between staff and students provided only through a limited or informal mechanism or only through face to face contact.*<br>☐ *Interaction between staff and students supported formally using face to face contact and limited use of a single alternative communication channel.*<br>■ *Interaction between staff and students provided formally through multiple complementary communication channels.* |
| Students are provided with teaching staff email addresses. |
| ☐ *Course documentation does not contain teaching staff email addresses.*<br>☐ *Course documentation contains outdated or incomplete lists of teaching staff email addresses.*<br>☐ *Course documentation listing of teaching staff email addresses is unnecessarily inconsistent or different in different courses.*<br>■ *Course documentation contains clear and consistently presented lists of teaching staff email addresses repeated in suitable places.* |
| Students are provided with technical support for all of the communication channels in use. |
| ☐ *No technical support provided to students to assist them in making effective use of the available communication channels.*<br>☐ *Incomplete, outdated or informal technical support provided to students to assist them in making effective use of the available communication channels.*<br>☐ *Technical support is provided to students to assist them in making effective use of the available communication channels, but support is not actively promoted or provided to all students.*<br>■ *Technical support is provided to all students to assist them in making effective use of the available communication channels and use of the support facilities actively promoted.* |
| **Planning** |
| **Students are provided with course documentation describing all of the communication channels used.** |
| ☐ *Course documentation does not contain any information on the communication channels used in the course.*<br>☐ *Course documentation contains outdated, incomplete or informal information on the communication channels used in the course.*<br>☐ *Course documentation contains information on the communication channels used in the course that is unnecessarily inconsistent or different in different courses.*<br>■ *Course documentation contains consistent information on all of the communication channels used in the course.* |

**Students are provided with course documentation describing how different communication channels will support their learning.**

- ☐ *Course documentation does not contain any information on how the different channels will support student learning.*
- ☐ *Course documentation contains outdated, incomplete or informal information on how the different channels will support student learning.*
- ☐ *Course documentation contains information linked with course activities on how some of the different channels will support student learning that is unnecessarily inconsistent or different in different courses or assessments.*
- ■ *Course documentation contains consistent information linked with course activities on how the different channels will support student learning.*

**Course (re)development plans include a structured interaction design incorporating a variety of communication channels.**

**See also**: L4(2) & L5(2)

- ☐ *Course (re)development plans do not contain any include a structured interaction design.*
- ☐ *Course (re)development plans contain an incomplete or informal interaction design.*
- ☐ *Course (re)development plans contain a structured interaction design limited to a particular communication channel.*
- ■ *Course (re)development plans contain a structured interaction design incorporating a variety of communication channels.*

Course activities require the use of the communication channels.

**See also**: L4(2)

- ☐ *No requirement that communication channels provided for use in courses be used as part of explicitly designated course activities.*
- ☐ *Communication channel use optional or informally used as part of explicitly designated course activities.*
- ☐ *Course activities include a requirement that specific communication channels be used but without any guidance as to how, linkage to activity goals and deliverables, and without any recognition of use.*
- ■ *Course activities include a requirement that specific communication channels be used linked to the goals and deliverables, and with use explicitly guided and formally recognised.*

Course documentation describes appropriate uses of different communication channels.

**See also**: L4(1)

- ☐ *Course outlines and descriptions do not contain any information on what uses are appropriate for the range of communication channels used in the course.*
- ☐ *Course outlines and descriptions contain outdated, incomplete or informal information on what uses are appropriate for the range of communication channels used in the course.*
- ☐ *Course outlines and descriptions contain information on what uses are appropriate for some of the communication channels used in the course or information on using particular channels is unnecessarily inconsistent or different in different courses or channels.*
- ■ *Course outlines and descriptions contain consistent information on what uses are appropriate for the range of the communication channels used in the course.*

Course delivery plans include regular monitoring of communication channels.

- ☐ *No monitoring of communication channels included in course delivery plans.*
- ☐ *Monitoring of communication channels planned informally and/or inconsistently.*
- ☐ *Course delivery plans include monitoring of communication channels as a generic and unspecified component, or without formally designating responsibility for monitoring.*
- ■ *Course delivery plans include monitoring of communication channels with detailed scheduling and timetabling of monitoring and formal allocation of responsibility to designated staff.*

E-Learning design and (re)development is guided by a researched evidence base of effective e-learning communication and interaction examples.

- ☐ *No use of research evidence on effective e-learning communication and interaction during e-learning design and development.*
- ☐ *Inconsistent or informal incorporation of research evidence on effective e-learning communication and interaction during e-learning design and development.*
- ☐ *Research evidence on effective e-learning communication and interaction examples guides most, but not all, e-learning design and development projects, or research is not kept in an shared evidence base for reuse in different projects or provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *E-learning design and development activities are formally and explicitly linked to a shared research evidence base of effective e-learning communication and interaction examples with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Institutional reviews monitor the effectiveness of the interaction designs and communication channels.

- ☐ *No review of interaction designs or communication channels.*
- ☐ *Inconsistent or informal monitoring of interaction designs and communication channels during institutional reviews.*
- ☐ *Institutional reviews consider the effectiveness of some, but not all interaction designs and communication channels.*
- ■ *Institutional reviews formally and systematically address the effectiveness of the interaction designs and communication channels.*

## Definition

**Institutional policies define requirements for staff responsiveness to student communication.**

- ☐ *No policies, standards or guidelines define requirements for staff responsiveness to student communication.*
- ☐ *Policies, standards and guidelines define requirements for staff responsiveness to student communication, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for staff responsiveness to student communication, however compliance incomplete or not enforced.*
- ■ *Policies, standards or guidelines define mandatory minimum requirements for staff responsiveness to student communication with compliance enforced.*

L2

**Institutional policies define requirements that staff support student engagement through a mix of different types of interaction.**

- ☐ *No policies, standards or guidelines define requirements for staff use of different types of interaction.*
- ☐ *Policies, standards and guidelines define requirements for staff use of different types of interaction, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for staff use of different types of interaction, however compliance incomplete or not enforced.*
- ■ *Policies, standards or guidelines define mandatory minimum requirements for staff use of different types of interaction with compliance enforced.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on effective ways of using communication channels to support student learning.**

- ☐ *No training, guidelines or examples of using communication channels to support student learning provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to using the communication channels in courses.*

Standard communication channels are provided in all courses.

- ☐ *No communication channels are provided as standard facilities.*
- ☐ *Communication channels are provided informally or inconsistently between courses.*
- ☐ *A standard set of communication channels is provided for use in courses, with most courses using some of the channels.*
- ■ *A standard and consistent set of communication channels are provided for use in all courses.*

Institutional policies define requirements for appropriate use of communication channels.

**See also**: L4(3)

- ☐ *No policies, standards or guidelines define requirements for appropriate use of communication channels.*
- ☐ *Policies, standards and guidelines define requirements for appropriate use of communication channels, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for appropriate use of communication channels, however compliance not enforced.*
- ■ *Policies, standards or guidelines define mandatory minimum requirements for appropriate use of communication channels with compliance enforced.*

Staff are provided with a researched evidence base of effective communication and interaction activities.

- ☐ *No researched evidence base of effective e-learning communication and interaction examples provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting the effectiveness of e-learning communication and interaction examples.*
- ☐ *Research evidence base of effective e-learning communication and interaction examples provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *Research evidence base of effective e-learning communication and interaction examples provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

## Management

**Student and staff use communication channels is regularly monitored.**

**See also**: L4(4)

- ☐ *No monitoring of staff or student use of communication channels.*
- ☐ *Limited, inconsistent or informal monitoring of staff or student use of communication channels.*
- ☐ *Formal, independent, monitoring of staff or student use of communication channels conducted irregularly or only covers some of the communication channels used.*
- ■ *Formal, independent, and regular monitoring of staff or student use of communication channels.*

**Feedback collected regularly from students regarding the effectiveness of different communication channels.**

- ☐ *No feedback collected from students on the effectiveness of the different communication channels.*
- ☐ *Limited, inconsistent or informal students feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, students feedback collected on some but not all channels or not collected regularly from all courses, or reported incompletely or irregularly.*
- ■ *Formal, independent, student feedback on all of the communication channels collected regularly from all courses using the facilities and reported regularly.*

**Feedback collected regularly from staff regarding the effectiveness of the communication channels.**

**See also**: L4(4)

- ☐ *No feedback collected from staff on the effectiveness of the different communication channels.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all channels or not collected regularly from all staff using the communication channels, or reported incompletely or irregularly.*
- ■ *Formal, independent, staff feedback on all of the communication channels collected regularly from all staff using the facilities and reported regularly.*

The impact of the use of communication channels on student learning is regularly monitored.

- ☐ *No monitoring of the impact of the use of communication channels on student learning.*
- ☐ *Limited, inconsistent or informal monitoring of the impact of the use of communication channels on student learning, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the impact of the use of communication channels on student learning conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and reporting of the impact of the use of communication channels on student learning in all e-learning courses.*

Financial costs and benefits of communication channels are regularly monitored.

**See also**: L4(4)

- ☐ *No monitoring of the financial costs and benefits of communication channels.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of communication channels, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of communication channels, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of communication channels.*

## Optimisation

**Information on interaction between students and teaching staff guides resourcing of communication channels.**

**See also**: L4(5) & L5(5)

- ☐ *No use of information on interaction between students and teaching staff during e-learning resource planning and allocation.*
- ☐ *Informal and inconsistent use of information on interaction between students and teaching staff during institutional e-learning resource planning and allocation.*
- ☐ *Information on interaction between students and teaching staff explicitly guides institutional e-learning resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ■ *Information on interaction between students and teaching staff explicitly guides institutional e-learning resource planning and allocation and is formally linked to resourcing decisions.*

**Information on interaction between students and teaching staff guides training and support resourcing.**

**See also**: L4(5) & L5(5)

- ☐ *No use of information on interaction between students and teaching staff during training and support resource planning and allocation.*
- ☐ *Informal and inconsistent use of information on interaction between students and teaching staff during institutional training and support resource planning and allocation.*
- ☐ *Information on interaction between students and teaching staff explicitly guides institutional training and support resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ■ *Information on interaction between students and teaching staff explicitly guides institutional training and support resource planning and allocation and is formally linked to resourcing decisions.*

Information on interaction between students and teaching staff guides the reuse of effective learning and teaching activities.

- ☐ *No use of information on interaction between students and teaching staff guides the reuse of effective learning and teaching activities..*
- ☐ *Informal and inconsistent use of information on interaction between students and teaching staff to guide the reuse of effective learning and teaching activities.*
- ☐ *Information on interaction between students and teaching staff explicitly guides the reuse of effective learning and teaching activities, but is treated as subordinate to technical goals, or not linked to reuse decisions.*
- ■ *Information on interaction between students and teaching staff explicitly guides the reuse of effective learning and teaching activities and is formally linked to reuse decisions.*

Information on interaction between students and teaching staff guides e-learning strategic planning.

**See also**: L4(5) & L5(5)

- ☐ *No use of information on interaction between students and teaching staff during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on interaction between students and teaching staff during institutional e-learning strategic planning.*
- ☐ *Information on the interaction between students and teaching staff explicitly guides institutional e-learning strategic planning, but is not linked to strategy decisions.*
- ■ *Information on the interaction between students and teaching staff explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

**Table L2-1**: Descriptions of process practices by capability dimension

# Process L3.

*Student skill development for e-learning is provided*

## Process Background

Students' capability for effective e-learning is related to their information, communication and technology (ICT) proficiency and skill level, thus there is a crucial need to assess, and understand the ICT proficiency and skill level, and support its development, for all students (Hillesheim, 1998). Given that e-learners experience difficulty adapting to online learning, and require guidance and support, the technology should be as functionally and psychologically transparent to the user as possible (Bouhnik and Marcus, 2006). Furthermore, Organisational and administrative support system infrastructures must be in place to develop and maintain effective, responsive, and complete online e-learning experiences for students (Ragan, 1999).

Calls for wide ranging support for technology skill development appear to be decreasing as a more techno-savvy generation enters higher education and institutional resourcing for e-learning support begins to improve. Results of a survey by Concannon *et al*., (2005) of 446 campus-based students found only 14 percent of students had very limited computer experience, yet there were no reports of difficulties with online systems. They attribute this user satisfaction to the system's 'inherent usability', which suggests 'generic computer training is not required…' (p. 506). However, constraints on students home-study circumstances, such as a need to share computer access and low bandwidth connections, need to be considered (Kirkwood and Price, 2005). Furthermore, there is an identifiable need to continue support for steadily increasing numbers of mature learners, who often lack the necessary technology skills and/or confidence to effectively undertake e-learning. Moreover, Hrabe *et al*., (2005) have observed that students who regard themselves as technically proficient may have formed habits that could impede their online learning.

In addition to the need for comprehensive support for technical skill development there is also a need to support and develop students' information and communication literacy skills and understandings of e-learning educational principles. Kirkwood and Price (2005) note that although ICT enables new forms of learning to occur, it does not ensure the achievement of effective and appropriate learning outcomes: 'It is not technologies, but educational purposes and pedagogy, that must provide the lead, with students understanding not only how to work with ICTs, but why it is of benefit for them to do so' (p. 257). Therefore, they contend that teachers and decision-makers must better understand ICT use issues to avoid innovations being technology driven. Use issues include not only technology characteristics but also 'pedagogic models and processes they serve; and…contexts within which learners engage with ICT' (p. 270).

As well as the practical difficulties involving access to and use of ICT, Kirkwood and Price list the following issues as most important: The influence of course design on novice learner experiences; ICT-based learning user competence levels are neither high nor wide-ranging, despite increased demand for access; familiarity with email use is not an indicator of online discussion and debating expertise; learners need to understand what is expected of them and why, and how their actions will benefit them; web-based materials and resources must be effective and appropriate for the learner and the medium; teachers and learners must understand the effects of, and distinguish between, asynchronous and synchronous modes of communication; effective use of resources needs to be embedded in the course pedagogy and linked to assessment. The most important factor in an educational programme is not the medium but how its pedagogical approach and resources are creatively and constructively aligned (p. 270). As Kirkwood and Price put it: 'The educational benefits that students perceive as gains from using ICT are more significant than the intrinsic characteristics of any particular medium' (p. 272). This view emphasises the dynamic interrelationship between learner motivation, expectations, understandings and experiences and the facilities, resources and support for them that are made available.

Communication processes that promote learning, rather than technology, are the research focus of Visser and Visser (2005). In the first of two exploratory studies they identified three needs areas: cognitive communication and support; affective, motivational support; and communication strategies to ensure

that students maintained involvement in the courses. The research demonstrated the need for more than traditional feedback and conventional encouragement and the quality of teacher communication and the content was found to be important. The second study explored communication issues more extensively and concluded that there were obvious and sometimes 'critical' communication shortcomings that fail to meet student expectations regarding 'the quality of the interaction and the degree of comfort and motivation provided' (p. 28). Suggestions are made to help address the shortcomings including: providing training and documentation; establishing student expectations and requirements; incorporating communication exercises in introductions to courses; ensuring communication media is used to interact meaningfully; use teaching approaches that are relevant and appropriate to e-learning; ensure that communication creates a shared experience, rather than shares an experience; use language to communicate collaboratively; use concrete elements to formatively assess quality/frequency of communication and students' perceptions of these (pp. 28-9).

Visser and Visser conclude that effective communication demands considerable attention to how, when, and what to communicate, and that interactive technologies have potential to increase interpersonal conversation and interactive participation in enriching learning processes and pleasurable experiences. However, this is mostly achieved by 'dedicated and caring' teachers who ensure that 'all available communication means are used effectively to increase the quality of the learning and teaching environment' (p. 29). Visser and Visser highlight the insight that student communication process capability development necessarily precedes technological skill development.

In order to attend to the 'personal and intimate nature of learning…to ensure success' Carmody and Benge (2005) propose an Existential Elements model that relates four e-learning methods – student-centred, subject-centred, teacher-centred, and teaching centred, to Salmon's (2000) five stage online learning model – access and motivation, online socialization, information exchange, knowledge construction and, development; and to Maslow's hierarchy of needs – physiological and safety needs, belongingness, love and esteem, understanding and aesthetics, self-actualization and, transcendence (Huitt, 2004). Carmody and Benge argue that effective online teaching engages all of six existential dimensions: physical, social, emotional, psychological, intellectual, and spiritual, and they present on several tables how these elements are compared to and characterised across Salmon's, Maslow's, and their own model, and in the four methods of online learning. Although they conclude that no one model is effective for all situations their study points to the student-centred approach as being more supportive of an environment for students to exercise independent initiative and resourcefulness for learning. The existential elements and other model attributes that relate to a student-centred approach include: flexibility towards physical engagement and encouragement to become familiar with the environment; encouragement to engage socially and emotionally by self-identification and personal statements of motivation or expectations; information exchange and discussion engages a psychological understanding; a social element is inherent; intellectual dimension is commensurate with fulfilling the students individual needs or expectations; a spiritual element engages all dimensions holistically for change and growth. Carmody and Benge caution that the student-centred approach may not be well-suited to some situations, such as work place environments where students are subject to mandatory requirements and less intrinsically motivated. In such situations they recommend a 'social discussion technique', which makes allowances for these limitations. This model affords an understanding of relationships between recognised learning methods and emerging dimensions of learning experience.

Drawing on Maslow's (1943) hierarchy of needs, listed above, and Smith and Ragan's (1999) instructional design principles – appeal, effectiveness, efficiency, Katy Xinquan Cao (2005) proposes a model that addresses student motivation and satisfies both needs and principles. The model identifies three levels of motivation in instruction – inclusion, entertainment, and edification. She discusses ten points for e-learning motivation: tone/climate, feedback, engagement, meaningfulness, choice, variety, curiosity, tension, peer interaction, and goal driven (Bonk and Dennen, in press), and cites Chickering and Gamson's (1987) seven principles of good practice to identify characteristics that support her model. She differentiates her model by emphasising the active-initiating role of the teacher to build interpersonal relations with learners, and to satisfy student needs. However, she cautions that the model is hierarchical and that inclusion and entertainment necessarily contribute to edification, without which there is little significance for

teaching-learning interaction. Inclusion involves the establishment of trusting individual teacher-learner relationships and good community spirit among learners. Entertainment describes an educational approach that encourages students to relax in order to better concentrate on the learning process. Edification, which has intellectual, moral, and spiritual domains, is defined as improved understanding leading to positive change in thinking and/or behaviour. Motivation towards intellectual edification looks for individual capacities, capabilities, and preferences for acquiring knowledge and skills. Motivation for moral and spiritual edification seeks to realise personal potential, or 'self-actualization' (p. 4). Cao's model is helpful for understanding approaches to motivating learners.

To summarise, there are two dimensions to the support of knowledge and skill development for e-learning: Technical knowledge and skills; and information and communication literacy skills, which include an understanding of e-learning educational principles (Kirkwood and Price, 2005) and motivation (Cao, 2005).

A student-centred learning method affords a supportive environment for independent initiative and resourcefulness for learning (Carmody and Berge, 2005). Motivation affecting skill development involves teachers building interpersonal relations with learners and the establishment of community spirit, and, inclusion, entertainment, and edification are factors that influence motivation. Inclusion concerns trusting teacher-learner relationships and good learning community spirit, entertainment encourages a relaxing environment that is more conducive to concentrated learning and, edification involves the cumulative effect of both factors to generate self-actualisation for individual learners (Cao, 2005).

## Practices

Students' capability for effective e-learning is a combination of their skills as learners and their abilities to make effective use of the various information sources and technologies provided by institutions generally, and specifically in particular courses and programmes. Some degree of technical aptitude and experience can now be generally assumed although this does not mean that students are effective online learners (Hrabe *et al*., 2005). Care must be taken when designing the pedagogical elements of e-learning to ensure that students are provided with clear and explicit guidance of how the technologies should be used to support their learning. A strong constructive alignment of learning outcomes, technologies and pedagogies must be clear in the design and delivery of e-learning courses and programmes (Kirkwood and Price, 2005). Communication tools are a key aspect of engaging students provided that their use is focused in a way that generates shared experiences and effective connections between the students, the teaching staff and the course or programme domain (Visser and Visser, 2005).

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.

Table L3-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

## Delivery

**Students are provided with explicit descriptions of the relationships between course components and activities.**

- ☐ *No relationships between course components and activities are conveyed to students.*
- ☐ *The relationships between course components and activities are conveyed to students informally or implied in course documents.*
- ☐ *The relationships between course components and activities are conveyed to students explicitly, but only for some components or courses, or in an unnecessarily different way between courses.*
- ☐ *The relationships between all key course components and activities are conveyed to students formally and consistently.*

**Courses include opportunities for students to practice with e-learning technologies and pedagogies.**

**See also**: O6(1) & O7(1)

- ☐ *No opportunities for students to practice with e-learning technologies and pedagogies provided.*
- ☐ *Limited or informal opportunities for students to practice with e-learning technologies and pedagogies provided after commencement of the course.*
- ☐ *Formal opportunities for students to practice with e-learning technologies and pedagogies provided after commencement of courses, or only cover some technologies and pedagogies or some courses.*
- ☐ *Formal opportunities for students to practice with all e-learning technologies and pedagogies provided prior to commencement, and during delivery, of all courses.*

Students are provided with e-learning skills support through a variety of communication channels.

- ☐ *No e-learning skills support provided to students.*
- ☐ *E-learning skills support and training is provided informally and depends on the teaching staff skills and availability.*
- ☐ *A formal e-learning skills support and training service is provided to students but requires face-to-face contact at the institution or is incomplete or offered over reduced or constrained hours of operation.*
- ☐ *A formal e-learning skills support and training service is provided to students through a variety of communication channels and with hours of operation that are consistent with student study patterns.*

Course activities provide students with opportunities for substantive feedback on their e-learning skills.

- ☐ *No provision for feedback beyond the marks assigned for assessed work.*
- ☐ *Course activities provide limited, inconsistent or informal feedback opportunities beyond the marks assigned for assessed work.*
- ☐ *Formal opportunities for feedback beyond the marks assigned for assessed work provided by course activities, but only for assessment tasks.*
- ☐ *Formal opportunities for feedback beyond the marks assigned for assessed work provided during all major course activities to all students.*

## Planning

**Support staff provide students with assistance in developing e-learning skills.**

- ☐ *No support staff tasked with providing students assistance in developing e-learning skills.*
- ☐ *Support for student e-learning skill development is provided informally by staff employed primarily for other responsibilities.*
- ☐ *Staff tasked to provide support for student e-learning skill development but service not available in all e-learning courses or support is limited to only face-to-face or static web page provision.*
- ☐ *Staff tasked to provide support for student e-learning skill development in all e-learning courses using a variety of communication channels.*

**Early assessments of individual student capabilities guide activities and support during the remainder of the course.**

- ☐ *No assessments of individual student capabilities with e-learning technologies and pedagogies undertaken.*
- ☐ *Limited or informal assessments of individual student capabilities with e-learning technologies and pedagogies undertaken, or assessments undertaken only in response to problems or complaints.*
- ☐ *Assessments of individual student capabilities with e-learning technologies and pedagogies undertaken, but coverage of technologies or courses incomplete or not linked to formal plans to remediate issues.*
- ☐ *Assessments of individual student capabilities with e-learning technologies and pedagogies undertaken and formally linked to remediation plans and strategies.*

## Definition

**Institutional policies require that assessment tasks be designed to support incremental development of student skills and capabilities for learning.**

**See also**: L8(3)

- ☐ *No policies provided that require assessment tasks be designed to support incremental development of student skills and capabilities for e-learning.*
- ☐ *Policies provided that encourage, but do not require, that assessments support incremental development of student skills and capabilities for e-learning, or which fail to impose mandatory compliance requirements.*
- ☐ *Policies require the incorporation of assessment tasks be designed to support incremental development of student skills and capabilities for e-learning, however compliance incomplete or not enforced.*
- ☐ *Policies require the incorporation of assessment tasks be designed to support incremental development of student skills and capabilities for e-learning and compliance with the requirements enforced.*

**Teaching staff are provided with support resources (including training, guidelines and examples) for developing learning activities that support incremental development of student e-learning skills.**

- ☐ *No training, guidelines or examples of learning activities that support incremental student learning skills development provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to the design and (re)development of courses.*

L3

Teaching staff are provided with support resources (including training, guidelines and examples) for assessing student e-learning skills.

- ☐ *No training, guidelines or examples for assessing student e-learning skills provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples for assessing student e-learning skills provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples for assessing student e-learning skills provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples for assessing student e-learning skills provided to all teaching staff with the requirement that they be used prior to the delivery of courses.*

Institutional policies define the provision of student e-learning support.

- ☐ *No policies, standards or guidelines define the provision of student e-learning support.*
- ☐ *Policies, standards and guidelines define expectations for the provision of student e-learning support, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum expectations for the provision of student e-learning support, however compliance incomplete or not enforced.*
- ■ *Policies, standards or guidelines define mandatory minimum expectations for the provision of student e-learning support with compliance enforced.*

## Management

**Compliance with policies, standards and guidelines governing the use of learning activities that progressively build student capabilities in e-learning design and development activities is regularly monitored.**

**See also**: L8(4)

- ☐ *No monitoring of e-learning activities within courses to ensure progressive development of student capabilities occurring.*
- ☐ *Informal or incomplete monitoring of e-learning activities within courses to ensure progressive development of student capabilities occurring.*
- ☐ *Formal monitoring of e-learning activities within courses to ensure progressive development of student capabilities occurring but compliance with relevant institutional policies, standards and guidelines treated as optional or not required.*
- ■ *Formal monitoring of e-learning activities within courses to ensure progressive development of student capabilities with compliance to institutional policies, standards and guidelines required.*

**Feedback collected regularly from students regarding the effectiveness of the support facilities.**

- ☐ *No feedback collected from students on the effectiveness of the different support facilities.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all support facilities or not collected regularly from all courses, or reported incompletely or irregularly.*
- ■ *Formal, independent, student feedback on all of the support facilities collected regularly from all courses and reported regularly.*

**Feedback collected regularly from staff regarding the effectiveness of the support facilities.**

- ☐ *No feedback collected from staff on the effectiveness of the different support facilities.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all support facilities or not collected regularly from all courses, or reported incompletely or irregularly.*
- ■ *Formal, independent, staff feedback on all of the support facilities collected regularly from all staff using the facilities and reported regularly.*

Student e-learning skills are regularly monitored.

- ☐ *No monitoring of student e-learning skills.*
- ☐ *Limited, inconsistent or informal monitoring of student e-learning skills, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of student e-learning skills conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and reporting of student e-learning skills.*

Student use of support facilities is regularly monitored.

- ☐ *No monitoring of the student use of support facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the student use of support facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the student use of support facilities conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and reporting of the student use of support facilities.*

The impact of support facilities on student e-learning skills is regularly monitored.

- ☐ *No monitoring of the impact of support facilities on student e-learning skills.*
- ☐ *Limited, inconsistent or informal monitoring of the impact of support facilities on student e-learning skills, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the impact of support facilities on student e-learning skills conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and reporting of the impact of support facilities on student e-learning skills.*

Financial costs and benefits of e-learning support facilities are regularly monitored.

**See also**: D1(4) & S1(4)

- ☐ *No monitoring of the financial costs and benefits of e-learning support facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning support facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning support facilities, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning support facilities.*

| Optimisation |
|---|
| **Information on the use of learning activities that progressively build student capabilities guides e-learning design and (re)development.** |
| ☐ *No use of information on the use of learning activities that progressively build student capabilities during e-learning design and (re)development.* |
| ☐ *Informal and inconsistent use of information on the use of learning activities that progressively build student capabilities during institutional e-learning design and (re)development.* |
| ☐ *Information on the use of learning activities that progressively build student capabilities explicitly guides institutional e-learning design and (re)development, but is treated as subordinate to technical goals, or not linked to design decisions.* |
| ☐ *Information on the use of learning activities that progressively build student capabilities explicitly guides institutional e-learning initiative planning and is formally linked to design decisions.* |
| Information on the use of learning activities that progressively build student capabilities guides the reuse of effective learning and teaching activities**.** |
| ☐ *No use of information on the use of learning activities that progressively build student capabilities guides the reuse of effective learning and teaching activities.* |
| ☐ *Informal and inconsistent use of information on the use of learning activities that progressively build student capabilities to guide the reuse of effective learning and teaching activities.* |
| ☐ *Information on the use of learning activities that progressively build student capabilities explicitly guides the reuse of effective learning and teaching activities, but is treated as subordinate to technical goals, or not linked to reuse decisions.* |
| ☐ *Information on the use of learning activities that progressively build student capabilities explicitly guides the reuse of effective learning and teaching activities and is formally linked to reuse decisions.* |
| Information on student e-learning skills guides e-learning strategic planning**.** |
| **See also**: L8(5) |
| ☐ *No use of information on student e-learning skills during institutional e-learning strategic planning.* |
| ☐ *Informal and inconsistent use of information on student e-learning skills during institutional e-learning strategic planning.* |
| ☐ *Information on student e-learning skills explicitly guides institutional e-learning strategic planning, but is treated as subordinate to technical goals, or not linked to strategy decisions.* |
| ☐ *Information on student e-learning skills explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.* |
| Information on the use of learning activities that progressively build student capabilities guides the allocation of resources for e-learning support**.** |
| ☐ *No use of information on the use of learning activities that progressively build student capabilities during e-learning resource allocation.* |
| ☐ *Informal and inconsistent use of information on the use of learning activities that progressively build student capabilities during institutional e-learning resource allocation.* |
| ☐ *Information on the use of learning activities that progressively build student capabilities guides institutional e-learning resource allocation, but is not linked explicitly to resource allocation decisions.* |
| ☐ *Information on the use of learning activities that progressively build student capabilities explicitly guides institutional e-learning resource allocation and is formally linked to resource allocation decisions.* |

**Table L3-1**: Descriptions of process practices by capability dimension

## Process L4.

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

### Process Background

Effective management of student expectations regarding the means and manner of teaching staff responses to communications from learners is an essential factor for perceptions of quality in distance education courses (Ortiz-Rodriguez *et al*., 2005). Responsiveness is defined by Blignault and Trollip (2003) as the number of teacher to student responses about a specific discussion question, and timeliness is the time taken to make a response (p. 166). Response time, however, is conditional and dependent on whether a response is needed and/or purposely delayed for the benefit of other participants. In proposing a taxonomy of faculty responses for online discussion environments, they set out six categories: Administrative (no academic content); affective (no academic content); other (no academic content); corrective (with academic content); informative (with academic content); Socratic (with academic content) (p. 157). Although a survey of responses found high variability between teachers and across the categories, the taxonomy provides a useful insight into the types of responses that need to be managed for e-learning. Dillon and Greene (2003) discuss a problematic aspect of responsiveness – the absence of information about how the student reacts to the teacher's response – and suggest that a high level of feedback, intended to stimulate the learner, may be interpreted as criticism (p. 241).

Student satisfaction with e-learning environments affects not only learner outcomes, but also retention rates. Teacher availability and response time is an important predictor of student satisfaction, participation, and motivation, therefore regular, timely feedback is necessary to avoid student frustration (Bolliger and Martindale, 2004).

Busch and Johnson (2005) report on teachers making a transition to online instruction affords several insights into the complexities inherent in responses to student communications. For example, they report on their subjects' realisations that written instructions without verbal explanations can be misinterpreted and questions that would be resolved for all students with verbal answers required further, often individual, clarification that demanded great care to avoid further and escalating confusion. They also report that 'the start-up communication for the course took hours and required volumes of informational emails to students. The start-up time for the students was equally intense, and at least 1 to 2 weeks of instruction were sacrificed in allowing students to access the online program and discover the hardware requirements necessary to effectively participate' (p. 32). Busch and Johnson conclude that careful preparation and thoughtful management of communication is required to meet the complex needs of the e-learning environment.

The online environment demands flexibility in managing interpersonal communications. This requires planning to maximise the effectiveness of interactions and consideration of alternatives in the event of excessive time constraints (Anderson, 2003, p. 134) Teachers' expertise in, and effective management of, interaction with students is vital for other types of interaction that happen in a learning content-system environment (Bouhnik and Marcus, 2006). Bouhnik and Marcus propose a model of interactivity, which they characterise as 'interconnected roads on the e-learning map' (p. 304). The teacher's role is to guide students towards successfully negotiating and exploring all paths for interactivity.

According to Ortiz-Rodriguez *et al*., (2005), 'effective communication, giving and receiving feedback, and providing extended interaction' are main factors in quality distance education (p. 99). Their research reported students' comments that quality communication comprises timely teacher feedback and effective use of messaging and discussion tools (p. 101). Students identified feedback as the most essential factor affecting quality, and emphasised the importance of receiving timely feedback to questions and prompt attention to assignments. One student described the increased anxiety resulting from extremely slow responses, and another commented that feedback provided assurance about learning being 'on the right path' (p. 102). Frequency of email communication was also identified as important for successful communication. Ortiz-Rodriguez *et al*. conclude that adequate and timely teacher-learner feedback increases and enhances the quality of communication for e-learning. They recommend that institutions provide communication tools

training, strong technical support, and the facilitation of effective communication skills and methods (p. 103).

The preparation and presentation of e-learning communication policy statements that articulate what teachers expect from learners and what learners can expect from teachers, significantly improves e-learning course management (Waterhouse and Rogers, 2004, p. 28). Acknowledging that an e-learning environment can be problematic for timely teacher-learner responses, Waterhouse and Rogers recommend anticipating students' needs by posting comprehensive policy statements. They discuss nine policy categories: Course syllabus; privacy; email; discussion groups; software standards; assignments; technical help; code of conduct; intellectual property (pp. 28-9). Under the email category they observe that teachers overwhelmed by student emails have difficulty managing their course. They recommend a policy statement that introduces its rationale, details the types of email you will and will not be responded to, and that sets the timeframe for responses. The statement also reminds students of their obligations to regularly check for emails, postings, and notices (p. 30).

Finally, Dennen (2005) describes two methods of communicating expectations of responsiveness: by making explicit statements; and by modelling appropriate interactive discussion and response practices to demonstrate how these will operate and their timeliness. Dennen reports that where guidelines were unclear 'student participation floundered. Students did not know how much they were to contribute or what their messages should look like. As a result, their use of discussion areas gravitated toward seeking help on their other assignments' (p. 139).

## Practices

Responsive and timely teacher-learner communications significantly effect positive learning experiences and outcomes (Blignault and Trollip, 2003; Bolliger and Martindale, 2004). Effective interactive communication requires careful planning and thoughtful management to ensure responses meet student expectations and are unambiguous (Busch and Johnson, 2005). To this end, a taxonomy of response types (Blignault and Trollip (2003) is useful for engaging with the complex needs of the e-learning environment. Training in the use of communication tools and strong technical support are also necessary (Ortiz-Rodriguez *et al.*, 2005). Furthermore, concise policy statements, setting out what is expected of learners and what they expect of teachers, improves course management (Waterhouse and Rogers, 2004). And, Dennen (2005) reports teacher modelling of appropriate online responses and discussions is another method of communicating effective practices that has the additional benefit of demonstrating the communications process.

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.

Table L4-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

L4

## Delivery

**Course documentation provides the expected staff response times students can expect when using communication channels.**

- ☐ *Course outlines and descriptions do not contain any information on the response times students can expect from staff when using the communication channels provided in the course.*
- ☐ *Course outlines and descriptions contain outdated, incomplete or informal information on the response times students can expect from staff when using the communication channels provided in the course.*
- ☐ *Course outlines and descriptions contain information on the response times students can expect from staff when using some of the communication channels or information on particular channels is unnecessarily inconsistent or different in different courses.*
- ☐ *Course outlines and descriptions contain consistent information on the response times students can expect from staff when using the communication channels provided in the course.*

**Course documentation describes appropriate uses of different communication channels.**

**See also**: L2(2)

- ☐ *Course outlines and descriptions do not contain any information on what uses are appropriate for the range of communication channels used in the course.*
- ☐ *Course outlines and descriptions contain outdated, incomplete or informal information on what uses are appropriate for the range of communication channels used in the course.*
- ☐ *Course outlines and descriptions contain information on what uses are appropriate for some of the communication channels used in the course or information on using particular channels is unnecessarily inconsistent or different in different courses or channels.*
- ☐ *Course outlines and descriptions contain consistent information on what uses are appropriate for the range of the communication channels used in the course.*

Course documentation describes the types of responses teaching staff will provide via different communication channels.

- ☐ *Course documentation does not contain any information on the types of responses teaching staff will provide via different communication channels.*
- ☐ *Course documentation contains outdated, incomplete or informal information on the types of responses teaching staff will provide via different communication channels.*
- ☐ *Course documentation contains information on the types of responses teaching staff will provide via different communication channels that is unnecessarily inconsistent or different in different courses.*
- ☐ *Course documentation contains consistent information on the types of responses teaching staff will provide via different communication channels.*

## Planning

**Communication channels are monitored to ensure a timely response to students.**

- ☐ *No monitoring of communication channels to ensure that students are appropriately responded to in a timely manner.*
- ☐ *Communication channels monitored informally to ensure that students are appropriately responded to in a timely manner.*
- ☐ *Communication channels monitored formally to ensure that students are appropriately responded to in a timely manner, but monitoring is irregular or only covers some channels.*
- ☐ *All communication channels monitored formally and regularly to ensure that students are appropriately responded to in a timely manner.*

**Course (re)development plans include a structured interaction design incorporating a variety of communication channels.**

**See also**: L2(2) & L5(2)

- ☐ *Course (re)development plans do not contain any include a structured interaction design.*
- ☐ *Course (re)development plans contain an incomplete or informal interaction design.*
- ☐ *Course (re)development plans contain a structured interaction design limited to a particular communication channel.*
- ☐ *Course (re)development plans contain a structured interaction design incorporating a variety of communication channels.*

**Assessment tasks are explicitly linked to communication channels.**

- ☐ *No use of linkages apparent in the course information supplied to students beyond a formal statement or description.*
- ☐ *Assessment tasks and communication channels contain implicit, incomplete and inconsistent linkages in the task descriptions and supporting materials.*
- ☐ *Most, but not all, assessments and learning activities contain explicit linkages in the task descriptions and supporting materials.*
- ☐ *Assessment tasks and communication channels are linked explicitly in the task descriptions and supporting materials using consistent language.*

Course documentation provides virtual ‘office hours’ for teaching staff.

- ☐ *Course documentation does not contain virtual ‘office hours’ for teaching staff.*
- ☐ *Course documentation contains outdated or incomplete lists of virtual ‘office hours’ for teaching staff.*
- ☐ *Course documentation listing of virtual ‘office hours’ for teaching staff is unnecessarily inconsistent or different in different courses.*
- ☐ *Course documentation contains clear and consistently presented lists of virtual ‘office hours’ for teaching staff repeated in suitable places.*

Course activities require the use of the communication channels.

**See also**: L2(2)

- ☐ *No requirement that communication channels provided for use in courses be used as part of explicitly designated course activities.*
- ☐ *Communication channel use optional or informally used as part of explicitly designated course activities.*
- ☐ *Course activities include a requirement that specific communication channels be used but without any guidance as to how, linkage to activity goals and deliverables, and without any recognition of use.*
- ☐ *Course activities include a requirement that specific communication channels be used linked to the goals and deliverables, and with use explicitly guided and formally recognised.*

## Definition

**Institutional policies define expectations for staff responses to student communications.**

- ☐ *No policies, standards or guidelines define requirements for staff responses to student communications.*
- ☐ *Policies, standards and guidelines define requirements for staff responses to student communications, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for staff responses to student communications, however compliance incomplete or not enforced.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for staff responses to student communications with compliance enforced.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on using communication channels to engage in effective and timely communication with students.**

- ☐ *No training, guidelines or examples of using different communication channels provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to using the communication channels in courses.*

**Students are provided with support resources (including training, guidelines and examples) to assist them in making effective use of staff feedback in their learning.**

**See also**: L5(3), L8(3) & E1(3)

- ☐ *No guidelines or support materials provided to students to assist them in making effective use of staff feedback.*
- ☐ *Incomplete, outdated or informal guidelines or support materials provided to students to assist them in making effective use of staff feedback.*
- ☐ *Guidelines and/or support materials provided to students to assist them in making effective use of staff feedback, but materials are not actively promoted or provided to all students.*
- ☐ *Guidelines and support materials provided to all students to assist them in making effective use of staff feedback and use of these materials actively promoted.*

Institutional policies define requirements for appropriate use of communication channels.

**See also**: L2(3)

- ☐ *No policies, standards or guidelines define requirements for appropriate use of communication channels.*
- ☐ *Policies, standards and guidelines define requirements for appropriate use of communication channels, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for appropriate use of communication channels, however compliance not enforced.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for appropriate use of communication channels with compliance enforced.*

Institutional policies define requirements for protecting the privacy of digital information.

- ☐ *No policies, standards or guidelines define requirements for protecting the privacy of digital information.*
- ☐ *Policies, standards and guidelines define requirements for protecting the privacy of digital information, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for protecting the privacy of digital information, however compliance not enforced.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for protecting the privacy of digital information with compliance enforced.*

Institutional policies define requirements for complying with intellectual property laws and contracts.

- ☐ *No policies, standards or guidelines define requirements for complying with intellectual property laws and contracts.*
- ☐ *Policies, standards and guidelines define requirements for complying with intellectual property laws and contracts, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for complying with intellectual property laws and contracts, however compliance not enforced.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for complying with intellectual property laws and contracts with compliance enforced.*

## Management

**Student and staff use of communication channels is regularly monitored.**

**See also**: L2(4)

- ☐ *No monitoring of staff or student use of communication channels.*
- ☐ *Limited, inconsistent or informal monitoring of staff or student use of communication channels.*
- ☐ *Formal, independent, monitoring of staff or student use of communication channels conducted irregularly or only covers some of the communication channels used.*
- ☐ *Formal, independent, and regular monitoring of staff or student use of communication channels.*

**Feedback collected regularly from students regarding the effectiveness of the teaching staff use of communication channels.**

- ☐ *No feedback collected from students on the effectiveness of the teaching staff use of different communication channels.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all channels or not collected regularly from all courses using the communication channels, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback on all of the communication channels collected regularly from all staff using the facilities and reported regularly.*

L4

**Feedback collected regularly from staff regarding the effectiveness of the communication channels.**

**See also**: L2(4)

- ☐ *No feedback collected from staff on the effectiveness of the different communication channels.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all channels or not collected regularly from all staff using the communication channels, or reported incompletely or irregularly.*
- ■ *Formal, independent, staff feedback on all of the communication channels collected regularly from all staff using the facilities and reported regularly.*

Financial costs and benefits of communication channels are regularly monitored.

**See also**: L2(4)

- ☐ *No monitoring of the financial costs and benefits of communication channels.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of communication channels, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of communication channels, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of communication channels.*

## Optimisation

**Information on interaction between students and teaching staff guides training and support resourcing.**

**See also**: L2(5) & L5(5)

- ☐ *No use of information on interaction between students and teaching staff during training and support resource planning and allocation.*
- ☐ *Informal and inconsistent use of information on interaction between students and teaching staff during institutional training and support resource planning and allocation.*
- ☐ *Information on interaction between students and teaching staff explicitly guides institutional training and support resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ■ *Information on interaction between students and teaching staff explicitly guides institutional training and support resource planning and allocation and is formally linked to resourcing decisions.*

**Information on interaction between students and teaching staff used to identify effective communication strategies for reuse.**

**See also**: L5(5)

- ☐ *No information on interaction between students and teaching staff used to identify effective communication strategies for reuse.*
- ☐ *Informal and inconsistent use of information on interaction between students and teaching staff to identify effective communication strategies for reuse.*
- ☐ *Information on interaction between students and teaching staff explicitly guides the identification of effective communication strategies for reuse, but is treated as subordinate to technical goals, or not linked to reuse decisions.*
- ■ *Information on interaction between students and teaching staff explicitly guides the identification of effective communication strategies for reuse and is formally linked to reuse decisions.*

Information on interaction between students and teaching staff guides resourcing of communication channels.

**See also**: L2(5) & L5(5)

- ☐ *No use of information on interaction between students and teaching staff during e-learning resource planning and allocation.*
- ☐ *Informal and inconsistent use of information on interaction between students and teaching staff during institutional e-learning resource planning and allocation.*
- ☐ *Information on interaction between students and teaching staff explicitly guides institutional e-learning resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ■ *Information on interaction between students and teaching staff explicitly guides institutional e-learning resource planning and allocation and is formally linked to resourcing decisions.*

Information on interaction between students and teaching staff guides e-learning strategic planning.

**See also**: L2(5) & L5(5)

- ☐ *No use of information on interaction between students and teaching staff during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on interaction between students and teaching staff during institutional e-learning strategic planning.*
- ☐ *Information on the interaction between students and teaching staff explicitly guides institutional e-learning strategic planning, but is not linked to strategy decisions.*
- ■ *Information on the interaction between students and teaching staff explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

**Table L4-1**: Descriptions of process practices by capability dimension

# Process L5.

*Students receive feedback on their performance within courses*

## Process Background

Feedback comprises formal and informal responses to learners' actions from teachers and from other students. It allows actual performance to be compared with a specified standard of performance (Mory, 2004). Timely, constructive feedback can significantly affect a student's participation, performance and engagement on a course, and the subsequent learning outcomes (Laurillard, 2002). Optimal feedback seeks a balance between student needs and teaching management (Dennen, 2005), and must enhance understanding rather than just indicating correctness (Garrison, 1989). Despite the intent to be constructive, feedback can also be critical, and can have adverse effects unless skills in using feedback are appropriately cultivated (Hudson, 2002). Feedback is an interactive process involving knowledge and skills that must be understood by both teachers and learners (Duhon *et al.*, 2006), and involving numerous models that centre around a 'feedback triad' (Kulhavey and Wagner, 1993). Feedback specificity (Goodman and Wood, 2004) is also an issue with complex effects, which benefits good performers, but not poor performers. The implications of feedback-seeking behaviours that can arise in the notion of *kiasu* are discussed by Hwang and Arbaugh (2006).

Mory's (2004) comprehensive review of feedback in an educational context offers various definitions and identifies a wide range of models. Definitions of feedback, drawing on Kulhavey and Wagner's (2003) 'feedback triad' include notions of: motivation – to improve performance; reinforcement – to correct responses; and information – to reduce errors (Mory, 2004). Drawing distinctions between objectivist and constructivist epistemological assumptions and feedback uses, and, citing Butler and Winne (1995), Mory identifies a 'synthesis model of feedback with self-regulated learning' (p. 773). She views the model as having the potential to not only bridge the gap between differing educational approaches, but to also synthesise intrinsic and extrinsic feedback in self-regulated learning that is suited to e-learning practices and principles.

Without feedback, action is largely unproductive for learning. Therefore receiving and using feedback is very important for learners, according to Laurillard (2002), who proposes that intrinsic feedback is a 'natural consequence' of action, and extrinsic feedback is an 'external comment' upon it, which is not necessarily meaningful or helpful (pp. 55-6). Extrinsic feedback is distinguished by not being situated in the action, and, because it involves a description, it is open to misinterpretation without continuing interaction (p. 56): 'To use feedback students must be able to make sense of it. The teacher has to devise situated actions that elicit meaningful intrinsic feedback for the student, or redescribe the student's description in a way that gives meaningful extrinsic feedback to the student' (p.58). Laurillard identifies a unity between action, feedback, and integration that is prefigured by a learning goal, or outcome. Only by understanding the relationship between these factors can a learner reflect on what links them for new learning (p. 58).

Reporting on research into factors that affect online learning participation, Dennen (2005) found that a high level of student dialogue occurred when teachers provided substantive and timely feedback student (p. 139). Discussing the question of optimal feedback, which seeks to balance the demands of student needs against the pressures of teaching management, she observes that 'lurking' has an effect on the quality of discussion: 'if lurking is acceptable, then feedback in many ways becomes a non-issue. If quality discussion is expected, however…students are going to need some marker of their success or progress' (p. 146). Respondents also noted that, rather than extensive individual teacher responses, general feedback comments to all students were often sufficient.

Adverse effect of critique as a constituent of constructive feedback is discussed by Hudson (2002), who comments that because the online environment intensifies the effects of criticism, there is a need to 'protect the online psyche' (p. 58). Using the analogy of 'candlepower' to characterise a more subtle intimacy that arises in online dialogue 'like a face seen across a candlelit table' (p. 77), Hudson proposes that critical dialogue needs to be cultivated rather than managed, to draw out the subtexts that the online medium successfully conveys (p. 59). He suggests that critical dialogue 'is a form of storytelling—a paced

unfolding narrative in a somewhat mysterious process that defies normal logic but leads to a satisfying surprise' (p. 85)

An experiential exercise in feedback to enhance student skills (Duhon et al., 2006), although conducted face-to-face, points to helpful information that is applicable for online strategies. The authors identify the importance of understanding differences between, and appropriate uses of constructive, positive, and negative feedback types, and comment on some people's impulsive resistance to positive feedback (pp. 142-3). They recommend inviting student responses to the teaching and caution against reacting defensively, instead, they advise the teacher to express appreciation and to offer a summary of their understanding of the feedback received. In concluding, they comment that effective feedback knowledge and skills derive from 'actual experience and…[the teacher's] modeling behavior' (p. 144).

The impact of feedback specificity on learning opportunities is discussed by Goodman and Wood (2004), who report that although specificity can benefit immediate performance, it can also undermine learning related to independent performance. Their findings indicate that the effects of feedback on learning are contextual and conditional. For example, whereas more specific feedback benefits learning responses in those who perform well, it is detrimental to learning responses in those who perform poorly. They conclude that 'those who receive feedback of varying specificity learn different things, through different means. Simple notions about feedback being beneficial or detrimental to learning need to be augmented by more complex models' that recognise different task aspects. They suggest future research should explore how rules of responding to poor performance are learned and 'differences in learning processes for good versus poor performance' (p. 820).

## Practices

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.

Feedback that learners' receive from teachers and from other students enables comparison of actual performance with expectations (Mory, 2004). Timely, constructive feedback affects students' participation, performance, and engagement on a course, and learning outcomes (Laurillard, 2002). Optimal feedback looks for balance between student needs and teaching management (Dennen, 2005), and must enhance understanding rather than just indicating correctness (Garrison, 1989). Feedback links knowledge and skills for understanding (Duhon *et al*., 2006). It involves numerous models that centre on a 'feedback triad' (Kulhavey and Wagner, 1993) of motivation, reinforcement, and information (Mory, 2004). Because feedback and action link to productive learning, extrinsic and intrinsic feedback is crucial for learners (Laurillard, 2002). A learning goal, or outcome, also prefigures unity between action, feedback and integration (Laurillard, 2002). Substantive and timely feedback improves online learning participation (Dennen, 2005). However, feedback also involves complex effects including: 'candlepower' (Hudson, 2002), which characterises the subtle intimacy that arises in online dialogue and concerns effects of critical dialogue; and 'feedback specificity'. Although more specific feedback benefits learning responses in those who perform well, it is detrimental to learning responses in those who perform poorly (Goodman and Wood, 2004). *Kiasu* (a predominantly Asian attitude to diligent academic performance) has both positive (diligence to outperform others) and negative (diligence to prevent/hinder others outperforming) forms that impact on e-learning feedback practices (Hwang and Arbaugh, 2006).

Table L5-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

L5

## Delivery

**Students are provided with feedback beyond the marks assigned for assessed work.**

- ☐ *No provision for feedback beyond the marks assigned for assessed work.*
- ☐ *Limited, inconsistent or informal feedback opportunities beyond the marks assigned for assessed work.*
- ☐ *Formal opportunities for feedback beyond the marks assigned for assessed work provided, but only to most but not all courses and students.*
- ■ *Formal opportunities for feedback beyond the marks assigned for assessed work provided consistently to all students in all courses.*

Students are provided with feedback which addresses motivation.

- ☐ *No provision for feedback which addresses motivation.*
- ☐ *Motivational elements of feedback are provided informally or inconsistently.*
- ☐ *Motivational feedback provided formally but in a generic manner or only in response to some assessment activities.*
- ■ *Customised and specific motivational feedback provided in response to all assessments from all students.*

Students are provided with feedback which reinforces learning.

- ☐ *No provision for feedback which reinforces learning.*
- ☐ *Reinforcement elements of feedback are provided informally or inconsistently.*
- ☐ *Feedback which reinforces learning is provided formally but in a generic manner or only in response to some assessment activities.*
- ■ *Customised and specific motivational feedback which reinforces learning is provided in response to all assessments from all students.*

Students are provided with feedback which corrects errors and supplies information in context.

- ☐ *No provision for feedback which corrects errors and supplies information in context.*
- ☐ *Feedback which corrects errors and supplies information in context is provided informally or inconsistently.*
- ☐ *Feedback which corrects errors and supplies information in context is provided formally but in a generic manner or only in response to some assessment activities.*
- ■ *Customised and specific feedback which corrects errors and supplies information in context is provided in response to all assessments from all students.*

A variety of communication channels used to provide in-depth and contextual feedback.

- ☐ *No in-depth and contextual feedback is provided to students.*
- ☐ *Feedback is provided informally or only as part of returning student work without an opportunity to discuss the information.*
- ☐ *In-depth and contextual feedback is provided but discussion requires face-to-face contact at the institution.*
- ■ *In-depth and contextual feedback is provided to students with opportunities to discuss it provided through a variety of communication channels.*

## Planning

**Course (re)development plans include a structured interaction design incorporating a variety of communication channels.**

**See also**: L2(2) & L4(2)

- ☐ *Course (re)development plans do not contain any include a structured interaction design.*
- ☐ *Course (re)development plans contain an incomplete or informal interaction design.*
- ☐ *Course (re)development plans contain a structured interaction design limited to a particular communication channel.*
- ■ *Course (re)development plans contain a structured interaction design incorporating a variety of communication channels.*

**Courses include staged assessment tasks with structured opportunities for feedback and reflection.**

- ☐ *No staging or reflection apparent in the assessment tasks.*
- ☐ *Informal or implied staging between assessments with limited opportunities for feedback and reflection.*
- ☐ *Formal linkages and staging between some assessments or only in some courses, or with limited opportunities for feedback and reflection between linked assessments.*
- ■ *Formal linkages and staging between assessments with clear opportunities for feedback and reflection between linked assessments.*

Students are provided with course documentation describing the feedback they can expect from staff.

- ☐ *Course documentation does not contain any information on what feedback students can expect from staff.*
- ☐ *Course documentation contains outdated, incomplete or informal information on what feedback students can expect from staff.*
- ☐ *Course documentation contains information linked with course activities on what feedback students can expect from staff, but the information is unnecessarily inconsistent or different in different courses or assessments.*
- ■ *Course documentation contains consistent information linked with course activities on what feedback students can expect from staff.*

Students are provided with assessment marking rubrics prior to submitting work for marking.

- ☐ *Information available prior to submitting work for marking does not contain any marking rubrics or guidance on assessment criteria.*
- ☐ *Information available prior to submitting work for marking contains incomplete or informal descriptions of assessment criteria.*
- ☐ *Information available prior to submitting work for marking contains assessment criteria in a format which is unnecessarily inconsistent or different in different courses, or which is not used by staff assessing student performance.*
- ■ *Information available prior to submitting work for marking contains consistent and explicit information for students on assessment criteria in the form of a structured marking rubric used when assessing their performance.*

## Definition

**Institutional policies define requirements for the quality and type of feedback to be provided to students.**

**See also**: S3(3)

- ☐ *No policies, standards or guidelines define requirements for the quality and type of feedback to be provided to students.*
- ☐ *Policies, standards and guidelines define requirements for the quality and type of feedback to be provided to students, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for the quality and type of feedback to be provided to students, however compliance incomplete or not enforced.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for the quality and type of feedback to be provided to students with compliance enforced.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on how to use feedback to improve student learning.**

**See also**: L8(3)

- ☐ *No training, guidelines or examples of using feedback to improve student learning provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to delivering courses.*

**Students are provided with support resources (including training, guidelines and examples) to assist them in making effective use of staff feedback in their learning.**

**See also**: L4(3), L8(3) & E1(3)

- ☐ *No guidelines or support materials provided to students to assist them in making effective use of staff feedback.*
- ☐ *Incomplete, outdated or informal guidelines or support materials provided to students to assist them in making effective use of staff feedback.*
- ☐ *Guidelines and/or support materials provided to students to assist them in making effective use of staff feedback, but materials are not actively promoted or provided to all students.*
- ☐ *Guidelines and support materials provided to all students to assist them in making effective use of staff feedback and use of these materials actively promoted.*

Teaching staff are provided with support resources (including training, guidelines and examples) on how to use formative and summative assessment feedback.

- ☐ *No training, guidelines or examples on using formative and summative assessment feedback to support student learning provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples on using formative and summative assessment feedback to support student learning provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples on using formative and summative assessment feedback to support student learning provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples on using formative and summative assessment feedback to support student learning provided to all teaching staff with the requirement that they be used prior to the delivery of courses.*

## Management

**Feedback delivered in response to student work is regularly monitored.**

- ☐ *No monitoring of feedback delivered in response to student work.*
- ☐ *Limited, inconsistent or informal monitoring of feedback delivered in response to student work, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of feedback delivered in response to student work, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of feedback delivered in response to student work.*

**Feedback collected regularly from students regarding the effectiveness of the feedback provided.**

- ☐ *No feedback collected from students on the effectiveness of the feedback provided.*
- ☐ *Limited, inconsistent or informal student feedback collected on the effectiveness of the feedback provided by staff, or feedback collected but not reported.*
- ☐ *Student feedback collected formally on some but not all courses, or feedback not collected independently and/or regularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback collected and reported regularly on the effectiveness of the staff feedback provided.*

**Feedback collected regularly from staff regarding the effectiveness of the student feedback mechanisms and support.**

- ☐ *No feedback collected from staff on the effectiveness of the different student feedback mechanisms.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected on only some of the student feedback mechanisms in use, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all student feedback mechanisms or not collected regularly from all courses using the feedback mechanisms, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback collected and reported regularly on all of the student feedback mechanisms in use.*

Financial costs and benefits of feedback mechanisms are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of feedback mechanisms.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of feedback mechanisms, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of feedback mechanisms, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of feedback mechanisms.*

L5

## Optimisation

**Information on feedback type and quality, and student satisfaction with feedback, guides training and support resourcing.**

**See also**: L2(5) & L4(5)

- ☐ *No use of information on feedback type, quality and student satisfaction during training and support resource planning and allocation.*
- ☐ *Informal and inconsistent use of information on feedback type, quality and student satisfaction during institutional training and support resource planning and allocation.*
- ☐ *Information on feedback type, quality and student satisfaction explicitly guides institutional training and support resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ☐ *Information on feedback type, quality and student satisfaction explicitly guides institutional training and support resource planning and allocation and is formally linked to resourcing decisions.*

**Information on feedback type and quality, and student satisfaction with feedback, used to identify effective feedback strategies for reuse.**

**See also**: L4(5)

- ☐ *No information on feedback type, quality and student satisfaction used to identify effective feedback strategies for reuse.*
- ☐ *Informal and inconsistent use of information on feedback type, quality and student satisfaction to identify effective feedback strategies for reuse.*
- ☐ *Information on feedback type, quality and student satisfaction explicitly guides the identification of effective feedback strategies for reuse, but is treated as subordinate to technical goals, or not linked to reuse decisions.*
- ☐ *Information on feedback type, quality and student satisfaction explicitly guides the identification of effective feedback strategies for reuse and is formally linked to reuse decisions.*

Information on feedback type and quality, and student satisfaction with feedback, guides e-learning design and (re)development.

- ☐ *No use of information on feedback type and quality, and student satisfaction with feedback, during e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of information on feedback type and quality, and student satisfaction with feedback, during institutional e-learning design and (re)development.*
- ☐ *Information on feedback type and quality, and student satisfaction with feedback, explicitly guides institutional e-learning design and (re)development, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ☐ *Information on feedback type and quality, and student satisfaction with feedback, explicitly guides institutional e-learning initiative planning and is formally linked to design decisions.*

Information on feedback type and quality, and student satisfaction with feedback, guides resourcing of communication channels.

**See also**: L2(5) & L4(5)

- ☐ *No use of information on feedback type and quality, and student satisfaction with feedback, during e-learning resource planning and allocation.*
- ☐ *Informal and inconsistent use of information on feedback type and quality, and student satisfaction with feedback, during institutional e-learning resource planning and allocation.*
- ☐ *Information on feedback type and quality, and student satisfaction with feedback, explicitly guides institutional e-learning resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ☐ *Information on feedback type and quality, and student satisfaction with feedback, explicitly guides institutional e-learning resource planning and allocation and is formally linked to resourcing decisions.*

Information on feedback type and quality, and student satisfaction with feedback, guides e-learning strategic planning.

**See also**: L2(5) & L4(5)

- ☐ *No use of information on feedback type and quality, and student satisfaction with feedback during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on feedback type and quality, and student satisfaction with feedback during institutional e-learning strategic planning.*
- ☐ *Information on feedback type and quality, and student satisfaction with feedback explicitly guides institutional e-learning strategic planning, but is not linked to strategy decisions.*
- ☐ *Information on feedback type and quality, and student satisfaction with feedback explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

**Table L5-1**: Descriptions of process practices by capability dimension

## Process L6.

*Research and information literacy skills development by students is explicitly supported*

### Process Background

Information and communication technology (ICT) has revolutionised the meaning of literacy and research. ICT has not only changed ways and means of accessing and using information, it is changing how information is understood. Information literacy, alone, is insufficient, information competency is now required. Learners must think critically and coherently about finding, evaluating, using, and managing information: 'As information resources and the tools to find them grow and increase in complexity so, too, do the means by which we help our students understand how to find and use them effectively' (Goetsch and Kaufman, 1998, p. 162).

According to McKnight (2003), information support services are playing an increasing partnership role in online teaching and learning to ensure explicit curriculum content is well-resourced, and that students are properly supported (p. 380). Observing that reader education and information literacy instruction has long been a function of libraries, she characterises the role of librarian changing from a 'custodian of books to being a true partner in learning and teaching' (p. 381). In concluding that differences between curriculum materials and supporting information resources are unnoticed by students, McKnight foresees librarians as members of a collaborative multidisciplinary team 'creating new learning resources and environments for the seamless delivery of the curriculum and support materials' (p. 384). Reiterating the collaborative partnership view of library media specialists contribution to learning, Neuman (2004) emphasises the links inherent to information use and learning, which point to the significance of information literacy for furthering understandings of student achievement (p. 517). Porter (2005) and Liber (2005) both discuss the specialised expertise that library and information service personnel can collaboratively contribute to learning process and partnerships.

The popularity of common Internet search engines is both seductive and deceptive for students, according to Scott and O'Sullivan (2005). The problem, they say, is not access to information but efficiently and effectively finding specific and suitable information. Further, they comment on the difficulty students have in defining the information they are seeking and they point to the need for better understanding of 'hypertext literacy'. Citing their earlier work (Scott and O'Sullivan, 2002) they propose that the Internet creates a 'cognitive divide' between those who can and cannot navigate and negotiate hypertext and hypermedia. The authors conducted a hypertext evaluation action research study that required students to navigate a specified Internet site, to locate a particular piece of information, and, by addressing a series of questions, to describe their experience in doing this task. The study found that most students experienced difficulties and had little understanding of systems or strategies for searching, and relied on a basic keywords phrase tactic. They conclude that their study 'highlights the critical need to incorporate exercises and instruction in navigating this hypertext environment' (p. 24). However, they also emphasise the importance of students understanding that the Internet is only one information retrieval tool in a suite of many that are needed to avoid underutilising and misusing information.

Referring to the most cited definition of information literacy, 'To be information literate, a person must be able to recognise when information is needed and have the ability to locate, evaluate, and use effectively the needed information' (American Library Association Presidential Committee on Information Literacy, 1989), Johnston and Webber (2003) note the emphasis on integrating personal abilities for recognising, locating, and evaluating, which distinguishes literacy capability from information searching or finding skills (p. 337). They propose that information literacy education requires more than a surface learning approach, rather, they suggest that 'a framework for information literacy education through a student's career is needed' (p. 347).

Citing Webber and Johnston's (2000) view that the lack of a student perspective in information literacy teaching results in inappropriate pedagogy, Maybee (2006) argues for the adoption of a user-centred approach that 'reflects the complexities inherent in the current information environment' (p. 79). Maybee focuses on a relational approach to learning (Ramsden, 1988), which better allows for complexity than other approaches. He concludes that relational learning that embeds information literacy values helps

students to increase their ability to conceptualise increasingly complex ways to use and understand information more deeply and comprehensively (p. 84).

To summarise, what becomes evident from the literature is a raft of issues that reflect the complex relationships involved. These issues include the notions that: critical thinking is integral to information literacy with effective note-taking, for example web-based, being a factor in bringing these together; the librarian's role is becoming increasingly proactive in regard to online teaching and learning and, as such, contributes significantly to student achievement; students need to be taught information literacy skills within any given discipline to be able to access appropriate information and to make meaning from that information – such information literacy education must be ongoing; and a relational approach (Ramsden, 1988) to e-learning is the most appropriate pedagogically because it is user-centred and produces deeper learning.

## Practices

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.

Table L6-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **Students are provided with a description of the range of available information sources.** |
| ☐ *No information provided to students on the range of information sources available beyond the core course materials.* |
| ☐ *Inconsistent or informal information provided to students on the range of information sources available beyond the core course materials.* |
| ☐ *Information provided to students on the range of information sources available beyond the core course materials but use of the material not promoted or consistently referenced.* |
| ☐ *Detailed information provided to students on the range of information sources available beyond the core course materials formally and consistent references made to these sources throughout core course materials.* |
| Students are provided with information on research skills support. |
| ☐ *No information describing research skills support provided to students.* |
| ☐ *Information describing research skills support provided to students is outdated, incomplete or informally communicated.* |
| ☐ *Information describing research skills support is unnecessarily inconsistent or different in different courses.* |
| ☐ *Consistent and explicit information for students describing research skills support provided formally and in multiple places.* |
| Students are provided with information on accessing course content. |
| ☐ *No information describing how to access course content provided to students.* |
| ☐ *Information on accessing course content provided to students is outdated, incomplete or informally communicated.* |
| ☐ *Information on accessing course content is unnecessarily inconsistent or different in different courses.* |
| ☐ *Consistent and explicit information for students describing how to access course content provided formally and in multiple places.* |
| Students are provided with lists of starting points for their own research and information collection activities. |
| ☐ *No information on where to start their own research activities provided to students.* |
| ☐ *Information describing where to start their own research activities provided to students is outdated, incomplete or informally communicated.* |
| ☐ *Information describing where to start their own research activities is unnecessarily inconsistent or different in different courses.* |
| ☐ *Consistent and explicit information for students describing where to start their own research activities provided formally and in multiple places.* |

L6

## Planning

**Students are provided with formal information literacy and research skills development opportunities in all courses.**

- ☐ *No information literacy and research skills development sessions or tutorials provided.*
- ☐ *Information literacy and research skills development sessions and/or tutorials provided informally.*
- ☐ *Information literacy and research skills development sessions and/or tutorials provided formally to most, but not all, students and courses.*
- ■ *Information literacy and research skills development sessions and/or tutorials provided formally in all courses and participation by all students required.*

**Assessment marking rubrics include criteria reflecting the quality of student research and information use.**

- ☐ *No assessment of the quality of research and information use included in the assessment tasks used.*
- ☐ *The quality of research and information use assessed informally or implicitly.*
- ☐ *Marking rubrics include aspects of the quality of research and information use by students but this is not apparent in all appropriate courses or assessments.*
- ■ *All appropriate course assessment marking rubrics include aspects of the quality of research and information use by students.*

Students are provided with designated library staff contact information.

**See also**: S2(2)

- ☐ *No information provided to students describing how to contact course designated library staff.*
- ☐ *Information describing how to contact course designated library staff provided to students is outdated, incomplete or informally communicated.*
- ☐ *Information describing how to contact course designated library staff is unnecessarily inconsistent or different in different courses.*
- ■ *Consistent and explicit information for students describing how to contact course designated library staff provided formally and in multiple places.*

Summaries of useful library resources provided on a course or discipline basis.

**See also**: S2(2)

- ☐ *No summaries of useful library resources provided to students in course materials.*
- ☐ *Informal or limited summaries of useful library resources provided, or summaries limited to reading lists associated with particular assessed work.*
- ☐ *Summaries of useful library resources provided as part of the library webpages without direct linkage from course materials.*
- ■ *Links to summaries of useful library resources provided as part of course materials and promoted actively in conjunction with course assessments and learning activities.*

E-Learning design and (re)development is guided by a researched evidence base.

**See also**: L7(2) & D3(2)

- ☐ *No use of research evidence during e-learning design and development.*
- ☐ *Inconsistent or informal incorporation of research evidence during e-learning design and development.*
- ☐ *Research evidence on effective e-learning guides most, but not all, e-learning design and development projects, or research is not kept in an shared evidence base for reuse in different projects or provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *E-learning design and development activities are formally and explicitly linked to a shared research evidence base of effective e-learning examples with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Course documentation provides students with guidance on intellectual property and plagiarism issues.

- ☐ *Course outlines and descriptions do not contain any guidance on intellectual property and plagiarism issues.*
- ☐ *Course outlines and descriptions contain outdated or incomplete information on intellectual property and plagiarism issues.*
- ☐ *Course outlines and descriptions for most, but not all, courses contain guidance on intellectual property and plagiarism issues, or the information is unnecessarily different between different courses.*
- ■ *Course outlines and descriptions contain a clear and consistent guidance on intellectual property and plagiarism issues.*

Teaching staff are provided with plagiarism and collusion detection systems.

**See also**: L8(2) & S6(2)

- ☐ *No plagiarism and collusion detection systems provided.*
- ☐ *Plagiarism and collusion detection systems are provided informally, inconsistently, or are only provided for use in courses where students are presumed to plagiarise more often, or only used on work provided by some students.*
- ☐ *Plagiarism and collusion detection systems are provided for use in all courses but use is optional and systems are used to document or confirm plagiarism only after detection by staff.*
- ■ *Plagiarism and collusion detection systems are provided and used in all courses on work submitted by all students.*

## Definition

**Institutional policies define expectations for student research skills and information literacy.**

- ☐ *No policies, standards or guidelines define expectations for student research and information literacy skills.*
- ☐ *Policies, standards and guidelines define expectations for student research and information literacy skills, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum expectations for student research and information literacy skills, however compliance incomplete or not enforced.*
- ■ *Policies, standards or guidelines define mandatory minimum expectations for student research and information literacy skills with compliance enforced.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on using library facilities to support student research and information literacy skill development.**

- ☐ *No training, guidelines or examples of how to develop student research and information literacy skills provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing, (re)developing or delivering courses.*

**Standard bibliography and citation formats defined and provided to students and staff along with examples and training in their use.**

- ☐ *No standard bibliography and citation formats defined or provided.*
- ☐ *Standard bibliography and citation formats provided for the optional use of students and staff without examples or training.*
- ☐ *Standard bibliography and citation formats provided for the use by students and staff with examples and optional training.*
- ☐ *Standard bibliography and citation formats provided for the use of students and staff with examples and mandatory training undertaken.*

Teaching staff are provided with support resources (including training, guidelines and examples) on guiding student use of information to avoid plagiarism and misuse of intellectual property.

**See also**: L8(3)

- ☐ *No training, guidelines or examples provided to teaching staff on how to develop student information skills to avoid plagiarism and misuse of intellectual property.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff on how to develop student information skills to avoid plagiarism and misuse of intellectual property.*
- ☐ *Detailed and specific training, guidelines and examples provided to teaching staff on how to develop student information skills to avoid plagiarism and misuse of intellectual property but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff on how to develop student information skills to avoid plagiarism and misuse of intellectual property with the requirement that they be used prior to designing, (re)developing or delivering courses.*

Institutional policies define expectations that courses include research activities.

- ☐ *No policies or standards define expectations for research activities in courses.*
- ☐ *Policies and standards defining expectations for research activities in courses are provided for informational use but impose no minimum or maximum expectations on courses.*
- ☐ *Policies and standards defining expectations for research activities in courses provided with minimum expectations of courses but compliance by incomplete or not enforced.*
- ☐ *Policies and standards defining expectations for research activities in courses provided with minimum expectations of courses and compliance with the requirements enforced.*

Institutional policies define how digital information is retained and accessed.

**See also**: D7(3) & O4(3)

- ☐ *No guidelines or policy on information storage apparent.*
- ☐ *Informal, incomplete or outdated guidelines or policy on information storage provided.*
- ☐ *Formal guidelines or policy on information storage provided without explicit linkages to the institutional repositories in use, or without specifying how information is to be stored and accessed, or what licenses control and authorise usage.*
- ☐ *Formal guidelines or policy on information storage provided with explicit and systematic linkages to the institutional repositories in use, specifying how information is to be stored and accessed, and what licenses control and authorise usage.*

Teaching staff are provided with support resources (including training, guidelines and examples) on using learning objectives to guide e-learning design and (re)development.

**See also**: L1(3)

- ☐ *No training, guidelines or examples of using learning objectives to guide e-learning design and (re)development provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples of using learning objectives to guide e-learning design and (re)development provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples of using learning objectives to guide e-learning design and (re)development provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples of using learning objectives to guide e-learning design and (re)development provided to all teaching staff with the requirement that they be used prior to the design and (re)development of courses.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L7(3), D1(3), D2(3), D3(3), D7(3), S5(3), S6(3), O1(3), O3(3), O4(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

L6

## Management

**Students' abilities to conduct effective research are regularly monitored.**

- ☐ *No monitoring of students' abilities to conduct effective research.*
- ☐ *Limited, inconsistent or informal monitoring of students' abilities to conduct effective research, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of students' abilities to conduct effective research, but reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of students' abilities to conduct effective research.*

**Feedback collected regularly from students regarding the effectiveness of the information literacy and research facilities.**

- ☐ *No feedback collected from students on the effectiveness of the information literacy and research facilities.*
- ☐ *Limited, inconsistent or informal student feedback collected on the information literacy and research facilities, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all information literacy and research facilities or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ■ *Formal, independent, student feedback collected and reported regularly on all of the information literacy and research facilities.*

**Feedback collected regularly from staff regarding the effectiveness of the information literacy and research facilities.**

- ☐ *No feedback collected from staff on the effectiveness of the information literacy and research facilities.*
- ☐ *Limited, inconsistent or informal staff feedback collected on the information literacy and research facilities provided to students, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all information literacy and research facilities provided to students or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ■ *Formal, independent, staff feedback collected and reported regularly on all of the information literacy and research facilities provided to students.*

Students' abilities to access digital content are regularly monitored.

- ☐ *No monitoring of students' abilities to access digital content.*
- ☐ *Limited, inconsistent or informal monitoring of students' abilities to access digital content, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of students' abilities to access digital content, but reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of students' abilities to access digital content.*

Student use of digital information facilities is monitored regularly.

- ☐ *No monitoring of the student use of digital information facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the student use of digital information facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the student use of digital information facilities conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and reporting of the student use of digital information facilities.*

Financial costs and benefits of information literacy and research facilities are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of information literacy and research facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of information literacy and research facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of information literacy and research facilities, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of information literacy and research facilities.*

## Optimisation

**Information on the ability of students to access and assess content and conduct research guides training and support resourcing.**

- ☐ *No use of information on student research and information skills during training and support resource planning and allocation.*
- ☐ *Informal and inconsistent use of information on student research and information skills during institutional training and support resource planning and allocation.*
- ☐ *Information on student research and information skills explicitly guides institutional training and support resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ■ *Information on student research and information skills explicitly guides institutional training and support resource planning and allocation and is formally linked to resourcing decisions.*

**Information on the effectiveness of information resources and tools guides e-learning design and (re)development.**

- ☐ *No use of information on the effectiveness of information resources and tools guides e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of information on the effectiveness of information resources and tools guides institutional e-learning design and (re)development.*
- ☐ *Information on the effectiveness of information resources and tools guides institutional e-learning design and (re)development, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ■ *Information on the effectiveness of information resources and tools explicitly guides institutional e-learning initiative planning and is formally linked to design decisions.*

| Information on the ability of students to use digital information facilities guides training and support resourcing. |
|---|
| ☐ *No use of information on the ability of students to use digital information facilities during training and support resource planning and allocation.* |
| ☐ *Informal and inconsistent use of information on the ability of students to use digital information facilities during institutional training and support resource planning and allocation.* |
| ■ *Information on the ability of students to use digital information facilities explicitly guides institutional training and support resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.* |
| ■ *Information on the ability of students to use digital information facilities explicitly guides institutional training and support resource planning and allocation and is formally linked to resourcing decisions.* |
| **Information on the effectiveness of information resources and tools guides e-learning strategic planning.** |
| ☐ *No use of information on the effectiveness of information resources and tools during institutional e-learning strategic planning.* |
| ☐ *Informal and inconsistent use of information on the effectiveness of information resources and tools during institutional e-learning strategic planning.* |
| ■ *Information on the effectiveness of information resources and tools guides institutional e-learning strategic planning, but is treated as subordinate to technical goals, or not linked to strategy decisions in other than generic terms.* |
| ■ *Information on the effectiveness of information resources and tools explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.* |

**Table L6-1**: Descriptions of process practices by capability dimension

## Process L7.

*Learning designs and activities result in active engagement by students*

### Process Background

The nub of the idea of engaging 'active learning', which features in the CanREGS (Barker, 2002) and Chickering and Gamson's (1987) Seven Principles, concerns learning with and through experiencing. This notion can be traced back to Chickering's (1976) contributions to experiential learning, which he defined as 'learning that occurs when changes in judgments, feelings, knowledge, or skills result for a particular person from living through an event or events' (p. 63). He elaborates that such learning may result from a lecture, but would do so from the experience rather than the content of the lecture. It may also result from 'an encounter group or an exam, discussion or demonstration, work or play, travel or sitting on a stump' (p. 63). However, he also identifies some challenges for experiential learning, which require teachers to have clear understandings about the outcomes of their programme, their teaching approach, and students' motives and learning styles. 'When such concepts are clear, learning setting pertinent to particular purposes can be identified or created, activities to foster desired outcomes can be specified, and evidence of progress can be recognized' (p. 63). Chickering's main theme of developmental change as a major outcome (of experiential learning) also draws in notions of interdisciplinary studies as helpful for concretizing abstractions. For example, the success of laboratory experiences and experiments for science education, and the extension of such participatory activities to other disciplines: 'The best approach lies in relatively simple modifications of activities and areas of study already underway that can trigger changes in judgments and feelings as well as knowledge through significant events and experiences' (p. 107).

Twenty years later, Chickering and Ehrmann's (1996) 'principle' of active learning techniques in a technological context rehearses much of Chickering's original thinking. In articulating Principle Three *Good Practice Uses Active Learning Techniques*, they emphasise that learning is not passive. Rather, students must be actively engaged in vocalising and writing about their learning, integrate past experiences, and apply it to their daily lives: 'They must make what they learn part of themselves' (p. 4).

However, Chickering and Ehrmann update experiential learning to take account of assistive technologies, which they categorise into three areas, namely 'tools and resources for learning by doing, time-delayed exchange, and real-time conversation' (p. 4), all of which are being increasingly supported by the development of integrated, extended purpose software, or worldware (for example, CleverPHL (Schroeder and Spannagel, 2006)). They also update the earlier notions of apprentice-like participatory learning experiences by relating these to newer technology. The examples include activities that not only use technology, such as computing and statistical research, but also activities where technology can simulate environments that may be risky or inaccessible, or that can 'visualise' invisible effects such as electromagnetism.

Recent research shows support for the positive effects of active learning experiences. In a survey of graduates perceptions of the development of a range of capabilities during their period of study, Kember and Leung (2005) observed that part time students perceived higher gains in capability than did full time students (p. 155). Further investigation showed that teaching approaches engaging active student involvement and understanding had greatest effect, which leads them to suggest that graduate capability development ensues from active learning approaches. They concluded that didactic teaching appears to be less effective for learning than teaching and learning that actively engages students (p. 167).

Vonderwell and Turner (2005) are similarly emphatic about active learning, teaching practices, and environments. They argue that the findings of their case study of online learners' experiences 'imply that the online learning/teaching environment requires reconstruction of student and instructor roles, relationships and practices' (p. 65). Citing Simons (1997), they discuss active learning as involving two concepts, one concerned with learning, the other with thinking. The first involves learner decisions about their learning approach, the second refers to intellectual challenges the learner encounters. Vonderwell and Turner use active learning to mean 'learner engagement and involvement with the instructional content and learning processes such as thinking, questioning, reflection, metacognition, collaborative, and cooperative activities' (p. 67). Referring to the theoretical framework of their study they cite Grabinger

and Dunlap's (2000) Rich Environment for Active Learning (REAL) and its aggregating five attributes of 'student responsibility and initiative, generative learning activities, authentic learning contexts, authentic assessment strategies, and cooperative support' (p. 67). From their study, Vonderwell and Turner conclude that learners need to be prepared for an active learning role that requires not only understanding the importance of autonomy but also how to work collaboratively. Teachers also need to be thoroughly conversant with research and theory that grounds the individual and group dynamics and interactions that they facilitate. Finally, Vonderwell and Turner refer to a raft of strategies and activities that can be integrated into learning and teaching to support the reconstruction they call for.

An often cited summary characterising active learning (Bonwell and Eison, 1991) proposes that 'strategies promoting active learning be defined as instructional activities involving students doing things and thinking about what they are doing' (¶ 2). Bonwell and Eison comment that although research studies demonstrate that active learning is comparable to lectures in promoting content mastery, it develops superior thinking/writing skills. Adding that 'some cognitive research has shown that…individuals have learning styles best served by pedagogical techniques other than lecturing. Therefore, a thoughtful and scholarly approach to skilful teaching requires that faculty become knowledgeable about the many ways strategies promoting active learning have been successfully used across the disciplines' (¶ 3). They summarise various strategies that demonstrate active learning principles and observe that the literature provides teachers with a wide variety of applicable alternative learning approaches (¶ 6). However, Bonwell and Eison also note that the approach involves risk factors: 'that students will not participate, use higher-order thinking, or learn sufficient content, that faculty members will feel a loss of control, lack of necessary skills, or be criticized for teaching in unorthodox ways' (¶ 9). They counter that each of these can be overcome with diligent planning. They call for a wider recognition of this approach both in terms of its resources and in rewarding its incorporation in practice. They also call for more research, particularly empirical studies that consider student characteristics such as gender, learning diversity, and cognitive development. Finally, they lament the fragmentation and lack of coherence in the literature and resources that inhibits the goal of interactive classrooms, but they look optimistically to more coordinated future efforts (¶ 14).

## Practices

Student learning success is significantly affected by the creation of an e-learning environment that provides active engagement in experiential contexts. This requires teachers to clearly understand programme outcomes, teaching approach, students' motivation and learning styles, all of which depends on diligent planning. Also, students need to be able to link their learning to their life experiences. Technology plays a significant role in this and requires that the online teaching/learning environment undergo a reconstruction of student and teacher roles, relationships and strategies – students need to become active players in their own learning in regard to learning approach and intellectual challenges (Grabinger and Dunlap, 2000). Teachers need to be conversant with current research and theory and familiar with the complexities of human interactions with ICT, so that as users they are not detached from students. Teachers and learners need to be cognisant of their embodiment in technology relations that integrates knowing acting and being. Such embodied knowing opens understandings of the mind-body/machine nexus (Dall'Alba and Barnacle, 2005).

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.

Table L7-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

L7

## Delivery

**Learning activities are designed to encourage analysis and skill development.**

- ☐ *No evidence of analysis and skill development apparent in learning activities.*
- ☐ *Primary focus of learning activities on recall and knowledge acquisition with minor and inconsistent use of analysis and skill development.*
- ☐ *Consideration of analysis and skill development apparent in e-learning design and (re)development processes for most, but not all courses.*
- ☐ *Formal consideration of analysis and skill development apparent in e-learning design and (re)development processes for all courses.*

Students are provided with opportunities to describe and reflect upon their own learning.

- ☐ *No opportunities provided for students to describe and reflect upon their own learning.*
- ☐ *Limited or informal opportunities for students to describe and reflect upon their own learning.*
- ☐ *Formal opportunities for students to describe and reflect upon their own learning only cover some technologies and pedagogies or some courses.*
- ☐ *Formal and systematic opportunities provided in all courses for students to describe and reflect upon their own learning and the impact of the range of e-learning technologies and pedagogies used.*

Students are able to integrate previous experience and knowledge into course activities and tasks.

- ☐ *No opportunities provided for students to integrate previous experience and knowledge into course activities and tasks.*
- ☐ *Limited or informal opportunities for students to integrate previous experience and knowledge into course activities and tasks.*
- ☐ *Formal opportunities for students to integrate previous experience and knowledge into course activities and tasks only in some courses, or only during face to face activities.*
- ☐ *Formal and systematic opportunities provided in all courses for students to integrate previous experience and knowledge into course activities and tasks.*

Students are provided with opportunities for cooperative and collaborative learning tasks.

- ☐ *No opportunities for cooperative and collaborative learning tasks provided for students.*
- ☐ *Limited or informal cooperative and collaborative learning tasks provided for students.*
- ☐ *Formal opportunities for students to engage in cooperative and collaborative learning tasks only cover some courses or require face to face delivery.*
- ☐ *Formal and systematic opportunities provided in all courses for students to engage in cooperative and collaborative learning tasks.*

Learning activities and tasks are placed within an authentic context for student learning.

- ☐ *No wider context provided for learning activities and tasks.*
- ☐ *Learning activities and tasks are informally or inconsistently placed within a wider context, or a context inconsistent with the actual student backgrounds and experiences is used.*
- ☐ *Learning activities and tasks are placed within an authentic and appropriate, but generic context for student learning.*
- ☐ *Learning activities and tasks are placed within an authentic context for student learning that is defined by characteristics of the students themselves.*

## Planning

**Course documentation describes the e-learning pedagogies used.**

**See also**: O7(2)

- ☐ *Course documentation does not contain any information on the e-learning pedagogies which will be used.*
- ☐ *Course documentation contains outdated, incomplete or informal information and/or procedures regarding the e-learning pedagogies which will be used.*
- ☐ *Course documentation contains information on particular e-learning pedagogies that is unnecessarily inconsistent or different in different courses.*
- ☐ *Course documentation contains consistent information on the e-learning pedagogies, and procedures for their use.*

**The design of e-learning activities is guided by the need to build and develop student engagement.**

- ☐ *No evidence of student engagement in course and assessment objectives or design goals.*
- ☐ *Informal or inconsistent consideration of student engagement in e-learning design and (re)development processes.*
- ☐ *Consideration of student engagement apparent in e-learning design and (re)development processes for most, but not all courses.*
- ☐ *Formal consideration of student engagement apparent in e-learning design and (re)development processes for all courses.*

E-learning design and development is guided by the need to build an authentic context for student learning.

- ☐ *No use of wider contexts for student learning during e-learning design and development.*
- ☐ *Inconsistent or informal use of wider contexts for student learning during e-learning design and development, or a context inconsistent with the actual student backgrounds and experiences is used.*
- ☐ *An authentic and appropriate, but generic context for student learning guides e-learning design and development projects.*
- ☐ *E-learning design and development activities are formally and explicitly placed within an authentic context for student learning that is defined by characteristics of the students themselves.*

E-Learning design and (re)development is guided by a researched evidence base.

**See also**: L6(2) & D3(2)

- ☐ *No use of research evidence during e-learning design and development.*
- ☐ *Inconsistent or informal incorporation of research evidence during e-learning design and development.*
- ☐ *Research evidence on effective e-learning guides most, but not all, e-learning design and development projects, or research is not kept in an shared evidence base for reuse in different projects or provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *E-learning design and development activities are formally and explicitly linked to a shared research evidence base of effective e-learning examples with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Staff are provided with assistance when engaged in e-learning design and (re)development.

**See also**: L1(2)

- ☐ *No e-learning design and development assistance provided.*
- ☐ *E-learning design and development assistance provided informally and/or inconsistently.*
- ☐ *E-learning design and development assistance provided formally but only to a minimal extent or on a generic basis.*
- ☐ *E-learning design and development assistance provided formally with the extent of provision and its availability determined by the needs of the staff and the requirements of the particular initiative.*

## Definition

**Teaching staff are provided with support resources (including training, guidelines and examples) for designing, developing, and delivering learning activities that actively engage students.**

- ☐ *No training, guidelines or examples provided to teaching staff on using learning activities to actively engage students.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing or (re)developing courses.*

Institutional policies require that courses be designed to build and develop student engagement.

- ☐ *No policies provided that require that courses be designed to build and develop student engagement.*
- ☐ *Policies provided that encourage, but do not require, that courses be designed to build and develop student engagement, or which fail to impose mandatory compliance requirements.*
- ☐ *Policies require that courses be designed to build and develop student engagement, however compliance incomplete or not enforced.*
- ☐ *Policies require that courses be designed to build and develop student engagement and compliance with the requirements enforced.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L6(3), D1(3), D2(3), D3(3), D7(3), S5(3), S6(3), O1(3), O3(3), O4(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

## Management

**Compliance with policies, standards and guidelines governing the incorporation of learning activities that actively engage students in e-learning design and development is regularly monitored.**

- ☐ *No monitoring of e-learning activities within courses to ensure active engagement of students occurring.*
- ☐ *Informal or incomplete monitoring of e-learning activities within courses to ensure active engagement of students occurring.*
- ☐ *Formal monitoring of e-learning activities within courses to ensure active engagement of students occurring but compliance with relevant institutional policies, standards and guidelines treated as optional or not required.*
- ☐ *Formal monitoring of e-learning activities within courses to ensure active engagement of students, with compliance to institutional policies, standards and guidelines required.*

**Feedback collected regularly from students regarding the effectiveness of the e-learning activities.**

**See also**: L1(4)

- ☐ *No feedback collected from students on the effectiveness of the e-learning activities.*
- ☐ *Limited, inconsistent or informal student feedback on the effectiveness of the e-learning activities collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all e-learning activities or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback on the effectiveness of the e-learning activities collected and reported regularly from all e-learning courses.*

**Feedback collected regularly from staff regarding the effectiveness of the e-learning activities.**

**See also**: L1(4)

- ☐ *No feedback collected from staff on the effectiveness of the e-learning activities.*
- ☐ *Limited, inconsistent or informal staff feedback on the effectiveness of the e-learning activities collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all e-learning activities or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on the effectiveness of the e-learning activities collected and reported regularly from all e-learning courses.*

Students' engagement is regularly monitored.

- ☐ *No monitoring of student engagement.*
- ☐ *Limited, inconsistent or informal monitoring of student engagement, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of student engagement conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of student engagement.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ■ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Financial costs and benefits of e-learning activities are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of e-learning activities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning activities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning activities, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning activities.*

## Optimisation

**Information on the active engagement of students with course learning activities guides e-learning design and (re)development.**

- ☐ *No use of information on the extent to which courses are actively engaging students to guide e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of information on the extent to which courses are actively engaging students to guide institutional e-learning design and (re)development.*
- ☐ *Information on the extent to which courses are actively engaging students guides institutional e-learning design and (re)development, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ■ *Information on the extent to which courses are actively engaging students explicitly guides institutional e-learning initiative planning and is formally linked to design decisions.*

**Active engagement of students as learners guides e-learning strategic planning.**

- ☐ *No use of information on student engagement during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on student engagement during institutional e-learning strategic planning.*
- ☐ *Information on student engagement explicitly guides institutional e-learning strategic planning, but is treated as subordinate to technical goals, or not linked to strategy decisions.*
- ■ *Information on student engagement explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

**Table L7-1**: Descriptions of process practices by capability dimension

## Process L8.

*Assessment of students is designed to progressively build their competence*

### Process Background

Assessment, which is about understanding student learning (Ramsden, 2003), affects the nature, effectiveness, and importance of learning (Hannafin *et al.*, 2003): 'Given that students orient their study towards their perception of the assessment, the solution offered is to find more challenging forms of assessment' (Laurillard, 2002, p. 204). Assessment that communicates high expectations challenges learning approaches and builds competency for outcomes. Learning outcomes and assessment are inextricably linked and should reveal capabilities rather than just technicalities. There is, however, debate over forms of assessment as to whether they should assess students' 'surface learning' knowledge, or 'deep learning' capabilities (Laurillard, 2002; Ramsden, 2003). Rather than summative and formative assessment being about 'simple dualities such as grading and diagnosis', assessment needs to consider the complex relationships among teachers and teaching, and learners and learning: 'It concerns the quality of teaching as well as the quality of learning…It is not only about what a student can do; it is also about what it means he or she can do' (Ramsden, 2003, p. 177).

Observing that the value of learning technologies is partly attached to some ability to perform limited automated assessment (p. 206), Laurillard (2002) recommends a series of assessment qualities for learning technologies. These include (p. 207):

- design assessment in terms of objectives;
- design questions to be open, non-technical and conceptual;
- ensure that learning through new media is assessed and accredited;
- design group assessment to fit objectives and modes of collaborative learning;
- involve students in the design and assessment of marking;
- reinterpret assessment criteria explicitly for learning from new media;
- use the productive media to test the new learning activities that are being encouraged;
- communicate assessment requirements clearly.

Similarly, Conrad and Donaldson (2004) propose that because engaged learning requires higher level thinking, assessment should comprise more than traditional exams and should include 'activity rubrics, team assessment, and reflective self-assessment' (p. 34). They add that assessment focus should be on establishing that the stated objectives for the course have been met, and that students have been engaged in the learning process.

Focus on assessment process and practices is also a concern for Clyde and Delohery (2005) who present five scenarios relating to using assessment and feedback to improve learning. These cover student confusion, student self- and peer-assessment, student presentations, team performance, and, feedback on course activities (p. 177). Clyde and Delohery also emphasise four points that contribute to their view of assessment's increasing dominance in education: 1. studies indicating the need for education reform; 2. adoption of total quality management principles; 3. research focused on the value and strategies of educational assessment; 4. demand for rigorous assessment from accreditation and legislative bodies (p. 177). The authors discuss each of the five scenarios in terms of traditional solutions, technology alternatives, which include illustrated examples, and potential pitfalls. They identify key technology elements for assessment as being online quizzes, surveys, gradebooks, and e-portfolios.

Assessment practices define both what is and what is not important regarding performance and grading, according to Hannafin *et al.*, (2003). They observe that: 'While it may not be the teacher's intent to signal or otherwise limit what a student should learn, some aspects of…work "count"…others do not' (p. 256). If formal assessment is the only measure of progress in an online environment this can be problematic. Hannafin *et al.* are concerned that there is a tendency to value quantity over quality of activity by using practices adapted from traditional approaches that may not be suitable or may be of limited effectiveness for the environment. Of other strategies available, they note the advocacy of portfolios, but say that guidance on their use is lacking. Collaboration is 'valued highly…but we tend to assess the products rather than the collaboration processes per se' (p. 256). They conclude that although Web-based activities promote

problem-solving and critical-thinking, practices for their assessment are unsatisfactorily limited, and, that due to the distance nature of e-learning, it is important to determine ways to implement observational and participatory assessment practices (p. 256).

Young (2004) recommends that assessment should be 'seamless, continuous', and functionally valuable for learners and assessors (p. 175). He cites Young *et al*., (1997) describing such practices as focusing assessment on 'learner-environment interaction, rather than using the individual or the class as the unit of analysis' (p. 175). Further, citing Kulikowich and Young (2001), he refers to an ecologically-based assessment methodology purporting to directly assist learners engagement with learning contexts 'much like the instruments of a fighter jet enhance the pilot's abilities…' (pp. 175-6). He identifies the assessment of the student's actual goals that guide and organise the student's learning behaviours as primary criteria for assessing the student's progress and, where appropriate, for determining remedial learning actions (p. 176).

Reporting that research in online assessment tends to focus on automated scoring, Hill *et al*., (2004) argue that this model has, long-term, been commonplace in some forms of assessment, such as 'bubble sheets'. They discuss some novel aspects of certain techniques such as the addition of feedback information on distracters in multiple choice questions thereby providing 'cost effectiveness' through enabling prompt responses to learners without instructor interaction. Beyond this, much as with lectures (Angelo and Cross, 1993), it is necessary for teaching staff to consider how to use a variety of assessment techniques that are tailored to the objectives of the course. These should go beyond multiple choice questions to include assessment that builds on the available online communication and collaboration tools.

## Practices

To be effective, assessment needs to be integrated throughout the teaching-learning process in visible but seamless ways. That is, effective assessment will communicate ongoing high expectations through affirming competencies and capabilities, as well as technical and specific knowledge using a variety of approaches, such as 1. traditional, 2. activity oriented, 3. group, and 4. self-reflective and readily accessible practices, such as online quizzes, surveys, gradebooks and e-portfolios. Whatever methods are utilised, students need a rigorous understanding of qualitative and quantitative aspects of their assessment to ensure e-learning success.

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 learner 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.

Table L8-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

L8

## Delivery

**Assessments are described in terms of course and programme objectives and requirements.**

**See also**: L1(1), D3(1) & O7(1)

- ☐ *Assessments described solely in terms of required deliverables.*
- ☐ *Assessment descriptions include information on the context of the assessment that implies linkage with the course and programme objectives and requirements.*
- ☐ *Most, but not all, assessment descriptions contain explicit linkages to course and programme objectives or restate course and programme objectives using different wording.*
- ☐ *Formal assessment descriptions in all cases clearly and explicitly linked with course and programme objectives using consistent language.*

**Students are provided with opportunities to discuss assessment tasks with each other and the teaching staff before attempting marked work.**

- ☐ *No opportunities for students to discuss assessment tasks with each other and the teaching staff before attempting marked work.*
- ☐ *Limited or informal opportunities for students to discuss assessment tasks with each other and/or the teaching staff before attempting marked work.*
- ☐ *Formal opportunities for students to discuss assessment tasks with teaching staff before attempting marked work, but no formal mechanism for peer discussion.*
- ☐ *Formal opportunities for students to discuss assessment tasks with each other and the teaching staff before attempting marked work.*

**Students are provided with opportunities to practice assessment tasks before attempting marked work.**

- ☐ *No opportunities for students to practice assessment tasks provided.*
- ☐ *Limited or informal opportunities for students to practice assessment tasks provided after commencement of the course.*
- ☐ *Formal opportunities for students to practice assessment tasks provided after commencement of courses, or only cover some technologies and pedagogies or some courses.*
- ☐ *Formal opportunities for students to practice assessment tasks provided prior to commencement and during delivery of all courses.*

Students are provided with timely feedback while engaging in assessed work.

- ☐ *No provision for feedback in response to assessed work or during student engagement in assessment activities.*
- ☐ *Students are provided with feedback in response to assessed work only after submission.*
- ☐ *Students are provided with feedback in response to submission of assessed work with sufficient time that it can be used to guide student work in future tasks.*
- ☐ *Customised and specific feedback is provided to students while engaging in assessed work, and subsequent to submission feedback is provided with sufficient time that it can be used to guide student work in future tasks.*

A range of assessment formats are used in courses.

- ☐ *Course assessment activities use a single format.*
- ☐ *Course assessment activities are dominated by a single format, with other formats making a minor contribution to course marks or only used for formative assessment.*
- ☐ *A range of generic assessment formats, such as those provided by commercial learning management systems, are used in courses.*
- ☐ *A range of assessment formats, designed and customised for the characteristics of the students and discipline, are used in courses.*

## Planning

**Course documentation provides students with a description of the programme of assessment and the relationship between the individual assessment tasks and other learning activities.**

- ☐ *Course outlines and descriptions do not contain any overview or information on the relationship between the individual assessment tasks and other learning activities.*
- ☐ *Course outlines and descriptions contain outdated or incomplete information on the relationship between the individual assessment tasks and other learning activities.*
- ☐ *Course outlines and descriptions for most, but not all, courses contain information on the relationship between the individual assessment tasks and other learning activities, or the information is unnecessarily different between different courses.*
- ☐ *Course outlines and descriptions contain a clear and consistent overview of the programme of assessment and the relationship between the individual assessment tasks and other learning activities.*

**The assessment programme is designed to make effective and consistent use of e-learning technologies used in other course activities.**

- ☐ *No evidence of consistent use of e-learning technologies for assessment in courses.*
- ☐ *Informal or inconsistent linkage of e-learning technologies throughout course assessment and other activities.*
- ☐ *E-learning technologies consistently linked throughout course learning and assessment activities during design and (re)development processes, but the linkages not explicitly communicated to students.*
- ☐ *E-learning technologies consistently linked throughout course learning and assessment activities during design and (re)development processes and the linkages formally and explicitly communicated to students during delivery.*

The assessment programme is designed to build on student skills and experience attained in previous work.

- ☐ *No evidence of building on student skills and experience as part of the course assessment programme.*
- ☐ *Informal or inconsistent linkage of course assessment to student skills and experience.*
- ☐ *Student skills and experience consistently linked throughout course assessment activities during design and (re)development processes, but the linkages not explicitly communicated to students.*
- ☐ *Student skills and experience consistently linked throughout course assessment activities during design and (re)development processes and the linkages formally and explicitly communicated to students during delivery.*

There is an explicit relationship between the individual assessments and other timetabled activities.

- ☐ *No apparent relationship between the individual assessments and other timetabled activities.*
- ☐ *Relationships between assessment activities and other course elements are informal, implied or weak.*
- ☐ *Relationships between assessment activities and other course elements are logical, but inconsistently or incompletely described in the course materials.*
- ■ *Relationships between assessment activities and other course elements are logical and clearly described in the course materials.*

Assessment design and (re)development activities are guided by a researched evidence base.

- ☐ *No use of research evidence during assessment design and development.*
- ☐ *Inconsistent or informal incorporation of research evidence during assessment design and development.*
- ☐ *Research evidence on effective assessment guides most, but not all, assessment design and development projects, or research is not kept in an shared evidence base for reuse in different projects or provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *Assessment design and development activities are formally and explicitly linked to a shared research evidence base of effective assessment examples with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Assessment tasks provide guidance for students on intellectual property and plagiarism issues.

- ☐ *No guidance on intellectual property and plagiarism issues provided as part of assessment tasks.*
- ☐ *Outdated, informal or incomplete guidance on intellectual property and plagiarism issues provided as part of assessment tasks.*
- ☐ *Assessment tasks provide generic guidance for students on intellectual property and plagiarism issues, or merely restate policy and legal prohibitions without further explanation.*
- ■ *Assessment tasks provide detailed and specific guidance for students on intellectual property and plagiarism issues with information tailored to the requirements of the course and students.*

Teaching staff are provided with plagiarism and collusion detection systems.

**See also**: L6(2) & S6(2)

- ☐ *No plagiarism and collusion detection systems provided.*
- ☐ *Plagiarism and collusion detection systems are provided informally, inconsistently, or are only provided for use in courses where students are presumed to plagiarise more often, or only used on work provided by some students.*
- ☐ *Plagiarism and collusion detection systems are provided for use in all courses but use is optional and systems are used to document or confirm plagiarism only after detection by staff.*
- ■ *Plagiarism and collusion detection systems are provided and used in all courses on work submitted by all students.*

## Definition

**Institutional policies require that e-learning assessment programmes provide sufficient time for feedback from staff and reflection by students.**

- ☐ *No policies, standards or guidelines define requirements for designing assessment programmes to ensure sufficient time for feedback from staff and reflection by students.*
- ☐ *Policies, standards and guidelines define requirements for designing assessment programmes to ensure sufficient time for feedback from staff and reflection by students, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for designing assessment programmes to ensure sufficient time for feedback from staff and reflection by students, however compliance incomplete or not enforced.*
- ■ *Policies, standards or guidelines define mandatory minimum requirements for designing assessment programmes to ensure sufficient time for feedback from staff and reflection by students with compliance enforced.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on designing effective assessment programmes.**

- ☐ *No training, guidelines or examples provided to teaching staff on designing effective assessment programmes.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing or (re)developing courses.*

Teaching staff are provided with support resources (including training, guidelines and examples) on guiding student use of information to avoid plagiarism and misuse of intellectual property.

**See also**: L6(3)

- ☐ *No training, guidelines or examples provided to teaching staff on how to develop student information skills to avoid plagiarism and misuse of intellectual property.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff on how to develop student information skills to avoid plagiarism and misuse of intellectual property.*
- ☐ *Detailed and specific training, guidelines and examples provided to teaching staff on how to develop student information skills to avoid plagiarism and misuse of intellectual property but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff on how to develop student information skills to avoid plagiarism and misuse of intellectual property with the requirement that they be used prior to designing, (re)developing or delivering courses.*

L8

Institutional policies require that assessment tasks be designed to support incremental development of student skills and capabilities for learning.

**See also**: L3(3)

- ☐ *No policies provided that require assessment tasks be designed to support incremental development of student skills and capabilities for e-learning.*
- ☐ *Policies provided that encourage, but do not require, that assessments support incremental development of student skills and capabilities for e-learning, or which fail to impose mandatory compliance requirements.*
- ☐ *Policies require the incorporation of assessment tasks be designed to support incremental development of student skills and capabilities for e-learning, however compliance incomplete or not enforced.*
- ■ *Policies require the incorporation of assessment tasks be designed to support incremental development of student skills and capabilities for e-learning and compliance with the requirements enforced.*

Teaching staff are provided with support resources (including training, guidelines and examples) on how to use feedback to improve student learning.

**See also**: L5(3)

- ☐ *No training, guidelines or examples of using feedback to improve student learning provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to delivering courses.*

Students are provided with support resources (including training, guidelines and examples) to assist them in making effective use of staff feedback in their learning.

**See also**: L4(3), L5(3) & E1(3)

- ☐ *No guidelines or support materials provided to students to assist them in making effective use of staff feedback.*
- ☐ *Incomplete, outdated or informal guidelines or support materials provided to students to assist them in making effective use of staff feedback.*
- ☐ *Guidelines and/or support materials provided to students to assist them in making effective use of staff feedback, but materials are not actively promoted or provided to all students.*
- ■ *Guidelines and support materials provided to all students to assist them in making effective use of staff feedback and use of these materials actively promoted.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning assessment activities.

- ☐ *No researched evidence base of effective e-learning assessment examples provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting the effectiveness of e-learning assessment examples.*
- ☐ *Research evidence base of effective e-learning assessment examples provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *Research evidence base of effective e-learning assessment examples provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

## Management

**Feedback collected regularly from students regarding the effectiveness of the assessment activities.**

- ☐ *No feedback collected from students on the effectiveness of the assessment activities.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all assessment activities or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ■ *Formal, independent, student feedback collected and reported regularly on assessment activities.*

**Feedback collected regularly from staff regarding the effectiveness of the assessment activities.**

- ☐ *No feedback collected from staff on the effectiveness of the assessment activities used with students.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all assessment activities used with students or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ■ *Formal, independent, staff feedback collected and reported regularly on the assessment activities used with students in all e-learning courses.*

Compliance with policies, standards and guidelines governing the inclusion of learning activities that progressively build student capabilities during e-learning design and development is regularly monitored.

**See also**: L3(4)

- ☐ *No monitoring of e-learning activities within courses to ensure progressive development of student capabilities occurring.*
- ☐ *Informal or incomplete monitoring of e-learning activities within courses to ensure progressive development of student capabilities occurring.*
- ☐ *Formal monitoring of e-learning activities within courses to ensure progressive development of student capabilities occurring but compliance with relevant institutional policies, standards and guidelines treated as optional or not required.*
- ■ *Formal monitoring of e-learning activities within courses to ensure progressive development of student capabilities with compliance to institutional policies, standards and guidelines required.*

Student workloads are regularly monitored.

- ☐ *No monitoring of student workloads.*
- ☐ *Limited, inconsistent or informal monitoring of student workloads, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of student workloads conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and reporting of student workloads.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4))

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ■ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Financial costs and benefits of assessment activities are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of assessment activities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of assessment activities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of assessment activities, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of assessment activities.*

## Optimisation

**Information on the use of assessment activities that progressively build student capabilities guides e-learning design and (re)development.**

- ☐ *No use of information on the extent to which courses are providing assessment activities that progressively build student capabilities during e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of information on the extent to which courses are providing assessment activities that progressively build student capabilities during institutional e-learning design and (re)development.*
- ☐ *Information on the extent to which courses are providing assessment activities that progressively build student capabilities explicitly guides institutional e-learning design and (re)development, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ■ *Information on the extent to which courses are providing assessment activities that progressively build student capabilities explicitly guides institutional e-learning initiative planning and is formally linked to design decisions.*

Information on student e-learning skills guides e-learning strategic planning.

**See also**: L3(5)

- ☐ *No use of information on student e-learning skills during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on student e-learning skills during institutional e-learning strategic planning.*
- ☐ *Information on student e-learning skills explicitly guides institutional e-learning strategic planning, but is treated as subordinate to technical goals, or not linked to strategy decisions.*
- ■ *Information on student e-learning skills explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

**Table L8-1**: Descriptions of process practices by capability dimension

# Process L9.

*Student work is subject to specified timetables and deadlines*

## Process Background

The flexibility of an e-learning environment requires that particular attention is paid to timeliness in the planning, performing and completion of students' work, and teachers' responses to it (Laurillard, 2002; Salmon, 2000). Flexibility of delivery should also be extended to negotiating agreements over the ordering and timing of course elements. Clearly communicated course timetables and assignment deadlines, with explicit expectations and guidelines, encourage and motivate learners to make the most effective use of time, and enable teachers to facilitate effective time management by learners (Clarke, 2004).

Time management for e-learning differs from conventional learning. Whereas a conventional course timetable, which sets out attendance times, largely determines the learning plan, an e-learning course presents an estimate of the anticipated hours of study required and the duration of the course. The learning plan is left to the learner to schedule and manage: A conventional course provides a supportive but limiting structure, e-learning is more flexible but less supportive (Clarke, 2004, p. 122). Clarke emphasises the following as points that e-learning students need to consider: Course structure; personal objectives and schedule; personal priorities; individual learning style preference; good learning practices; health and safety; family responsibilities (pp. 122-3). Clarke also discusses practical ways to implement personal learning structures and gives activity exercises and examples of how to use computer applications to aid time management. He emphasises the crucial importance of planning to ensure productivity and to reduce stress (p. 127).

Allowing adequate time for the accomplishment of online learning interaction activity is also an important issue for Conrad and Donaldson (2004), who note that e-learning requires the allocation of more time than similar communication in classroom-based situations. They say discussion activities need a minimum of a week for development, and that team projects need to commence planning six weeks ahead of a due date (p. 19). They add that because online discussion is conducive to more depth of reflective thought than is found in reactive classroom discussion situations, the quality of discussion activities should take priority over the quantity (p. 20).

According to Kramarae (2003), studies indicate that students often find online discussion very time-consuming. Emphasising research that shows differences in time parameters for female and male students, she recommends more research that studies time as a gendered concept: 'women with spouses and children often must accommodate themselves to extra home-time responsibilities, a fact that has an impact on when and where they can study' (p. 270).

Reporting on research into time demands on teachers and learners in online environments, Spector (2005) identified several significant issues. He found that student time commitments increased according to the advancing level of the course and that student outcomes increased according to the amount of participation in course activities. He also noted that the overall time pattern of student activity varied through peaks and valleys during the course, and he concluded that although students appreciated the time flexibility of online courses, their level of experience with online instruction affected their perceptions of its effectiveness. Furthermore, while different forms of communication and collaboration presented varying time demands on students and teachers, overall, 'the perception of the benefits of online instruction improves with experience in online environments' (p. 18).

## Practices

E-learning provides a time flexible environment that demands attention to the management of timeliness in the conduct of teaching and learning on courses (Laurillard, 2002; Salmon, 2000). Negotiated agreements, between teachers and learners, concerning the ordering and timing of course elements must be clearly communicated in course timetables and assignment deadlines. Furthermore, explicit expectations and guidelines encourage and motivate learners to make the most effective use of time and enable teachers to facilitate effective time management (Clarke, 2004). As the e-learning environment imposes more self-regulated learning responsibilities on the student than they may have previously experienced, there is need for personal learning structures that ensure productivity and reduce stress (Clarke, 2004).

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.

Table L9-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **Students are provided prior to enrolment with details of the workload and time commitment required for course activities.** |
| ☐ *Course descriptions available prior to enrolment do not contain any information for students on the workload and time commitment required for course activities.* |
| ☐ *Course descriptions available prior to enrolment contain outdated, incomplete or informal information for students on the workload and time commitment required for course activities.* |
| ☐ *Course descriptions available prior to enrolment contain information for students on the workload and time commitment required for course activities in a format which is unnecessarily inconsistent or varies between different courses.* |
| ■ *Course descriptions available prior to enrolment contain consistent and explicit information for students on the workload and time commitment required for course activities.* |
| **Deadline and timing information provided as part of the descriptions of course activities.** |
| ☐ *Course activity descriptions do not contain any timing and deadline information.* |
| ☐ *Course activity descriptions contain outdated, incomplete or informal timing and deadline information.* |
| ☐ *Course activity descriptions contain timing and deadline information that fail to link the supplied information consistently with overall course deadline and timing information.* |
| ■ *Course activity descriptions contain consistent and interlinked timing and deadline information linked explicitly to the course timetable for key activities and associated deadlines.* |
| **The relationships between course activities are explicit and logical.** |
| ☐ *No apparent relationship between the course activities.* |
| ☐ *Relationships between activities such as assessment and other course elements are informal, implied or weak.* |
| ☐ *Relationships between activities such as assessment and other course elements are logical, but inconsistently or incompletely described in the course materials.* |
| ■ *Relationships between activities such as assessment and other course elements are logical and clearly described in the course materials.* |
| Deadline and timing information repeated throughout course documentation. |
| ☐ *Course documentation does not contain any timing and deadline information.* |
| ☐ *Course documentation lists deadline and timing information in one place or information is repeated incompletely.* |
| ☐ *Course documentation lists deadline and timing information in multiple places using unnecessarily different language or detail, or without cross-referencing the supplied information.* |
| ■ *Course documentation lists deadline and timing information in multiple places consistently and with references between the separate pieces of information and an overall plan for the course.* |
| Students are provided with regular reminders of upcoming deadlines. |
| ☐ *No reminders of upcoming deadlines provided to students.* |
| ☐ *Reminders of upcoming deadlines are provided informally or inconsistently, or only to some students.* |
| ☐ *Students are provided with generic reminders, or reminders only for major deadlines, or reminders are provided only through a subset of the communication channels in use.* |
| ■ *Students are provided with detailed reminders throughout the course both of key deadlines but also of intermediate milestones, the reminders are communicated through the full set of communication channels in use.* |

L9

## Planning

**Course documentation provides a timetable for key activities and associated deadlines.**

- ☐ *Course outlines and descriptions do not contain any timetable for key activities or communication of deadlines.*
- ☐ *Course outlines and descriptions contain outdated, incomplete or informal timetables for key activities and/or communication of deadlines.*
- ☐ *Course outlines and descriptions contain timetables for key activities or communication of deadlines that fail to link the supplied information consistently or timetabling and deadline information is unnecessarily inconsistent or different in different courses.*
- ☐ *Course outlines and descriptions contain consistent and interlinked information on the timetable for key activities and associated deadlines.*

**The extent and timing of e-learning activities is guided by student workload information.**

- ☐ *No evidence of student workload assessments or consideration in e-learning design and (re)development processes.*
- ☐ *Informal or inconsistent consideration of student workload in e-learning design and (re)development processes.*
- ☐ *Assessment of student workload implications apparent in e-learning design and (re)development processes for most, but not all courses or for only some aspects of courses.*
- ☐ *Formal and systematic assessment of student workload apparent in e-learning design and (re)development processes for all courses.*

**Course documentation provides an explicit process for negotiating variances to timetables and deadlines.**

- ☐ *Course outlines and descriptions do not contain any information on the process for negotiating variances to timetables and deadlines.*
- ☐ *Course outlines and descriptions contain outdated, incomplete or informal information on the process for negotiating variances to timetables and deadlines.*
- ☐ *Course outlines and descriptions contain information on the process for negotiating variances to timetables and deadlines which is unnecessarily inconsistent or varies between different courses.*
- ☐ *Course outlines and descriptions contain consistent and explicit information on the process for negotiating variances to timetables and deadlines.*

Students are provided with support in developing time management skills.

- ☐ *No support provided to students to assist them in developing time management skills.*
- ☐ *Incomplete, outdated or informal support provided to students to assist them in managing their time effectively.*
- ☐ *Support is provided to students to assist them in managing their time effectively, but support is not actively promoted or provided to all students.*
- ☐ *Support is provided to all students to assist them in managing their time effectively and use of the support facilities actively promoted.*

## Definition

**Institutional policies define expectations for student workloads within courses.**

- ☐ *No policies or standards for course workloads expectations of students available.*
- ☐ *Policies and standards for course workloads provided for informational use but impose no minimum or maximum workload expectations of students.*
- ☐ *Policies and standards for course workloads provided with minimum and/or maximum workload expectations of students but compliance by e-learning courses incomplete or not enforced.*
- ☐ *Policies and standards for course workloads provided with minimum and/or maximum workload expectations of students and compliance with the requirements enforced in all e-learning courses.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on designing effective timetabling and workload schemes.**

- ☐ *No training provided to teaching staff on designing and using effective timetabling and workload schemes.*
- ☐ *Limited or non-specific training on designing and using effective timetabling and workload schemes provided for the optional use of staff.*
- ☐ *Detailed and specific training on designing and using effective timetabling and workload schemes provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training on designing and using effective timetabling and workload schemes provided to all teaching staff with the requirement that they be used prior to designing, (re)developing or delivering courses.*

Institutional policies require the clear communication to students of deadlines and timetables.

- ☐ *No policy requirement for communication to students of deadlines and timetables.*
- ☐ *Policies require limited information on deadlines and timetables or suggest that deadlines and timetables be optionally supplied.*
- ☐ *Policies require communication to students of deadlines and timetables but do not specify a consistent formal statement.*
- ☐ *Clear, formal, policy requirement for communication to students of deadlines and timetables in course documentation in a consistent manner.*

## Management

**Student workload information is regularly monitored.**

- ☐ *No monitoring of course workload expectations on students in e-learning courses.*
- ☐ *Limited, inconsistent or informal monitoring of student workloads.*
- ☐ *Formal, independent, monitoring of student workloads in e-learning courses undertaken incompletely or irregularly.*
- ☐ *Formal, independent, monitoring of student workloads in e-learning courses.*

**Feedback collected regularly from students regarding the effectiveness of the timetables and deadlines.**

- ☐ *No feedback collected from students on the effectiveness of the timetable and deadline information provided.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected on only some of the timetable and deadline information provided, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on timetable and deadline information provided but not from all courses or collected irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback collected and reported regularly from all courses on the effectiveness of the timetable and deadline information provided.*

**Feedback collected regularly from staff regarding the effectiveness of the timetables and deadlines.**

- ☐ *No feedback collected from staff on the effectiveness of the timetable and deadline information provided.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected on only some of the timetable and deadline information provided, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on timetable and deadline information provided but not from all staff involved in course delivery or collected irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback collected and reported regularly on the effectiveness of the timetable and deadline information provided.*

Compliance with policies, standards and guidelines governing the timetabling of learning activities is regularly monitored.

- ☐ *No monitoring of the compliance of the timetabling of learning activities with institutional policies.*
- ☐ *Limited, inconsistent or informal monitoring of the compliance of the timetabling of learning activities with institutional policies, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the compliance of the timetabling of learning activities with institutional policies conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of the compliance of the timetabling of learning activities with institutional policies.*

## Optimisation

**Information on the workload and timetabling implications of learning activities guides e-learning design and (re)development.**

- ☐ *No use of information on the workload and timetabling implications of learning activities during e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of information on the workload and timetabling implications of learning activities during e-learning design and (re)development.*
- ☐ *Information on the workload and timetabling implications of learning activities explicitly guides e-learning design and (re)development, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ☐ *Information on the workload and timetabling implications of learning activities explicitly guides e-learning design and (re)development and is formally linked to design decisions.*

Information on student workloads and timetable constraints guides e-learning strategic planning.

- ☐ *No use of information on student workloads and timetable constraints during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on student workloads and timetable constraints during institutional e-learning strategic planning.*
- ☐ *Information on student workloads and timetable constraints explicitly guides institutional e-learning strategic planning, but is treated as subordinate to technical goals, or not linked to strategy decisions.*
- ☐ *Information on student workloads and timetable constraints explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

**Table L9-1**: Descriptions of process practices by capability dimension

# Process L10.

*Courses are designed to support diverse learning styles and learner capabilities*

## Process Background

Support for diverse student needs is becoming a mandatory requirement for quality education programmes. Diversity refers to capabilities, disabilities, and styles of learning that must be considered in providing for and supporting teaching and learning (Ragan, 1999; Salmon, 2000). Sensitivity to diversity means respecting 'values, orientations, learning styles, language factors, and traditions of learning from diverse cultural and ethnic backgrounds, as well as…special educational needs' (Reeves, 1997, p. 27). Gender is also a factor in diversity, including consideration of home-based learners who have childcare and housekeeping duties (Kramarae, 2003). Age is another significant factor (Witt and McDermott, 2004). Learning styles or preferences when engaging in different learning activities have also been suggested as having value in understanding the diversity of learner capabilities (for example Gardner, 1984; Kolb, 2005).

Learning styles have generally been considered important because of their potential positive impact on all aspects of teaching and learning, both as a means for understanding how students learn and as tools for guiding the design of courses and learning activities. There are tools to assess learning style preferences (Kolb, 2005), and numerous studies that research their effects on learning outcomes. However, the complex, contextual, and conditional nature of learning and learners leads to the view that 'variability in approaches…coexists with consistency' (Ramsden, 2003, p. 51). While some studies report that certain learning styles appear to be better suited to online learning environments (Fahy and Ally, 2005; Terrell, 2002), other researchers dispute learning style effects (Chall, 2000) or find them to be negative (Clark, 2003). There is also evidence that learners can adapt their learning styles to suit the context (Terrell, 2005). Therefore recommendations tend to support the holistic inclusion of all learning styles and types in approaches to e-learning (Chen *et al.*, 2005; Laurillard, 2002; Terrell, 2005; Wang *et al.*, 2001).

A longitudinal study that examined relationships between student age, gender, ethnicity, learning style and their effect on attrition from an online graduate programme found no significant effects of the differentials on outcomes (Terrell, 2005). However, Terrell does discuss possible contributory effects of intrinsic motivation that enables students to adapt their learning style preferences, and 'to balance their preferred learning style with the skills needed to succeed in the online environment' (Discussion ¶. 4). He also suggests consideration of 'the possibility of a change in preferred learning style over time…in order to compensate and adapt to an online learning environment' (Conclusions ¶, 3). In an earlier study, Terrell (2002) reports that students, mostly, can successfully adapt their individual learning styles to suit online learning environments, and, that students with learning styles that favour systematic planning and intellectual understanding are more likely to be successful than those who prefer concrete experiences and interaction (p. 345). The study also confirmed that the type of programme is a reliable predictor of student learning style preference, that is, that a majority of students in a web-based doctoral programme would be Converger or Assimilator types (sharing a preference for higher levels of Abstract Conceptualization) (pp. 350-1).

After examining differences in learning style in relation to online interaction, Fahy and Ally (2005) reported that some learning styles may dispose certain learners (Convergers) to more interactivity, while other learners find interaction unhelpful. They comment that social interaction variability according to learning style may have significant implications for teaching strategies: 'Not only might some participants find online interaction unnecessary to learning, they may…find it inimical' (p. 19). Reporting on a study of learning style changes, learning outcomes, and learner satisfaction, Wang *et al.*, (2001) found '[n]o changes in student learning styles and no significant differences in learning outcomes and learner satisfaction with regard to different learning styles' (p. 75). However, the results suggest that computer-supported collaborative learning environments support diverse learning styles (p. 75). Generally, the literature supports the view that learning styles are helpful for understanding the different approaches that students bring to their learning, and, that effective and successful e-learning incorporates all learning styles and approaches.

Noting that, in the US, women comprise the majority of undergraduate students, and online students, Kramarae (2003) raises the issue of gender equity and comments: 'Women in online education have the paradoxical experience of being simultaneously invisible—even while they are the core constituency of distance learning' (p. 270). Kramarae identifies three significant matters for women: Firstly, the psychological and organisational pressures on women students returning to study after interrupting their education to fulfil and maintain family responsibilities; secondly, the unacknowledged differences in discussion and communication approaches preferred by women; and thirdly, that women may not have economic control over access to technical resources needed for participation in e-learning. Kramarae argues that more research is necessary to ensure women's inclusive equity with men in the online environment.

## Practices

Inclusion of diversity is the coherent and consistent theme throughout the research literature, regarding both accessibility and learning preferences. Inclusivity underpins the argument that efforts to improve accessibility and ways of learning for some benefit all. Being inclusive requires respecting capabilities, disabilities, and styles of learning (Ragan, 1999; Salmon, 2000). As well, it requires respecting values, orientations, language factors, cultural and ethnic traditions, and the special requirements of learners (Reeves, 1997). Inclusivity involves issues of gender (Kramarae, 2003) and age (Witt and McDermott, 2004). Overall, the consideration of inclusive design benefits all learners (Kinash *et al.*, 2004; Witt and McDermott, 2004).

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.

Table L10-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **Students told of diversity support mechanisms and encouraged to make use of the provided alternatives.** |
| ☐ *No information provided to students on the measures undertaken to support diversity.* |
| ☐ *Inconsistent or informal information provided to students on the measures undertaken to support diversity without any encouragement or promotion of alternatives.* |
| ☐ *Information provided to students on the measures undertaken to support diversity but use of the material not promoted or consistently referenced.* |
| ■ *Information provided to students on the measures undertaken to support diversity formally and consistent references made to these materials throughout core course materials encouraging their use.* |
| Consistent use of a variety of teaching and learning activities in courses. **See also**: D4(1) |
| ☐ *No evidence of consistent use of a variety of teaching and learning activities in courses.* |
| ☐ *Limited variety in course teaching and learning activities proscribed by the use of particular learning management systems.* |
| ☐ *A variety of teaching and learning activities used in courses without communication to students of the logic guiding the range of activities, or with varied activities requiring face to face contact.* |
| ■ *A variety of teaching and learning activities available to all students and consistently linked throughout the course with the underlying rationale formally and explicitly communicated to students during delivery.* |
| Consistent use of a variety of media in courses. **See also**: D4(1) |
| ☐ *No evidence of consistent use of a variety of media in courses.* |
| ☐ *Limited variety in course media proscribed by the use of particular learning management systems.* |
| ☐ *A variety of media used in courses without communication to students of the logic guiding the range of media, or with access to varied media requiring face to face contact or the use of specialised systems not generally available to students.* |
| ■ *A variety of media available to all students and consistently linked throughout the course with the underlying rationale formally and explicitly communicated to students during delivery.* |

L10

Course documentation and activities avoid inappropriate bias and stereotypes.

- ☐ *Course documentation or activities contains inappropriate bias or stereotypes.*
- ☐ *Course documentation or activities contain outdated, incomplete or misleading information about particular groups of students.*
- ☐ *Course documentation and activities formally, but generically, provide information for or about particular groups of students.*
- ■ *Course documentation and activities contain up to date information for or about particular groups of students, adapted for the needs of the course and the current students, that avoids inappropriate bias and stereotypes.*

## Planning

**Course documentation provides the procedure to follow if course elements fail to meet individual student needs.**

**See also**: D4(2)

- ☐ *Course outlines and descriptions do not contain any information for students on the procedure to follow if course elements fail to meet their needs.*
- ☐ *Course outlines and descriptions contain outdated, incomplete or informal information for students on the procedure to follow if course elements fail to meet their needs.*
- ☐ *Course outlines and descriptions contain information for students on the procedure to follow if course elements fail to meet their needs which is unnecessarily inconsistent or different in different courses.*
- ■ *Course outlines and descriptions contain consistent and explicit information for students on the procedure to follow if course elements fail to meet their needs.*

**Teaching staff provided with e-learning design and (re)development assistance that encourages and supports diversity.**

- ☐ *No assistance on student learning diversity issues and requirements provided to teaching staff on using e-learning technologies and pedagogies.*
- ☐ *Limited or non-specific assistance on student learning diversity issues and requirements provided for the optional use of staff.*
- ☐ *Formal and explicit assistance on student learning diversity issues and requirements provided but use is optional and not actively encouraged and promoted.*
- ■ *Assistance on student learning diversity issues and requirements provided to all teaching staff with the requirement that it be used when designing or (re)developing courses.*

**E–learning design and (re)development procedures include formal testing and review of diversity support with student participants.**

- ☐ *No review and testing of diversity support undertaken during e-learning design and (re)development processes.*
- ☐ *Informal or incomplete review and testing of diversity support undertaken during e-learning design and (re)development processes and/or without the involvement of student participants.*
- ☐ *Formal review and testing of diversity support undertaken during e-learning design and (re)development processes with compliance to minimum expectations optional or not required and/or minimal student involvement.*
- ■ *Formal review and testing of diversity support undertaken during e-learning design and (re)development processes with compliance to minimum expectations and student involvement required formally by processes.*

E–learning design and (re)development procedures require the use of a variety of media and activities.

- ☐ *No requirement in e-learning design and (re)development procedures that a variety of media and activities be used.*
- ☐ *E–learning design and (re)development procedures encourage the use of a variety of media and activities.*
- ☐ *E–learning design and (re)development procedures require the use of a variety of media and activities, however compliance incomplete or not enforced.*
- ■ *E–learning design and (re)development procedures require the use of a variety of media and activities and compliance with the requirements enforced.*

Institutional reviews monitor student diversity support.

- ☐ *No review of student diversity support.*
- ☐ *Inconsistent or informal monitoring of student diversity support during institutional reviews.*
- ☐ *Institutional reviews consider the effectiveness of some, but not all student diversity support facilities.*
- ■ *Institutional reviews formally and systematically address the effectiveness of the student diversity support.*

Students are provided with explicit diversity support facilities.

- ☐ *Diversity support services are not provided.*
- ☐ *Access to diversity support services for students engaged in e-learning is informal and/or a consequence of services intended for face to face provision or other uses.*
- ☐ *Diversity support services for students engaged in e-learning are formally provided but missing key functions and/or not actively promoted to students.*
- ■ *Diversity support services for students engaged in e-learning include the full range of available services for all students and are actively promoted throughout course materials in association with assessment and learning activities.*

E-learning design and (re)development activities are guided by a researched evidence base of diversity issues and requirements.

- ☐ *No use of research evidence on diversity issues and requirements during e-learning design and development.*
- ☐ *Inconsistent or informal incorporation of research evidence on diversity issues and requirements during e-learning design and development.*
- ☐ *Research evidence on diversity issues and requirements guides most, but not all, e-learning design and development projects, or research is not kept in an shared evidence base for reuse in different projects or provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *E-learning design and development activities are formally and explicitly linked to a shared research evidence base of diversity issues and requirements with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

## Definition

**Diversity policies, standards and guidelines are provided to all staff and students.**

- ☐ *No policies, standards or guidelines on diversity provided to staff or students designing and participating within e-learning courses.*
- ☐ *Policies, standards and guidelines on diversity optionally provided to staff or students designing and participating within e-learning courses or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards and guidelines on diversity optionally provided to staff or students designing and participating within e-learning courses and compliance to mandatory minimum requirements defined, however, compliance incomplete or not required.*
- ■ *Policies, standards and guidelines on diversity provided to staff or students designing and participating within e-learning courses and compliance to mandatory minimum requirements required.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on supporting student diversity when designing, (re)developing and delivering e-learning courses.**

- ☐ *No training, guidelines or examples provided to staff on supporting student diversity.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all staff with the requirement that they be used prior to designing, (re)developing, delivering or supporting courses.*

Institutional policies prohibit the use of inappropriate cultural bias and stereotypes.

- ☐ *No policies prohibit the use of inappropriate cultural bias and stereotypes.*
- ☐ *Policies discourage the use of inappropriate cultural bias and stereotypes, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for the avoidance of inappropriate cultural bias and stereotypes, however compliance not enforced.*
- ■ *Policies, standards or guidelines define mandatory minimum requirements for the avoidance of inappropriate cultural bias and stereotypes with compliance enforced.*

Student diversity explicitly addressed in institutional e-learning strategies.

- ☐ *No inclusion of student diversity in relevant institutional e-learning strategies.*
- ☐ *Incomplete or informal inclusion of student diversity in relevant institutional e-learning strategies.*
- ☐ *Institutional e-learning strategies address student diversity however inclusion is unnecessarily inconsistent between documents or outdated or fails to include all of the technologies in use.*
- ■ *Institutional e-learning strategies formally and systematically address student diversity.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of diversity issues and requirements.

- ☐ *No researched evidence base of diversity issues and requirements provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting the diversity issues and requirements.*
- ☐ *Research evidence base of diversity issues and requirements provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *Research evidence base of diversity issues and requirements with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

## Management

**Compliance with policies, standards and guidelines governing diversity in e-learning courses is regularly monitored.**

- ☐ *No monitoring of e-learning courses to ensure student learning diversity policy requirements are being met.*
- ☐ *Informal or incomplete monitoring of e-learning courses to ensure student learning diversity policy requirements being met.*
- ☐ *Formal monitoring of e-learning courses to ensure student learning diversity policy requirements being met but compliance with relevant institutional policies, standards and guidelines treated as optional or not required.*
- ■ *Formal reviews of e-learning courses to ensure student learning diversity policy requirements being met, with compliance to institutional policies, standards and guidelines required.*

**Feedback collected regularly from students regarding the effectiveness of the e-learning tasks and activities in supporting diversity.**

- ☐ *No feedback collected from students on the effectiveness of the provided e-learning tasks and activities in supporting their learning style and personal capabilities.*
- ☐ *Limited, inconsistent or informal student feedback on the effectiveness of the provided e-learning tasks and activities in supporting their learning style and personal capabilities, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on the effectiveness of the provided e-learning tasks and activities in supporting their learning style and personal capabilities but not from all e-learning tasks and activities provided or not collected and reported regularly from all e-learning courses.*
- ■ *Formal, independent, student feedback on all of the on the effectiveness of the provided e-learning tasks and activities in supporting their learning style and personal capabilities collected regularly from all e-learning courses and reported regularly.*

**Feedback collected regularly from staff regarding the effectiveness of the e-learning tasks and activities in supporting diversity.**

- ☐ *No feedback collected from staff on the effectiveness of the provided e-learning tasks and activities in supporting student learning styles and personal capabilities.*
- ☐ *Limited, inconsistent or informal staff feedback on the effectiveness of the provided e-learning tasks and activities in supporting student learning styles and personal capabilities collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on the effectiveness of the provided e-learning tasks and activities in supporting student learning styles and personal capabilities but not from all e-learning tasks and activities provided or not collected and reported regularly from all staff involved in the delivery of e-learning courses.*
- ■ *Formal, independent, staff feedback on the effectiveness of the provided e-learning tasks and activities in supporting student learning styles and personal capabilities collected regularly from all staff using the facilities and reported regularly.*

Performance of students with diverse backgrounds and capabilities is regularly monitored.

- ☐ *No monitoring of student performance.*
- ☐ *Limited, inconsistent or informal monitoring of student performance, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of student performance conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and reporting of student performance.*

Financial costs and benefits of diversity support facilities are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of diversity support facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of diversity support facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of diversity support facilities, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of diversity support facilities.*

## Optimisation

**Information on the effectiveness of diversity support is used to guide e-learning initiative planning.**

- ☐ *No use of information on the effectiveness with which courses are providing support for diversity during e-learning initiative planning.*
- ☐ *Informal and inconsistent use of information on the effectiveness with which courses are providing support for diversity during institutional e-learning initiative planning activities.*
- ☐ *Information on the effectiveness with which courses are providing support for diversity explicitly guides institutional e-learning initiative planning, but is treated as subordinate to technical goals, or not linked to planning decisions.*
- ■ *Information on the effectiveness with which courses are providing support for diversity explicitly guides institutional e-learning initiative planning and is formally linked to planning decisions.*

**Diversity requirements guide the selection and implementation of new technologies for e-learning.**

- ☐ *No student learning diversity requirements provided to staff involved in e-learning technology selection and deployment.*
- ☐ *Student learning diversity requirements informally or inconsistently provided to staff involved in e-learning technology selection and deployment or fail to impose mandatory minimum requirements.*
- ☐ *Student learning diversity requirements optionally provided to staff involved in e-learning technology selection and deployment, with compliance to mandatory minimum requirements defined, however, compliance incomplete or not required.*
- ■ *Student learning diversity requirements formally and explicitly provided to staff involved in e-learning technology selection and deployment with compliance to mandatory minimum requirements required and formally included in the institutional processes.*

Information on the extent of diversity support is used to guide e-learning initiative planning.

- ☐ *No use of information on the extent to which courses are providing support for diversity during e-learning initiative planning.*
- ☐ *Informal and inconsistent use of information on the extent to which courses are providing support for diversity during institutional e-learning initiative planning activities.*
- ☐ *Information on the extent to which courses are providing support for diversity explicitly guides institutional e-learning initiative planning, but is treated as subordinate to technical goals, or not linked to planning decisions.*
- ■ *Information on the extent to which courses are providing support for diversity explicitly guides institutional e-learning initiative planning and is formally linked to planning decisions.*

**Table L10-1**: Descriptions of process practices by capability dimension

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

The goal of this process area is efficient and effective use of resources in the creation and maintenance of e-learning infrastructure, materials and courses. The individual processes are directed at informing the development of resources and infrastructure and ensuring that this is done in a way that builds capability based on experience and success of e-learning deployment in the institution.

| **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 by e-learning procedures and standards |
| D3. | An explicit plan links e-learning technology, pedagogy and content used in courses |
| 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. | E-learning resources are designed and managed to maximise reuse |

**Table 3:** eMM Version Two *Development* Processes

# Process D1.

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



## Process Background

Teaching staff are generally not familiar with the extensive literature and techniques of course design and development available to improve student learning outcomes. Support provided to teaching staff in effective learning design is vital if courses are to develop pedagogical approaches that reflect the state of current understanding, as opposed to traditional approaches (Ragan, 1999). By working with pedagogical experts teaching staff can be encouraged to consider pedagogies that may make more effective use of available technology or, alternatively, technologies that enable particularly effective pedagogical approaches that they may not have considered (Wingard, 2004).

The proliferation of technologies used in modern e-learning mean that it is almost impossible for any one person to be expert in all of them, particularly when they are employed to be expert in something entirely different. Provision of expert technical assistance is vital if institutions are to move away from ad-hoc developments and encourage the effective use of technology by staff (Butler and Sellborn, 2002). Use of experts greatly increases the likelihood that materials will be developed to support standards and will be designed for maintenance and reuse. Experts are also more likely to ensure that materials are designed with accessibility and flexibility in mind.

Teaching staff are generally more familiar with traditional approaches than with those enabled by e-learning technology and thus need training and support if they are to be effective with new technologies and the associated pedagogies (Buckley, 2002). Experience has shown that old approaches rarely make good use of technology - as demonstrated, for example, by the initially poor results from the use of classroom feedback systems without changes in classroom practice (Judson and Sawada, 2002).

A renaissance view of e-learning accompanies much of the literature that describes its potential. However, much less is written about its practice (Salmon, 2000). Unfamiliarity of teaching staff with e-learning processes and practices inhibits their preparedness to adopt and adapt to the new environment. While there is debate over the implications and impacts of organisational and pedagogic change that e-learning involves, there is resistance to it (de Freitas and Oliver, 2005, p. 93). Because technology environments can appear to provide user friendly interfaces for communication, interaction, and teaching-learning resource development, they can also inadvertently permit the transfer of poor practices. Staff must be not only trained and supported to develop strong computer, information literacy and management skills, but must also acquire relevant and appropriate pedagogical knowledge and skills, and, apply an informed critical perspective to using the knowledge and skills (Weaver, 2006).

In explaining the design of effective organisational infrastructure for e-learning Laurillard (2002) notes that, as prodigious technology use is not matched by understandings of it, prescriptive guidelines are ineffective. Rather, there is need for a systemic responsive-adaptive approach to 'this new organism. The biological metaphor is apt. The academic system has to learn, has to be able to respond to its environment…the higher education system needs a more robustly adaptive mechanism than it has had to develop hitherto' (p. 214). Laurillard emphasises six areas of academic management to address the considerable organisational logistics accompanying change, these are: 1. optimise the deployment of staff resources, 2. optimise the organisation of teaching, 3. encourage use of good materials developed elsewhere, 4. establish a programme of staff development, 5. set up multi-skilled development areas, 6. set up forum for teachers to discuss ideas, experiences (pp. 225-7).

Learning to adopt, adapt to, and use technology for teaching needs to be encouraged and supported. It is more an evolutionary process than a paradigm shift that can be better accomplished by understanding the personal relevance of tools and how to use them (Clyde and Delohery, 2005).

Executive leadership and commitment is identified as highly significant in enabling the constructive alignment of institutional mission, pedagogical practice and e-learning success (Abel, 2005). Abel specifies key leadership elements as being: long-term commitment, significant financial and resource investment, priority for effective programmes, and clear articulation of institutional e-learning mission (p. 76).

A recent review of e-learning's implications for higher education pedagogy and policy (Picciano, 2006) notes that e-learning is not a singularity; it is so multi-variant that 'students might not recognise any similarities in its use by different instructors in the same college' (p. 77). However, Picciano identifies three important pedagogical elements: instructional planning using course management systems (CMS); interactivity; and, reflective teaching. A CMS is useful for designing resources and for organising teaching delivery, learning assessment, and record management, provided the teacher understands its value as a flexible, facilitative tool. Online interaction is both innovative and problematic. Although it can innovatively motivate and enhance interaction by documenting exchanges and extending their timeliness, it can also engender feelings of alienation. Its effective use is carefully and thoughtfully managed. Reflective teaching concerns the strategic pacing of learning processes to allow for critical reflection and discussion. The significance of these pedagogical elements lies in their contribution to, rather than difference from, traditions of pedagogical practice. Picciano observes that increasing e-learning experience and expertise is causing teachers to produce new materials rather than modifying existing material. This is also generating greater interest in pedagogy that is benefiting both online and face-to-face learning (p. 84).

With regard to policy issues, Picciano points to various personnel, and intellectual property matters that need on-going attention and negotiation. Operational policy issues include matters such as choices between open system, and competing commercial CMS products; whether to allow single or multi-system implementation; and how to provide technical support. Looking forward, Picciano makes two important observations. Firstly, that the notion of e-learning as a sub-set of distance learning is being overtaken by of 'hybrid' or 'blended' learning concepts that equally apply to on-campus programmes. Secondly, that today's technologically capable graduates are tomorrow's teachers who will work in even more enhanced environments.

## Practices

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.

Table D1-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **Technical design and development assistance available to staff designing and (re)developing courses.** |
| ☐ *No technical e-learning design and development assistance provided.* |
| ☐ *Technical e-learning design and development assistance provided informally and/or inconsistently.* |
| ☐ *Technical e-learning design and development assistance provided formally but only to a minimal or on a generic basis.* |
| ☐ *Technical e-learning design and development assistance provided formally with extent of provision and availability determined by the needs of the staff and the requirements of the particular initiative.* |
| **Planning** |
| **Technical design and development support is formally scheduled during e-learning design and development.** |
| **See also**: D2(2) & S5(2) |
| ☐ *No assistance in e-learning course development provided.* |
| ☐ *Assistance in e-learning course development allocated and planned informally and/or inconsistently.* |
| ☐ *Course e-learning design and (re)development plans include allocation of assistance in e-learning course development as a generic and unspecified component.* |
| ☐ *Course e-learning design and (re)development plans include allocation and prioritisation of assistance in e-learning course development with detailed scheduling and timetabling of assistance.* |

**Teaching staff are recognised and rewarded for their engagement with innovative e-learning initiatives.**

**See also**: S5(2), E2(2) & O9(2)

- ☐ *No recognition of individual staff involvement in e-learning initiatives.*
- ▫ *Informal, inconsistent or insignificant recognition of individual staff involvement in e-learning initiatives.*
- ▪ *Formal, but generic or minor, recognition of individual staff involvement in e-learning initiatives.*
- ■ *Formal and significant recognition of individual staff involvement in e-learning initiatives.*

Formal risk assessments of staff e-learning skills and mitigation planning are required by e–learning design and (re)development procedures.

**See also**: D2(2) & S5(2)

- ☐ *No consideration of risks associated with staff e-learning skills undertaken during e-learning design and (re)development processes.*
- ▫ *Informal or incomplete consideration of risks associated with staff e-learning skills undertaken during e-learning design and (re)development processes.*
- ▪ *Formal risk analysis and planning undertaken of staff e-learning skills during e-learning design and (re)development processes with compliance to minimum expectations optional or not required, or no explicit strategies for alternatives defined for staff inexperience or abilities.*
- ■ *Formal risk analysis and planning undertaken of staff e-learning skills during e-learning design and (re)development processes with compliance to minimum expectations required formally by processes and explicit strategies for alternatives defined for staff inexperience and abilities.*

Specialist staff support the use of e-learning design and (re)development procedures.

**See also**: D2(2) & S5(2)

- ☐ *No support for use of e-learning design and (re)development procedures provided.*
- ▫ *Informal or inconsistent support provided for the use of e-learning design and (re)development procedures.*
- ▪ *Support provided for the use of e-learning design and (re)development procedures by non-specialist staff or generically as part of support provided for other activities.*
- ■ *Systematic and formal support provided by specialist staff for the use of e-learning design and (re)development procedures.*

## Definition

**Institutional policies define the support resources and assistance available to teaching staff for e-learning design and (re)development.**

- ☐ *No policies or standards govern the support resources and assistance available to teaching staff (re)developing courses.*
- ▫ *Policies and standards governing the support resources and assistance available to teaching staff (re)developing courses fail to impose mandatory minimum requirements or expectations on staff or the institution.*
- ▪ *Policies and standards governing the support resources and assistance available to teaching staff (re)developing courses impose mandatory minimum requirements or expectations on staff and the institution however compliance incomplete or not required.*
- ■ *Policies and standards governing the support resources and assistance available to teaching staff (re)developing courses impose mandatory minimum requirements or expectations on staff and the institution and compliance to these is required.*

**Teaching staff are provided with support resources (including training, guidelines and examples) for e-learning design and (re)development.**

**See also**: D2(3)

- ☐ *No training, guidelines or examples provided to teaching staff on using e-learning technologies and pedagogies.*
- ▫ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ▪ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing or (re)developing courses.*

**Teaching staff are provided with project tools (including standard contracts and licenses, checklists and quality assurance procedures) for e-learning design and (re)development.**

**See also**: D2(3), D3(3), D6(3) & S5(3)

- ☐ *No e-learning design and (re)development technical and pedagogical project tools and materials provided.*
- ▫ *E-learning project tools and materials provided that are incomplete, informal or not designed for use by non-specialist staff.*
- ▪ *E-learning project tools and materials provided that are designed for use by non-specialist staff, but fail to cover the range of e-learning technologies and pedagogies in use and/or are not used in all e-learning design and (re)development initiatives.*
- ■ *E-learning project tools and materials provided that are designed for use by non-specialist staff and which cover all of the e-learning technologies and pedagogies in use and are used in all e-learning design and (re)development initiatives.*

Support staff are provided with standards and guidelines covering technical and pedagogical aspects of e-learning design and (re)development.

**See also**: D2(3) & S5(3)

- ☐ *No e-learning design and (re)development technical and pedagogical standards provided.*
- ▫ *Technical and pedagogical standards provided that are incomplete, informal or fail to impose mandatory compliance requirements on staff involved in e-learning design and (re)development initiatives.*
- ▪ *Technical and pedagogical standards provided which define mandatory compliance requirements on staff involved in e-learning design and (re)development initiatives however compliance incomplete or not required.*
- ■ *Technical and pedagogical standards provided which define mandatory compliance requirements on staff involved in e-learning design and (re)development initiatives and compliance required.*

Formal allocation of e-learning technical support is addressed in e-learning design and (re)development procedures.

**See also**: D2(3)

- ☐ *No consideration of e-learning technical support allocation apparent in course e-learning design and (re)development activities.*
- ☐ *Informal or inconsistent consideration of e-learning technical support allocation apparent in course e-learning design and (re)development activities.*
- ☐ *Formal consideration of e-learning technical support allocation apparent in most, but not all, course e-learning design and (re)development activities, or consideration is subordinate to business concerns.*
- ☐ *Formal consideration of e-learning technical support allocation required in all course e-learning design and (re)development projects with business concerns treated equally or subordinate.*

Pedagogical issues are formally addressed in e-learning design and (re)development procedures.

**See also**: D2(3) & S5(3)

- ☐ *No consideration of pedagogical issues apparent in course e-learning design and (re)development activities.*
- ☐ *Informal or inconsistent consideration of pedagogical issues apparent in course e-learning design and (re)development activities.*
- ☐ *Formal consideration of pedagogical issues apparent in most, but not all, course e-learning design and (re)development activities, or consideration is subordinate to business and technical concerns.*
- ☐ *Formal consideration of pedagogical issues required in all course e-learning design and (re)development projects with business and technical concerns treated equally or subordinate.*

Licensing and use of intellectual property is formally addressed in e-learning design and (re)development procedures.

- ☐ *No consideration of intellectual property issues apparent in course e-learning design and (re)development activities.*
- ☐ *Informal or inconsistent consideration of intellectual property issues apparent in course e-learning design and (re)development activities.*
- ☐ *Formal consideration of intellectual property issues apparent in most, but not all, course e-learning design and (re)development activities.*
- ☐ *Formal consideration of intellectual property issues required in all course e-learning design and (re)development projects.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L6(3), L7(3), D2(3), D3(3), D7(3), S5(3), S6(3), O1(3), O3(3), O4(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Staff technical support requirements are formally addressed in e-learning technology purchase procedures.

**See also**: D2(3), S5(3) & S6(3)

- ☐ *No consideration of staff technical support issues apparent in course e-learning technology purchase activities and procedures.*
- ☐ *Informal or inconsistent consideration of staff technical support issues apparent in technology purchase activities.*
- ☐ *Formal consideration of staff technical support issues required in technology purchase procedures but not referenced in purchase decisions.*
- ☐ *Formal consideration of staff technical support issues required in technology purchase procedures and explicitly referenced in purchase decisions.*

## Management

**Staff use of templates, project supporting materials and quality assurance procedures during e-learning design and (re)development is regularly monitored.**

- ☐ *No monitoring of the use of the templates, project supporting materials and quality assurance procedures.*
- ☐ *Limited, inconsistent or informal monitoring of the use of templates, project supporting materials and quality assurance procedures collected, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the use of templates, project supporting materials and quality assurance procedures conducted irregularly or only covers some of materials, or reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring of the use of templates, project supporting materials and quality assurance procedures.*

**E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.**

**See also**: L1(4), L7(4), L8(4), D2(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ☐ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

**Feedback collected regularly from staff regarding the effectiveness of the e-learning design and development support.**

- ☐ *No feedback collected from staff on the effectiveness of the e-learning design and development support.*
- ☐ *Limited, inconsistent or informal staff feedback collected on the effectiveness of the e-learning design and development support, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all e-learning design and development support, or not collected regularly from all staff using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on all of the e-learning design and development support collected regularly from all staff using the facilities and reported regularly.*

Teaching staff use of e-learning technical support is regularly monitored.

- ☐ *No monitoring of the demand for and effectiveness of the e-learning technical support provided to teaching staff.*
- ☐ *Limited, inconsistent or informal monitoring of the demand for and effectiveness of the e-learning technical support provided to teaching staff collected, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the demand for and effectiveness of the e-learning technical support provided to teaching staff collected, but reported incompletely or irregularly.*
- ■ *Formal, independent, and regular collection and reporting of the demand for and effectiveness of the e-learning technical support provided to teaching staff.*

Teaching staff use of pedagogical support and assistance is regularly monitored.

**See also**: S5(4) & S6(4)

- ☐ *No monitoring of the demand for and effectiveness of the pedagogical support provided to teaching staff.*
- ☐ *Limited, inconsistent or informal monitoring of the demand for and effectiveness of the pedagogical support provided to teaching staff collected, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the demand for and effectiveness of the pedagogical support provided to teaching staff collected, but reported incompletely or irregularly.*
- ■ *Formal, independent, and regular collection and reporting of the demand for and effectiveness of the pedagogical support provided to teaching staff.*

Effectiveness of e-learning pedagogies are regularly monitored.

- ☐ *No monitoring of the use and effectiveness of e-learning pedagogies.*
- ☐ *Limited, inconsistent or informal monitoring of the use and effectiveness of e-learning pedagogies, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the use and effectiveness of e-learning pedagogies, but reported incompletely or irregularly.*
- ■ *Formal, independent, and regular collection and reporting of the use and effectiveness of e-learning pedagogies.*

Financial costs and benefits of e-learning support facilities are regularly monitored.

**See also**: L3(4) & S1(4)

- ☐ *No monitoring of the financial costs and benefits of e-learning support facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning support facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning support facilities, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning support facilities.*

Overlap and duplication of e-learning support is regularly assessed.

**See also**: D2(4), S5(4), S6(4), O1(4), O3(4), O5(4) & O9(4)

- ☐ *No assessment or review of e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ■ *Formal and systematic assessment and review of overlap and duplication in e-learning support facilities undertaken regularly.*

## Optimisation

**Information on the effectiveness of design and development support guides the strategic and operational planning of e-learning.**

**See also**: D3(5) & S5(5)

- ☐ *No use of information on the effectiveness of design and development support during institutional e-learning strategic and operational planning.*
- ☐ *Informal and inconsistent use of information on the effectiveness of design and development support during institutional e-learning strategic and operational planning.*
- ☐ *Information on the effectiveness of design and development support explicitly guides institutional e-learning strategic and operational planning, but is treated as subordinate to technical goals, or not linked to specific decisions.*
- ■ *Information on the effectiveness of design and development support explicitly guides institutional e-learning strategic and operational planning and is formally linked to specific decisions.*

Formal assessment of teaching staff e-learning skills guides the resourcing of e-learning support.

**See also**: D3(5)

- ☐ *No assessment of teaching staff skills with e-learning technology and pedagogies apparent in support resource allocation decisions.*
- ☐ *Limited, informal or inconsistent assessment of teaching staff skills with e-learning technology and pedagogies apparent in support resource allocation decisions.*
- ☐ *Assessment of teaching staff skills with e-learning technology and pedagogies effectively is undertaken formally but the information is only used in a generic manner to guide support resource allocation decisions..*
- ■ *Assessment of teaching staff skills with e-learning technology and pedagogies effectively is undertaken formally and the results systematically incorporated into support resource allocation decisions.*

Information on the effectiveness of e-learning technologies and pedagogies guides the resourcing of e-learning support.

**See also**: D3(5)

- ☐ *No information on the effectiveness of e-learning technologies and pedagogies apparent in support resource allocation decisions.*
- ☐ *Limited, informal or inconsistent use of information on the effectiveness of e-learning technologies and pedagogies apparent in support resource allocation decisions.*
- ☐ *Information on the effectiveness of e-learning technologies and pedagogies used in a generic manner to guide support resource allocation decisions.*
- ■ *Information on the effectiveness of e-learning technologies and pedagogies systematically incorporated into support resource allocation decisions.*

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| E-learning technology deployment procedures formally address the resourcing of e-learning support.<br>**See also**: D3(5) & S5(3) |
| ☐ *No consideration of e-learning support issues apparent in e-learning technology deployment activities and procedures.* |
| ☐ *Informal or inconsistent consideration of e-learning support issues apparent in e-learning technology deployment activities and procedures.* |
| ☐ *Formal consideration of e-learning support issues required in e-learning technology deployment procedures but not referenced in deployment project plans and decisions.* |
| ☐ *Formal consideration of e-learning support issues required in e-learning technology deployment procedures and explicitly referenced in deployment project plans and decisions.* |
| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing staff e-learning technology use and support needs.<br>**See also**: D3(5), S5(5) & O4(5) |
| ☐ *No consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ☐ *Formal and systematic consideration of current staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.* |

**Table D1-1**: Descriptions of process practices by capability dimension

## Process D2.

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



### Process Background

Ad-hoc development of resources has resulted in the proliferation of a variety of materials designed to support student learning. Many of these are developed without consideration of how they appear to students moving from course to course, how they can be reused over time, or how to learn from the experience of others in developing effective materials. Standards and guidelines can support more effective practice (Marshall, 2004) and their use can result in cheaper, more useful materials to support student learning.

There is general agreement that institution-wide successful implementation of effective e-learning depends on explicit institutional procedures and standards. There are, however, differing views on what constitutes 'success' and how institutional procedures and standards are promulgated and managed. As 'success' is mainly subjective its achievement is a matter of interested perception. Then, there is tension between central and local interests that, on one hand, pre-suppose a need for strong centralised management for institution-wide e-learning implementation, and on the other expect localised pedagogical independence for educational professionals (SURF Foundation, 2006). But, as Agre (2002) argues, decentralisation is not a simple thing, it 'requires a framework of standards, and standards require a center' (p. 163).

In another view, a top-down managerialist model that imposes structure and strategy over ICT implementation is contrasted with a bottom-up model that integrates individual roles and skills with process management to build core competencies that support ICT (Coen *et al.*, 2004). However, the consensus is that there is no single success formula, and that central and local, and top-down and bottom-up models need to function concurrently. Rather, cooperation and collaboration that works to build and support implementation of e-learning is preferred. Schauer *et al.* (2005) discuss a collaborative approach to implementation issues that brings administration, teaching, and learning together and recognizes how interactive and responsive processes contribute to a supportive and effective e-learning environment. They note that teachers cannot develop new skills and redesign courses without financial and organizational support from administration. But neither can administrators develop and maintain effective policy without input and feedback from teachers: 'As decisions are made at the college and central administration levels, the various models faculty are developing in different departments to best deliver their subject matter needs to be considered' (Summary ¶ 1).

Coordination of policy that addresses various sector calls for a systematic approach, or a framework, which needs to identify its concerns. Simonson and Bauck (2003) refer to several models for investigating distance education policy, and they identify seven policy areas that are significant: 1. Academic; 2. Fiscal, geographic, and governance; 3. Faculty; 4. Legal; 5. Student; 6. Technical; 7. Philosophical (p. 418). Although Simonson and Bauck define and elaborate each of these categories, they emphasise the importance of integrated policies that 'seamlessly incorporate the concept of distance delivery' (p. 424). One example of a framework is the TASCOI model (Espejo *et al.*, 1999, cited in Liber, 2005), which concerns transformation, actors, suppliers, customers, owners, and intervenors (p. 43). By identifying the relevant concerns of different departments in each category, potential problems between the departments can be revealed and ways to help manage and resolve issues them can be devised (p. 43). Another example is Khan's (2005) e-learning framework, which he envisions as an octagonal figure comprising pedagogical, technological, interface design, evaluation, management, resource support, ethical, and institutional factors (p. 14). The framework is seen in relation to features and components of e-learning environments, such as ease of use, interactivity, multiple expertise, collaborative learning, authenticity, and learner-control (pp. 11-12). This model is also used to 'identify the critical issues of an e-learning environment, and provide guidance on addressing them' (p.18). Yet another example is the Lifestyle and Learning Style Design Framework, which involves six design levels: institutional, infrastructural, program, course, unit/learning activity, and assessment  This model allows for contributions from a wide range of institutional personnel, but its 'multi-level process keeps the process practical and realistic' (Boettcher, 2004, p. 25).

In a case study that relates e-learning implementation to organisational change, de Freitas and Oliver (2005) found that policy can drive change in both personnel organisation and pedagogic practice, and, that while the implications and impacts of change are being debated and understandings reached, there is resistance to it (p. 93). However, involving parties in collaborative discussion was found to help the change process. de Freitas and Oliver observe that the process 'is not simple or one-way; changed pedagogic practices — and, importantly, attempts to prevent changes to practice — must be taken account of in policies for staff to be willing to engage with them' (p. 94).



## Practices

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.

Table D2-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

### Delivery

**Teaching staff are provided with e-learning design and (re)development standards.**

- ☐ *No e-learning design and (re)development technical and pedagogical standards or procedures provided.*
- ☐ *Technical and pedagogical standards and procedures provided that are incomplete, informal or fail to cover the range of e-learning technologies and pedagogies in use.*
- ☐ *Technical and pedagogical standards and procedures provided that cover most of the e-learning technologies and pedagogies in use and/or are not used in all e-learning design and (re)development initiatives.*
- ☐ *Technical and pedagogical standards and procedures provided that cover most of the e-learning technologies and pedagogies in use and are used in all e-learning design and (re)development initiatives.*

### Planning

**Standards and procedures for changing pedagogies guide e-learning design and (re)development.**

- ☐ *No standards and procedures for changing pedagogies to support e-learning provided.*
- ☐ *Informal or outdated standards and procedures for changing pedagogies to support e-learning are provided.*
- ☐ *Standards and procedures for changing pedagogies to support e-learning provided that do not cover all of the e-learning technologies and pedagogies in use and/or are not used in all e-learning design and (re)development initiatives, or not linked to design decisions.*
- ☐ *Standards and procedures for changing pedagogies to support e-learning are provided covering all of the e-learning technologies and pedagogies in use and these are used in all e-learning design and (re)development initiatives and formally linked to design decisions.*

Technical design and development support is formally scheduled during e-learning design and development.

**See also**: D1(2) & S5(2)

- ☐ *No assistance in e-learning course development provided.*
- ☐ *Assistance in e-learning course development allocated and planned informally and/or inconsistently.*
- ☐ *Course e-learning design and (re)development plans include allocation of assistance in e-learning course development as a generic and unspecified component.*
- ☐ *Course e-learning design and (re)development plans include allocation and prioritisation of assistance in e-learning course development with detailed scheduling and timetabling of assistance.*

Specialist staff support the use of e-learning design and (re)development procedures.

**See also**: D1(2) & S5(2)

- ☐ *No support for use of e-learning design and (re)development procedures provided.*
- ☐ *Informal or inconsistent support provided for the use of e-learning design and (re)development procedures.*
- ☐ *Support provided for the use of e-learning design and (re)development procedures by non-specialist staff or generically as part of support provided for other activities.*
- ☐ *Systematic and formal support provided by specialist staff for the use of e-learning design and (re)development procedures.*

Formal risk assessments of staff e-learning skills and mitigation planning are required by e–learning design and (re)development procedure.

**See also**: D1(2) & S5(2)

- ☐ *No consideration of risks associated with staff e-learning skills undertaken during e-learning design and (re)development processes.*
- ☐ *Informal or incomplete consideration of risks associated with staff e-learning skills undertaken during e-learning design and (re)development processes.*
- ☐ *Formal risk analysis and planning undertaken of staff e-learning skills during e-learning design and (re)development processes with compliance to minimum expectations optional or not required, or no explicit strategies for alternatives defined for staff inexperience or abilities.*
- ☐ *Formal risk analysis and planning undertaken of staff e-learning skills during e-learning design and (re)development processes with compliance to minimum expectations required formally by processes and explicit strategies for alternatives defined for staff inexperience and abilities.*

D2

Formal agreements covering intellectual property ownership are addressed in e-learning design and (re)development procedures.

- ☐ *No consideration of intellectual property ownership in e-learning design and (re)development procedures.*
- ☐ *Incomplete or informal consideration of intellectual property ownership in e-learning design and (re)development procedures.*
- ☐ *E-learning design and (re)development procedures include agreements covering intellectual property ownership however inclusion is unnecessarily inconsistent between documents or outdated or fails to include all of the technologies in use.*
- ☐ *E-learning design and (re)development procedures formally and systematically address intellectual property ownership.*

## Definition

**Support staff are provided with standards and guidelines covering technical and pedagogical aspects of e-learning design and (re)development.**

**See also**: D1(3) & S5(3)

- ☐ *No e-learning design and (re)development technical and pedagogical standards provided.*
- ☐ *Technical and pedagogical standards provided that are incomplete, informal or fail to impose mandatory compliance requirements on staff involved in e-learning design and (re)development initiatives.*
- ☐ *Technical and pedagogical standards provided which define mandatory compliance requirements on staff involved in e-learning design and (re)development initiatives however compliance incomplete or not required.*
- ☐ *Technical and pedagogical standards provided which define mandatory compliance requirements on staff involved in e-learning design and (re)development initiatives and compliance required.*

**Teaching staff are provided with support resources (including training, guidelines and examples) for e-learning design and (re)development.**

**See also**: D1(3)

- ☐ *No training, guidelines or examples provided to teaching staff on using e-learning technologies and pedagogies.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing or (re)developing courses.*

**Teaching staff are provided with project tools (including standard contracts and licenses, checklists and quality assurance procedures) for e-learning design and (re)development.**

**See also**: D1(3), D3(3), D6(3) & S5(3)

- ☐ *No e-learning design and (re)development technical and pedagogical project tools and materials provided.*
- ☐ *E-learning project tools and materials provided that are incomplete, informal or not designed for use by non-specialist staff.*
- ☐ *E-learning project tools and materials provided that are designed for use by non-specialist staff, but fail to cover the range of e-learning technologies and pedagogies in use and/or are not used in all e-learning design and (re)development initiatives.*
- ☐ *E-learning project tools and materials provided that are designed for use by non-specialist staff and which cover all of the e-learning technologies and pedagogies in use and are used in all e-learning design and (re)development initiatives.*

Teaching staff are provided with support resources (including training, guidelines and examples) on developing e-learning resources that discourage student plagiarism and misuse of intellectual property.

- ☐ *No training, guidelines or examples provided to teaching staff on how to develop e-learning resources that discourage student plagiarism and misuse of intellectual property.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff on how to develop e-learning resources that discourage student plagiarism and misuse of intellectual property.*
- ☐ *Detailed and specific training, guidelines and examples provided to teaching staff on how to develop e-learning resources that discourage student plagiarism and misuse of intellectual property but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff on how to develop e-learning resources that discourage student plagiarism and misuse of intellectual property with the requirement that they be used prior to designing or (re)developing courses.*

Formal allocation of e-learning technical support is addressed in e-learning design and (re)development procedures.

**See also**: D1(3)

- ☐ *No consideration of e-learning technical support allocation apparent in course e-learning design and (re)development activities.*
- ☐ *Informal or inconsistent consideration of e-learning technical support allocation apparent in course e-learning design and (re)development activities.*
- ☐ *Formal consideration of e-learning technical support allocation apparent in most, but not all, course e-learning design and (re)development activities, or consideration is subordinate to business concerns.*
- ☐ *Formal consideration of e-learning technical support allocation required in all course e-learning design and (re)development projects with business concerns treated equally or subordinate.*

Pedagogical issues are formally addressed in e-learning design and (re)development procedures.

**See also**: D1(3) & S5(3)

- ☐ *No consideration of pedagogical issues apparent in course e-learning design and (re)development activities.*
- ☐ *Informal or inconsistent consideration of pedagogical issues apparent in course e-learning design and (re)development activities.*
- ☐ *Formal consideration of pedagogical issues apparent in most, but not all, course e-learning design and (re)development activities, or consideration is subordinate to business and technical concerns.*
- ☐ *Formal consideration of pedagogical issues required in all course e-learning design and (re)development projects with business and technical concerns treated equally or subordinate.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L6(3), L7(3), D1(3), D3(3), D7(3), S5(3), S6(3), O1(3), O3(3), O4(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Staff technical support requirements are formally addressed in e-learning technology purchase procedures.

**See also**: D1(3), S5(3) & S6(3)

- ☐ *No consideration of staff technical support issues apparent in course e-learning technology purchase activities and procedures.*
- ☐ *Informal or inconsistent consideration of staff technical support issues apparent in technology purchase activities.*
- ☐ *Formal consideration of staff technical support issues required in technology purchase procedures but not referenced in purchase decisions.*
- ☐ *Formal consideration of staff technical support issues required in technology purchase procedures and explicitly referenced in purchase decisions.*

## Management

**Staff use of e-learning procedures and standards during e-learning design and (re)development is regularly monitored.**

- ☐ *No monitoring of the use of e-learning procedures and standards by teaching staff.*
- ☐ *Limited, inconsistent or informal monitoring of the use of e-learning procedures and standards by teaching staff collected, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the use of e-learning procedures and standards by teaching staff conducted irregularly or only covers some of procedures and standards, or reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the use of e-learning procedures and standards by teaching staff.*

**Feedback collected regularly from staff regarding the effectiveness of the e-learning procedures and standards.**

- ☐ *No feedback collected from staff on the effectiveness of the e-learning procedures and standards.*
- ☐ *Limited, inconsistent or informal staff feedback collected on the effectiveness of the e-learning procedures and standards, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all e-learning procedures and standards or not collected regularly from all staff using the materials, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on all of the e-learning procedures and standards collected regularly from all staff using the materials and reported regularly.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ☐ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Financial costs and benefits of e-learning procedures and standards are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of e-learning procedures and standards.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning procedures and standards, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning procedures and standards, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning procedures and standards.*

Overlap and duplication of e-learning support is regularly assessed.

**See also**: D1(4), S5(4), S6(4), O1(3), O3(4), O5(4) & O(9)

- ☐ *No assessment or review of e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ☐ *Formal and systematic assessment and review of overlap and duplication in e-learning support facilities undertaken regularly.*

## Optimisation

**Information on the effectiveness of e-learning procedures and standards is used to guide strategic and operational planning of e-learning initiatives.**

- ☐ *No use of information on the effectiveness of e-learning procedures and standards when planning and resourcing e-learning initiatives.*
- ☐ *Inconsistent and informal use of information on the effectiveness of e-learning procedures and standards when planning and resourcing e-learning initiatives.*
- ☐ *Information on the effectiveness of e-learning procedures and standards is normally, but not always, included when planning and resourcing e-learning initiatives.*
- ☐ *Consideration of evidence on the effectiveness of e-learning procedures and standards is formally included when planning and resourcing all e-learning initiatives.*

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| **Information on the e-learning skills of teaching staff guides the content of institutional e-learning standards and procedures.** |
| ☐ *No information on the e-learning skills of teaching staff used when determining the content of institutional e-learning standards and procedures.* |
| ☐ *Informal and inconsistent use of information on the e-learning skills of teaching staff when determining the content of institutional e-learning standards and procedures.* |
| ☐ *Information on the e-learning skills of teaching staff explicitly guides the content of institutional e-learning standards and procedures, but is treated as subordinate to technical goals, or not linked to particular standards and procedures.* |
| ☐ *Information on the e-learning skills of teaching staff explicitly guides the content of institutional e-learning standards and procedures and is formally linked to particular standards and procedures.* |
| E-learning technology deployment procedures formally address changes to e-learning procedures and standards**.** |
| ☐ *No consideration of changes to e-learning procedures and standards in e-learning technology deployment procedures.* |
| ☐ *Incomplete or informal consideration of changes to e-learning procedures and standards in e-learning technology deployment procedures.* |
| ☐ *E-learning technology deployment procedures formally address changes to e-learning procedures and standards however procedures fail to include all of the technologies and standards in use.* |
| ☐ *E-learning technology deployment procedures formally and systematically address changes to e-learning procedures and standards.* |
| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing e-learning procedures and standards**.** |
| ☐ *No consideration of changing e-learning procedures and standards in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of changing e-learning procedures and standards in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of changing e-learning procedures and standards in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ☐ *Formal and systematic consideration of changing e-learning procedures and standards in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.* |

**Table D2-1**: Descriptions of process practices by capability dimension

## Process D3.

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

D3

### Process Background

The learning objectives/outcomes and active learning literature make it clear that effective e-learning requires the complex links between pedagogical approach, course content, and use of technologies to be constructively aligned to defined learning objectives and outcomes (Laurillard, 2002; Ragan, 1999). The constructive alignment of pedagogy, content, and technology calls for an understanding of each of the components and their interactions. Learning design is an iterative process (Boettcher, 2004; Khan, 2005; Laurillard, 2002) It involves the definition of learning outcomes that contribute to the selection of the media prototype for development, which proceeds through design-test-redesign cycles until a satisfactory design is achieved (Laurillard, 2002, p. 197). The learning conversation occupies the foreground in relation to the technology: 'the iterative dialogue between teacher and learner…with the delivery infrastructure always in support of it' (p. 241). Contexts and perspectives also influence the design process. What and how teachers think about the teaching-learning environment, expectations, resources, and outcomes impacts on what and how students learn (Boettcher, 2004, p. 24). Laurillard explains how relations in the e-learning environment are suited to a biological metaphor, which characterises the reciprocal, adaptive, interactions between its constituents as 'like any organism adapting to its environment…[it] has to be capable of adaptive learning' (p. 215). The complexity of learning objectives, content requirements, technology and organisation infrastructure call for an approach that integrates diverse viewpoints and allows for conflicting demands (Jochems *et al*., 2004). Jochems *et al*. propose an educational systems approach that shows integrated e-learning as a triadic model comprising pedagogy, organization and technology that come together through enabling a balance of complex learning, flexible learning, and dual learning (p. 7).

Pedagogical approach, content, and learning outcomes are complexly interrelated and interdependent. Although there is no single 'correct' way to undertake design and development, there are guiding principles and practices (Ragan, 1999). Ragan identifies three educational components: learning objectives and content presentation; interactions; and assessment; and he articulates principles for each category. Learning objectives are the foundation for an educational event that forms a contract between teacher and learner and helps to ensure the selection of instructional strategies for content presentation that successfully delivers defined outcomes. Interactions are the ways teachers and learners engage with each other as geographically distant members of a learning community. Assessment also serves both teachers and learners purposes by monitoring progress that enables the teacher to feedback formative information to the learner, and, the learner to provide feedback on the course design to the teacher.

The distance and time constraints of e-learning require pedagogical practices to be pre-planned. Although there are courseware-based resource design and management tools available, some critics find them 'pedagogically negligent' (Bonk and Dennen, 2003, p. 332). Others express concern that while there is considerable literature on 'how to teach online…much…[does] not have a foundation based on sound research' (Tallent-Runnels *et al*., 2005, p. 26). There is also concern that institutional priorities promote information delivery over learning processes and that much more research into how people learn online is needed (Herrington *et al*., 2005). Herrington *et al*., argue that 'deep engagement of students with complex and realistic tasks is a preferable model to the information provision that is so characteristic of online courses today' (p. 366). Citing their current research they refer to teachers identifying a lack of pedagogical knowledge and significant time requirements as reasons for reverting to presenting information when confronted with the complexity of online teaching tasks (pp. 60-1). Furthermore, online teachers must be thoroughly prepared: 'the concept of winging it is much more difficult in an online course…"you need to try and have the whole course there right from the word go"' (pp. 361-2).

Technology choice, according to Shearer (2003), concerns how technology affects the behaviour of other elements in a systems environment 'where all of the elements or variables interact', and he lists four factors that involve variable elements in the e-learning environment: learner autonomy/control; interaction; access; and costs/economies of scale (p. 275). Learner autonomy/control refers to the importance of

establishing and maintaining an environment that enables the learner to work effectively and successfully at a distance and at their own pace. Interaction involves teacher, learner, and content and takes various forms that concern aspects of quality, frequency, and timeliness. Information and communication technology (ICT) brings new dimensions to the notion of access that include virtual as well as physical attributes and encompass aspects such as, gender, culture, financial, geographic, supply and demand, disabilities, preparedness, motivational, and language (p. 279). Analysis of e-learning costs and effects is complex and needs to consider a range of cost factors including implementation, training, development, delivery, support, and maintenance, which may be balanced against savings from reuse of modular content objects and computer downloadable resources (p. 280).

## Practices

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.

Table D3-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

### Delivery

**Activities, content and assessment used in the course design are linked with common learning outcome statements.**

**See also**: L1(1), L8(1) & O7(1)

- ☐ *No use of learning objectives apparent in the course information supplied to students beyond a formal statement or description.*
- ☐ *Assessments and learning activities contain implicit, incomplete and inconsistent linkages to course learning objectives.*
- ☐ *Most, but not all, assessments and learning activities contain explicit linkages to course learning objectives or restate learning objectives using different wording.*
- ■ *Formal statement of course learning objectives clearly and explicitly linked in all assessments and learning activities using consistent language.*

**An explicit plan covers pedagogical and technological decisions taken during the design and (re)development process.**

- ☐ *No evidence of any overall plan in e-learning design and (re)development documents and planning activities.*
- ☐ *Informal or inconsistent planning apparent in e-learning design and (re)development documents and activities.*
- ☐ *Formal inclusion of an explicit plan in e-learning design and (re)development documents and planning activities, but only guides decisions from a technical perspective or informally.*
- ■ *Formal inclusion of explicit planning documents in e-learning design and (re)development documents and planning activities with the information used formally to justify technology and pedagogy decisions.*

An explicit plan guides the communication to students of the relationships between course elements.

- ☐ *No evidence of any overall plan in the communication to students of the relationships between course elements.*
- ☐ *Informal or inconsistent planning apparent in the communication to students of the relationships between course elements.*
- ☐ *Formal inclusion of an explicit plan in the communication to students of the relationships between course elements, but only guides decisions from a administrative perspective or at a generic level.*
- ■ *Formal and explicit planning of the communication to students of the relationships between course elements with the information used formally to justify technology and pedagogy included in the course.*

### Planning

**Learning objectives guide e–learning design and (re)development decisions regarding content and activities.**

**See also**: L1(2)

- ☐ *No use of learning objectives to guide content and activity decisions during e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of learning objectives during e-learning design and (re)development.*
- ☐ *Learning objectives explicitly guide e-learning design and (re)development, but are treated as subordinate to technical goals, or not linked to design and development decisions.*
- ■ *Learning objectives explicitly guide e-learning initiative planning and are formally linked to design and development decisions.*

**Institutional reviews monitor e-learning design and development documents.**

- ☐ *No inclusion of e-learning design and development documents in institutional programme, degree or qualification planning and review processes.*
- ☐ *Informal or inconsistent inclusion of e-learning design and development documents in institutional programme, degree or qualification planning and review processes.*
- ☐ *Formal inclusion of e-learning design and development documents in institutional programme, degree or qualification planning and review processes, but treated only from technology perspectives.*
- ■ *Formal inclusion of e-learning design and development documents in institutional programme, degree or qualification planning and review processes with the information used to comment on pedagogical aspects.*

**Learning objectives guide e–learning design and (re)development decisions regarding technology and pedagogy.**

**See also**: L1(2), O6(2) & O7(2)

- ☐ *No evidence of learning objectives in design and (re)development documents and planning activities.*
- ☐ *Inconsistent or informal use of learning objectives in design and (re)development documents and planning activities.*
- ☐ *E–learning design and (re)development activities reference learning objectives for most, but not all, projects and activities.*
- ■ *E–learning design and (re)development activities formally and consistently reference learning objectives in selecting and implementing e-learning technologies and pedagogies used.*

Formal e-learning procedures and standards guide e-learning design and (re)development.

- ☐ *No standards and procedures guide e-learning design and (re)development.*
- ☐ *Informal or outdated standards and procedures provided to guide e-learning design and (re)development.*
- ☐ *Standards and procedures provided to guide e-learning design and (re)development that do not cover all of the e-learning technologies and pedagogies in use and/or are not used in all e-learning design and (re)development initiatives, or not linked to design decisions.*
- ■ *Standards and procedures provided to guide e-learning design and (re)development covering all of the e-learning technologies and pedagogies in use which are used in all e-learning design and (re)development initiatives and are formally linked to design decisions.*

Student feedback guides e-learning design and (re)development.

- ☐ *No use of student feedback during e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of student feedback during institutional e-learning design and (re)development.*
- ☐ *Information from student feedback explicitly guides institutional e-learning design and (re)development, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ■ *Information from student feedback explicitly guides institutional e-learning initiative planning and is formally linked to design decisions.*

Learning objectives are defined prior to e-learning design and (re)development.

- ☐ *No evidence of learning objectives being defined prior to design and (re)development and planning activities.*
- ☐ *Inconsistent or informally defined learning objectives used prior to or during design and (re)development and planning activities.*
- ☐ *E–learning design and (re)development procedures include a formal definition of learning objectives as one of the tasks subsequent to the initiation of design and (re)development work.*
- ■ *Learning objectives are formally and explicitly defined prior to e-learning design and (re)development or as the first task undertaken.*

E-Learning design and (re)development is guided by a researched evidence base.

**See also**: L6(2) & L7(2)

- ☐ *No use of research evidence during e-learning design and development.*
- ☐ *Inconsistent or informal incorporation of research evidence during e-learning design and development.*
- ☐ *Research evidence on effective e-learning guides most, but not all, e-learning design and development projects, or research is not kept in an shared evidence base for reuse in different projects or provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *E-learning design and development activities are formally and explicitly linked to a shared research evidence base of effective e-learning examples with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

## Definition

**Institutional policies require that a description of the explicit relationships between course elements is part of all course documentation provided to students.**

- ☐ *No policies require that a description of the explicit relationships between course elements is part of all course documentation provided to students.*
- ☐ *Policies encourage that a description of the relationships between course elements be provided to students.*
- ☐ *Policies require that a description of the explicit relationships between course elements is part of all course documentation provided to students, however compliance incomplete or not enforced.*
- ■ *Policies require that a description of the explicit relationships between course elements is part of all course documentation provided to students and compliance with the requirements enforced.*

**Institutional policies require that a formal statement of learning objectives is used as the starting point for e-learning design and (re)development.**

- ☐ *No policies require that a formal statement of learning objectives is used as the starting point for e-learning design and (re)development.*
- ☐ *Policies provided that encourage that a formal statement of learning objectives is used as the starting point for e-learning design and (re)development or which fail to impose mandatory compliance requirements.*
- ☐ *Policies provided that require that a formal statement of learning objectives is used as the starting point for e-learning design and (re)development, however compliance incomplete or not enforced.*
- ■ *Policies provided that require that a formal statement of learning objectives is used as the starting point for e-learning design and (re)development and compliance with the requirements apparent in the e-learning design and (re)development processes.*

**Teaching staff are provided with support resources (including training, guidelines and examples) for creating design rationales that effectively link learning outcomes with the pedagogies, content and technologies used.**

- ☐ *No training, guidelines or examples provided to teaching staff on using e-learning design rationales.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing or (re)developing courses.*

Teaching staff are provided with project tools (including standard contracts and licenses, checklists and quality assurance procedures) for e-learning design and (re)development.

**See also**: D1(3), D2(3), D6(3) & S5(3)

- ☐ *No e-learning design and (re)development technical and pedagogical project tools and materials provided.*
- ☐ *E-learning project tools and materials provided that are incomplete, informal or not designed for use by non-specialist staff.*
- ☐ *E-learning project tools and materials provided that are designed for use by non-specialist staff, but fail to cover the range of e-learning technologies and pedagogies in use and/or are not used in all e-learning design and (re)development initiatives.*
- ☐ *E-learning project tools and materials provided that are designed for use by non-specialist staff and which cover all of the e-learning technologies and pedagogies in use and are used in all e-learning design and (re)development initiatives.*

Staff are provided with information on how e-learning technologies support a range of student cognitive outcomes.

- ☐ *No information provided to staff on how e-learning technologies support a range of student cognitive outcomes.*
- ☐ *Informal or outdated information provided to staff on how e-learning technologies support a range of student cognitive outcomes.*
- ☐ *Staff are formally provided with generic information on how e-learning technologies support a range of student cognitive outcomes.*
- ☐ *Staff are formally provided with specific information on how e-learning technologies support a range of student cognitive outcomes relevant to the students, disciplines and courses they teach.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L6(3), L7(3), D1(3), D2(3), D7(3), S5(3), S6(3), O1(3), O3(3), O4(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Teaching staff are provided with support resources (including training, guidelines and examples) for creating design rationales that are aligned with institutional e-learning strategies.

- ☐ *No training, guidelines or examples provided to teaching staff on how to create design rationales that are aligned with institutional e-learning strategies.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff on how to create design rationales that are aligned with institutional e-learning strategies.*
- ☐ *Detailed and specific training, guidelines and examples provided to teaching staff on how to create design rationales that are aligned with institutional e-learning strategies but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff on how to create design rationales that are aligned with institutional e-learning strategies with the requirement that they be used prior to designing or (re)developing courses.*

## Management

**Compliance with policies, standards and guidelines governing explicit linkages between pedagogies, content and technologies in e-learning design and development activities is regularly monitored.**

- ☐ *No monitoring of compliance with policies, standards and guidelines governing explicit linkages between pedagogies, content and technologies in e-learning design and development activities.*
- ☐ *Infrequent or informal monitoring of compliance with policies, standards and guidelines governing explicit linkages between pedagogies, content and technologies in e-learning design and development activities.*
- ☐ *Formal monitoring of compliance with policies, standards and guidelines governing explicit linkages between pedagogies, content and technologies in e-learning design and development activities, but without minimum expectations for compliance enforced.*
- ☐ *Formal monitoring of compliance with policies, standards and guidelines governing explicit linkages between pedagogies, content and technologies in e-learning design and development activities undertaken regularly with minimum expectations for compliance enforced.*

**Students' awareness of the relationships between course elements and learning objectives is regularly monitored.**

- ☐ *No monitoring of student understanding of the relationships between course elements and learning objectives.*
- ☐ *Limited, inconsistent or informal monitoring of student understanding of the relationships between course elements and learning objectives, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of student understanding of the relationships between course elements and learning objectives conducted irregularly or only covers some of courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of student understanding of the relationships between course elements and learning objectives.*

E-learning design and (re)development procedures include a formal post-delivery review.

- ☐ *No formal post-delivery review apparent.*
- ☐ *Limited, informal or inconsistent post-delivery reviews apparent.*
- ☐ *Post-delivery reviews are undertaken formally as part of course e-learning design and (re)development processes but the information are confidential to the staff involved or not acted upon by the institution.*
- ☐ *Post-delivery reviews are undertaken formally and the results incorporated into institutional e-learning design and (re)development outcome reports and updated procedures.*

Feedback collected regularly from staff regarding the effectiveness of any formal design and (re)development procedures.

- ☐ *No feedback collected from staff on the effectiveness of the e-learning design and (re)development procedures.*
- ☐ *Limited, inconsistent or informal staff feedback collected on the effectiveness of the e-learning design and (re)development procedures, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all e-learning design and (re)development procedures or not collected regularly from all staff using the procedures, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on all of the e-learning design and (re)development procedures collected regularly from all staff using the procedures and reported regularly.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ☐ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Financial costs and benefits of e-learning technologies and pedagogies are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of e-learning technologies and pedagogies.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning technologies and pedagogies, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning technologies and pedagogies, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning technologies and pedagogies.*

## Optimisation

**Information on changes in the student population is used to guide e-learning initiative planning activities.**

- ☐ *No use of information on the changing student population during institutional e-learning initiative planning activities.*
- ☐ *Informal and inconsistent use of information on the changing student population during institutional e-learning initiative planning activities.*
- ☐ *Information on changes in the student population explicitly guides institutional e-learning initiative planning, but is treated as subordinate to technical goals, or not linked to the content of the design rationale.*
- ☐ *Information on changes in the student population explicitly guides institutional e-learning initiative planning and is formally linked to the content of the design rationale.*

**Information on the effectiveness of design and development support guides the strategic and operational planning of e-learning.**

**See also**: D1(5)

- ☐ *No use of information on the effectiveness of design and development support during institutional e-learning strategic and operational planning.*
- ☐ *Informal and inconsistent use of information on the effectiveness of design and development support during institutional e-learning strategic and operational planning.*
- ☐ *Information on the effectiveness of design and development support explicitly guides institutional e-learning strategic and operational planning, but is treated as subordinate to technical goals, or not linked to specific decisions.*
- ☐ *Information on the effectiveness of design and development support explicitly guides institutional e-learning strategic and operational planning and is formally linked to specific decisions.*

Information on the effectiveness of design and development support guides the allocation of resources for support.

- ☐ *No use of information on the effectiveness of design and development support during support resource allocation.*
- ☐ *Informal and inconsistent use of information on the effectiveness of design and development support during support resource allocation.*
- ☐ *Information on the effectiveness of design and development support guides support resource allocation, but is not linked explicitly to resource allocation decisions.*
- ☐ *Information on the effectiveness of design and development support explicitly guides support resource allocation and is formally linked to resource allocation decisions.*

Formal assessment of teaching staff e-learning skills guides the resourcing of e-learning support.

**See also**: D1(5)

- ☐ *No assessment of teaching staff skills with e-learning technology and pedagogies apparent in support resource allocation decisions.*
- ☐ *Limited, informal or inconsistent assessment of teaching staff skills with e-learning technology and pedagogies apparent in support resource allocation decisions.*
- ☐ *Assessment of teaching staff skills with e-learning technology and pedagogies effectively is undertaken formally but the information is only used in a generic manner to guide support resource allocation decisions..*
- ☐ *Assessment of teaching staff skills with e-learning technology and pedagogies effectively is undertaken formally and the results systematically incorporated into support resource allocation decisions.*

Information on the effectiveness of e-learning technologies and pedagogies guides the resourcing of e-learning support.

**See also**: D1(5)

- ☐ *No information on the effectiveness of e-learning technologies and pedagogies apparent in support resource allocation decisions.*
- ☐ *Limited, informal or inconsistent use of information on the effectiveness of e-learning technologies and pedagogies apparent in support resource allocation decisions.*
- ☐ *Information on the effectiveness of e-learning technologies and pedagogies used in a generic manner to guide support resource allocation decisions.*
- ☐ *Information on the effectiveness of e-learning technologies and pedagogies systematically incorporated into support resource allocation decisions.*

| |
|---|
| E-learning technology deployment procedures formally address the resourcing of e-learning support.<br>**See also**: D1(5) & S5(5) |
| ☐ *No consideration of e-learning support issues apparent in e-learning technology deployment activities and procedures.* |
| ☐ *Informal or inconsistent consideration of e-learning support issues apparent in e-learning technology deployment activities and procedures.* |
| ☐ *Formal consideration of e-learning support issues required in e-learning technology deployment procedures but not referenced in deployment project plans and decisions.* |
| ☐ *Formal consideration of e-learning support issues required in e-learning technology deployment procedures and explicitly referenced in deployment project plans and decisions.* |
| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing staff e-learning technology use and support needs.<br>**See also**: D1(5), S5(5) & O4(5) |
| ☐ *No consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ☐ *Formal and systematic consideration of current staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.* |

**Table D3-1**: Descriptions of process practices by capability dimension

## Process D4.

*Courses are designed to support disabled students*



### Process Background

Ensuring that materials are accessible to students with disabilities requires careful design and consideration of accessibility issues throughout the creation of materials, as well as the use of development tools to support student use of assistive technologies (Witt and McDermott, 2004). Ensuring that disabled students have meaningful opportunities to engage with courses is commonly a formal legal requirement on institutions. However, according to Dirr (2003), institutional awareness of obligations to disabled students is lacking: 'Some colleges…were surprised, for example, that they must include the virtual equivalents of wheelchair ramps on the Web sites when building online courses' (p. 472). Edmonds, (2004) reiterates the common view that implementing accessibility protocols and features for disabled learners inevitably benefits all online learners. He refers to examples such as the ability to keyword search alternative text, and video captioning providing support for students experiencing difficulties with the instructors speech, adding that for students 'whose primary language differs from the others in the class…additional textual content…may help students succeed academically' (p. 58). But he also observes that 'the legal and technical requirements to remove barriers to online learning for disabled learners are complex' (p. 60).

Accessible is not an absolute term and needs to be considered in the light of diverse individual differences that call for adaptability towards inclusivity (Hoffman *et al.*, 2005). Differences that affect accessibility extend beyond vision, hearing, and motor impediments to include learning disabilities. Whilst there is a general lack of research-based resources for diverse learners, new technology offers potential for greater accessibility and flexibility: 'The advantage of digital versions [of resources] is that these alternatives, and many others, can be available on an individual basis – available for students who need them, invisible or non-distracting for those who don't. They enable teachers to individualize materials in previously unimaginable ways' (Center for Applied Special Technology, 2004, p. 9). The Center for Applied Special Technology promotes universal design for learning, which calls for learners to have access to multiple means of knowledge and information representation, multiple means of demonstrating and expressing what they have learned, and multiple means of engaging with their interests to challenge and motivate them. Universal design, according to Kinask *et al.*, (2004), 'moves best design of online learning beyond a disability issue to enhancing educational technology for all learners' (p. 11).

Following a comprehensive review of intersecting online learning and disability literature, Kinask *et al.* report on the common theme that research and practical applications benefiting disabled learners extends to all learners. They notice that the pedagogical, geographical and technological relations of e-learning offer a serendipitous prospect for an emerging population of new and returning learners with very diverse needs and circumstances. Citing Optitz (2002) they present a range of examples of ways that improving accessibility for some benefits all. For example, text tags that elaborate image information, captions that support audio information, and layout simplification that improves readability (p. 6).

Edmonds (2004) is concerned about the integration of assistive technologies with information and communication technology (ICT). Noting differences between first generation access issues – access to web site pages – and second generation access issues – access to learning resource and support materials, he observes that the former are usually the domain of courseware and web developers, but the latter can be influenced to good effect by course creators and teachers (pp. 56-9).

Although assistive technologies are readily available to enable ICT access for those with disabilities, they often only help overcome the first of many barriers. Discussing the importance of universal design principles (The Center for Universal Design, 2006), Burgstahler *et al.*, (2004) say that '[w]hen designers apply these principles, physical environments, communications, and products they develop can be accessed by people with a variety of characteristics in categories that include height, age, race, ethnicity, gender, native language, and levels of ability to hear, see, move, and speak' (p. 236). Burgstahler *et al.* also point to the importance of implementing assurance and review requirements for e-learning design and content accessibility, adding that addressing accessibility is an 'ongoing effort, not a one-time project' (p. 243).

In conclusion they propose that by applying universal design principles as courses are created learning becomes 'accessible to anyone anywhere at any time' (p. 244).

Burgstahler *et al.*, (2004), reporting on a case study, argue that accessible distance learning courses need ongoing effort (p. 243). They nominate challenges for that effort, which include: interpreting ambiguous standards; coordinating diverse and large communities to cooperate consistently; gaining faculty and staff buy-in, and overcoming technical problems. They conclude that to assure accessibility for all students and teachers necessitates that administration buy-in and support, includes 'key stakeholders—including students with disabilities—in the decision-making process' (p. 243).

In a review of institutional compliance with United Kingdom accessibility legislation, Witt and McDermott (2004) comment that rigour and good practice attention focused on learning system environments needs to apply to all sites included in an institutions communication infrastructure: 'a holistic approach must be taken so that this awareness becomes embedded into an institution's practice and this in turn becomes embedded into the provision of all electronic media' (p. 46). Witt and McDermott also comment on the World Wide Web Consortium's (W3C) Web Accessibility Initiative (WAI), which is working strategically for the coordination of education and research and the development of guidelines and tools for accessibility. However, they caution that guidelines will not meet every need and recommend developers apply universal design principles to both the environment and the content development. Noting the availability of a wide range of software tools to test, evaluate, and 'certify' accessibility, they add that these should be used with caution as audits have shown them to be problematic, with most certification being self-declared. They conclude by cautioning against accessibility becoming a 'mechanistic or a QA process relying on checklists and evaluation tools which then treat accessibility as an afterthought' (p55).

## Practices

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.

Table D4-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **Students told of accessibility support mechanisms and encouraged to make use of the alternatives provided.** |
| ☐ *No information provided to students on the measures undertaken to support accessibility.* |
| ☐ *Inconsistent or informal information provided to students on the measures undertaken to support accessibility without any encouragement or promotion of alternatives.* |
| ☐ *Information provided to students on the measures undertaken to support accessibility but use of the material not promoted or consistently referenced.* |
| ☐ *Information provided to students on the measures undertaken to support accessibility formally and consistent references made to these materials throughout core course materials encouraging their use.* |
| Consistent use of a variety of teaching and learning activities in courses. **See also**: L10(1) |
| ☐ *No evidence of consistent use of a variety of teaching and learning activities in courses.* |
| ☐ *Limited variety in course teaching and learning activities proscribed by the use of particular learning management systems.* |
| ☐ *A variety of teaching and learning activities used in courses without communication to students of the logic guiding the range of activities, or with varied activities requiring face to face contact.* |
| ☐ *A variety of teaching and learning activities available to all students and consistently linked throughout the course with the underlying rationale formally and explicitly communicated to students during delivery.* |
| Consistent use of a variety of media in courses. **See also**: L10(1) |
| ☐ *No evidence of consistent use of a variety of media in courses.* |
| ☐ *Limited variety in course media proscribed by the use of particular learning management systems.* |
| ☐ *A variety of media used in courses without communication to students of the logic guiding the range of media, or with access to varied media requiring face to face contact or the use of specialised systems not generally available to students.* |
| ☐ *A variety of media available to all students and consistently linked throughout the course with the underlying rationale formally and explicitly communicated to students during delivery.* |

D4

## Planning

**E-learning design and development is guided by the need to ensure that learning activities are accessible.**

- ☐ *No evidence of accessibility considerations apparent in e-learning design and (re)development activities and processes.*
- ☐ *Informal or inconsistent consideration of accessibility issues in e-learning design and (re)development activities and processes.*
- ☐ *Formal consideration of accessibility issues in e-learning design and (re)development activities and processes but treated in a generic manner without detailed and specific analysis.*
- ☐ *Formal consideration of accessibility issues in e-learning design and (re)development activities and processes with a detailed and specific analysis of the course and student requirements included in project plans.*

**Course documentation provides the procedure to follow if course elements fail to meet individual student needs.**

**See also**: L10(2)

- ☐ *Course outlines and descriptions do not contain any information for students on the procedure to follow if course elements fail to meet their needs.*
- ☐ *Course outlines and descriptions contain outdated, incomplete or informal information for students on the procedure to follow if course elements fail to meet their needs.*
- ☐ *Course outlines and descriptions contain information for students on the procedure to follow if course elements fail to meet their needs which is unnecessarily inconsistent or different in different courses.*
- ☐ *Course outlines and descriptions contain consistent and explicit information for students on the procedure to follow if course elements fail to meet their needs.*

**E–learning design and (re)development procedures include formal testing and review of accessibility support with student participants.**

- ☐ *No review and testing of accessibility support undertaken during e-learning design and (re)development processes.*
- ☐ *Informal or incomplete review and testing of accessibility support undertaken during e-learning design and (re)development processes and/or without the involvement of student participants.*
- ☐ *Formal review and testing of accessibility support undertaken during e-learning design and (re)development processes with compliance to minimum expectations optional or not required and/or minimal student involvement.*
- ☐ *Formal review and testing of accessibility support undertaken during e-learning design and (re)development processes with compliance to minimum expectations and student involvement required formally by processes.*

Institutional reviews monitor student accessibility support.

- ☐ *No review of student accessibility support.*
- ☐ *Inconsistent or informal monitoring of student accessibility support during institutional reviews.*
- ☐ *Institutional reviews consider the effectiveness of some, but not all student accessibility support facilities.*
- ☐ *Institutional reviews formally and systematically address the effectiveness of the student accessibility support.*

Students are provided with explicit accessibility support facilities.

- ☐ *Accessibility support services are not provided.*
- ☐ *Access to accessibility support services for students engaged in e-learning is informal and/or a consequence of services intended for face to face provision or other uses.*
- ☐ *Accessibility support services for students engaged in e-learning are formally provided but missing key functions and/or not actively promoted to students.*
- ☐ *Accessibility support services for students engaged in e-learning include the full range of available services for all students and are actively promoted throughout course materials in association with assessment and learning activities.*

Formal risk assessments of student accessibility support and mitigation planning are required by e–learning design and (re)development procedures.

- ☐ *No consideration of risks associated with student accessibility support undertaken during e-learning design and (re)development processes.*
- ☐ *Informal or incomplete consideration of risks associated with student accessibility support undertaken during e-learning design and (re)development processes.*
- ☐ *Formal risk analysis and planning undertaken of student accessibility support during e-learning design and (re)development processes with compliance to minimum expectations optional or not required, or no explicit strategies for alternatives defined for students with different capabilities.*
- ☐ *Formal risk analysis and planning undertaken of student accessibility support during e-learning design and (re)development processes with compliance to minimum expectations required formally by processes and explicit strategies for alternatives defined for students with different capabilities.*

## Definition

**Institutional policies defines requirements for supporting accessibility during e-learning design, (re)development and delivery.**

- ☐ *No policies, standards or guidelines on supporting accessibility provided.*
- ☐ *Policies, standards or guidelines on supporting accessibility fail to impose mandatory minimum requirements on course design, (re)development and delivery activities.*
- ☐ *Policies, standards or guidelines on supporting accessibility define mandatory minimum requirements, however, compliance incomplete or not monitored.*
- ☐ *Policies, standards or guidelines on supporting accessibility provided to staff engaging in course design, (re)development and delivery activities and compliance to mandatory minimum requirements required and monitored.*

**Accessibility policies are provided to all staff and students.**

- ☐ *No accessibility standards, guidelines or policies provided.*
- ☐ *Accessibility standards, guidelines and/or policies provided which are incomplete, informal or fail to impose minimum expectations on the institution and staff.*
- ☐ *Accessibility standards, guidelines and/or policies provided which impose minimum expectations on the institution and staff however provision incomplete or not monitored.*
- ☐ *Accessibility standards, guidelines and/or policies provided to all staff which impose minimum expectations on the institution and staff.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on supporting accessibility when engaged in e-learning design and (re)development.**

- ☐ *No accessibility training, guidelines or examples provided to teaching staff on using e-learning technologies and pedagogies.*
- ☐ *Limited or non-specific accessibility training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific accessibility training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific accessibility training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing or (re)developing courses.*

Staff are provided with a researched evidence base of effective accessibility initiatives and associated e-learning activities.

- ☐ *No researched evidence base of accessibility initiatives and associated e-learning activities provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting accessibility issues and requirements.*
- ☐ *Research evidence base of effective accessibility initiatives and associated e-learning activities provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective accessibility initiatives and associated e-learning activities provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Accessibility support requirements are formally addressed in e-learning technology purchase procedures.

- ☐ *No consideration of accessibility support issues apparent in course e-learning technology purchase activities and procedures.*
- ☐ *Informal or inconsistent consideration of accessibility support issues apparent in technology purchase activities.*
- ☐ *Formal consideration of accessibility support issues required in technology purchase procedures but not referenced in purchase decisions.*
- ☐ *Formal consideration of accessibility support issues required in technology purchase procedures and explicitly referenced in purchase decisions.*

## Management

**Effectiveness of e-learning templates, project supporting materials and quality assurance procedures in ensuring courses are accessible is regularly monitored.**

- ☐ *No measures collected of the effectiveness and impact on accessibility of templates, project supporting materials and quality assurance procedures used by staff.*
- ☐ *Limited, inconsistent or informal collection of measures of the effectiveness and impact on accessibility of templates, project supporting materials and quality assurance procedures used by staff, or measures collected but not reported.*
- ☐ *Formal, independent, measures of the effectiveness and impact on accessibility of templates, project supporting materials and quality assurance procedures used by staff collected, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular collection and reporting of the effectiveness and impact on accessibility of templates, project supporting materials and quality assurance procedures used by staff.*

**Feedback collected regularly from students regarding accessibility support and resources.**

- ☐ *No feedback collected from students on accessibility support and resources.*
- ☐ *Limited, inconsistent or informal student feedback collected, or information collected but not reported.*
- ☐ *Student feedback formally collected on some aspects of accessibility and/or not collected independently and regularly from all e-learning courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback on accessibility issues and associated institutional guidelines and standards collected and reported regularly from all e-learning courses.*

**Feedback collected regularly from staff regarding the effectiveness of the support for assisting disabled students.**

- ☐ *No feedback collected from staff on the effectiveness of the support for assisting disabled students.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or information collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all support provided for assisting disabled students or not collected regularly from all staff using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on all of the support provided for assisting disabled students collected and reported regularly from all staff using the facilities.*

Compliance with policies, standards and guidelines governing accessibility is regularly monitored.

- ☐ *No monitoring of compliance with institutional policies governing accessibility.*
- ☐ *Limited, inconsistent or informal monitoring of compliance with institutional policies governing accessibility, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of compliance with institutional policies governing accessibility conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of compliance with institutional policies governing accessibility.*

Financial costs and benefits of accessibility support are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of accessibility support facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of accessibility support facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of accessibility support facilities, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of accessibility support facilities.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ■ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

## Optimisation

**Information on the effectiveness of accessibility support guides e-learning strategic planning.**

- ☐ *No use of information on the effectiveness of accessibility support during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on the effectiveness of accessibility support during institutional e-learning strategic planning.*
- ☐ *Information on the effectiveness of accessibility support explicitly guides institutional e-learning strategic planning, but is treated as subordinate to technical goals, or not linked to strategy decisions.*
- ■ *Information on the effectiveness of accessibility support explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

**Accessibility requirements guide the selection and implementation of e-learning technologies.**

- ☐ *No accessibility requirements provided to staff involved in e-learning technology selection and deployment.*
- ☐ *Accessibility requirements informally or inconsistently provided to staff involved in e-learning technology selection and deployment or fail to impose mandatory minimum requirements.*
- ☐ *Accessibility requirements optionally provided to staff involved in e-learning technology selection and deployment, with compliance to mandatory minimum requirements defined, however, compliance incomplete or not required.*
- ■ *Accessibility requirements formally and explicitly provided to staff involved in e-learning technology selection and deployment with compliance to mandatory minimum requirements required and formally included in the institutional processes.*

Information on the extent of accessibility support is used to guide e-learning initiative planning.

- ☐ *No use of information on the extent to which courses are providing support for accessibility during e-learning initiative planning.*
- ☐ *Informal and inconsistent use of information on the extent to which courses are providing support for accessibility during institutional e-learning initiative planning activities.*
- ☐ *Information on the extent to which courses are providing support for accessibility explicitly guides institutional e-learning initiative planning, but is treated as subordinate to technical goals, or not linked to planning decisions.*
- ■ *Information on the extent to which courses are providing support for accessibility explicitly guides institutional e-learning initiative planning and is formally linked to planning decisions.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect changing staff accessibility support needs.

- ☐ *No consideration of staff accessibility support needs in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of staff accessibility support needs in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal and systematic consideration of current staff accessibility support needs in the institutional risk assessments and mitigation strategies with information on support needs linked explicitly to elements of the risks assessments and mitigation plans.*
- ■ *Formal and systematic consideration of current staff accessibility support needs in the institutional risk assessments and mitigation strategies with information on support needs linked explicitly to elements of the risks assessments and mitigation plans.*

**Table D4-1**: Descriptions of process practices by capability dimension

## Process D5.

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

D5

### Process Background

The physical infrastructure used to provide and sustain e-learning delivery must be as reliable and robust as the personnel infrastructure that depends on it. As noted by Chizmar and Williams (2001, p. 22) 'Faculty desire a network and technical infrastructure that never calls attention to itself, one that doesn't create barriers to entry for wary teaching staff and students because of its complexity. The infrastructure should be transparent, much as the utility infrastructure that powers our lights and our computers.' The ultimate goal of technology should be that it supports the activities of learning while not dominating the process, becoming essentially 'invisible' (Norman, 1999). In this context 'physical' includes the hardware, software and other facilities needed to deploy e-learning such as teaching rooms, cameras, servers etc.

Technology that is unreliable will rapidly destroy the confidence of students, will disrupt the process of building effective engagement and act as a significant barrier to the use of technology by staff (Butler and Sellborn, 2002). Students also want easy to use, fast, and reliable IT services: 'they express frustration when networks or servers are down, technical support is unavailable, or the technology gets in the way of completing their required coursework' (Kvavik and Caruso, 2005, p. 106).

In attempting to classify distance education technology Bates (1993) made two distinctions. Firstly, he distinguished between media (forms of communicating representations of knowledge) and technology (devices used to conduct the communications). And, he identified text, audio, video, and computing as the four significant media for distance education, noting that several technologies were available to each. Secondly, he distinguished between one-way (broadcasting) and two-way (interactive) technologies. Gunawardena and McIsaac (2004) draw on these and other classifications to propose six characteristics of media – distribution, control, interaction, symbols, presence, interface – that affect technology use (p. 373). They explain that these factors are not extrinsic entities but states of interaction that affect how geographic space is reconceptualised as cyberspace. These classifications and characteristics demonstrate the highly interdependent complexity of elements in the e-learning infrastructure and the consequent need for policies and agreements to establish and maintain reliability.

Jochems *et al*., (2004) promote integrated e-learning as an effective complete system and identify three interrelated dimensions in the e-learning domain – functional, organizational, technical. The first two mainly concern pedagogical and administrative issues, however, the technical dimension deals with a large number of infrastructural matters. To address these Jochems *et al*. stress the urgent need for interoperable reference architectures, but note that the plethora of incomplete architectures, protocols and standards presently make this problematic. They conclude that in their framework 'the most complex issues deal with the coherence, connectivity, and emergence of the different fragments of the model', and they propose a 'learning networks' perspective 'that is, self-organized, emergent, distributed systems created to facilitate learning and lifelong learning… [that] promise to change the way we learn in the future quite fundamentally' (p. 75).

Porter (2005) is also concerned with e-learning architectures, particularly for managed learning environments (MLEs). She argues that because MLEs are used in a variety of different ways and need to integrate with various systems, they are institution specific, variable systems environments. There is no universal architecture or particular model that can be applied to systems integration. Porter identifies three MLE models that typify applications: e-learning support; integrated staff and student user support; and streamlined administration, and notes that some institutions look to MLEs as a single access point, or portal, to provide a new entrance to legacy systems. Whatever model or combination is adopted the effective implementation and maintenance of an e-learning infrastructure needs collaborative agreements between stakeholders that address strategic objectives and define how they will be reliably and robustly met (p. 26).

## Practices

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.

Table D5-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

### Delivery

**Technology performance, reliability and support issues explicitly addressed when implementing the physical e-learning infrastructure.**

- ☐ *No apparent consideration of performance and reliability in technology implementation processes.*
- ☐ *Informal or inconsistent consideration of performance and reliability in technology implementation processes.*
- ☐ *Performance and reliability issues considered during the implementation of technologies used in the physical e-learning infrastructure with compliance to minimum expectations optional or not required or not formally tested prior to acceptance.*
- ■ *Performance and reliability issues formally included during the implementation of technologies used in the physical e-learning infrastructure with minimum expectations required formally by processes and tested prior to final acceptance.*

**All user digital information is stored in a validated backup system.**

**See also**: S6(2) & O4(2)

- ☐ *No backup procedure apparent.*
- ☐ *Incomplete or informal backup procedures used to store student information.*
- ☐ *Formal and regular backup procedures used for all user information but regular validation and auditing not undertaken.*
- ■ *Formal and regular backup procedures used for all user information with regular auditing and validation of content and coverage of the backup information.*

Decisions to add new e-learning infrastructure elements are guided by the ability of the new technology to integrate with the pre-existing infrastructure.

- ☐ *No evidence of integration with pre-existing infrastructure in guiding the decision to add new e-learning infrastructure elements.*
- ☐ *Inconsistent or informal use of integration with pre-existing infrastructure in guiding the decision to add new e-learning infrastructure elements.*
- ☐ *E–learning infrastructure decisions are guided in general or non-specific ways by the ability of the new technology to integrate with the pre-existing infrastructure.*
- ■ *E–learning infrastructure decisions are guided formally and systematically by the ability of the new technology to integrate with the pre-existing infrastructure with decisions to add new technology linked with information on integration characteristics.*

### Planning

**Formal assessment of technology reliability and support is required by e–learning design and (re)development procedures.**

- ☐ *No consideration of risks and potential technology failure undertaken during e-learning design and (re)development processes.*
- ☐ *Informal or incomplete consideration of risks and potential technology failure undertaken during e-learning design and (re)development processes.*
- ☐ *Formal risk analysis and planning for potential technology failure undertaken during e-learning design and (re)development processes with compliance to minimum expectations optional or not required, or no explicit strategies for alternatives defined for use in the event of failure.*
- ■ *Formal risk analysis and planning for potential technology failure undertaken during e-learning design and (re)development processes with compliance to minimum expectations required formally by processes and explicit strategies for alternatives defined for use in the event of failure.*

**All elements of the e-learning infrastructure are regularly audited to ensure the validity of backups and disaster recovery procedures.**

- ☐ *No audits undertaken and/or no backups and disaster recovery procedures in place.*
- ☐ *Informal or irregular auditing of e-learning infrastructure backups and disaster recovery procedures.*
- ☐ *Regular audits of e-learning infrastructure backups and disaster recovery procedures covering the core technologies used.*
- ■ *Regular and systematic audits of e-learning infrastructure backups and disaster recovery procedures covering the all of the technologies used.*

**Selection of technologies used in the physical e-learning infrastructure is guided by reliability information.**

- ☐ *No apparent consideration of reliability in technology selection processes.*
- ☐ *Informal or inconsistent consideration of reliability in technology selection processes.*
- ☐ *Reliability information considered during the selection of technologies used in the physical e-learning infrastructure with compliance to minimum expectations optional or not required.*
- ■ *Reliability information formally included in planning and during the selection of technologies used in the physical e-learning infrastructure with minimum expectations required formally by processes.*

Selection of technologies used in the physical e-learning infrastructure is guided by an institutional plan.

- ☐ *No apparent consideration of an institutional plan in technology selection processes.*
- ☐ *Informal or inconsistent consideration of an institutional plan in technology selection processes.*
- ☐ *An institutional plan guides the selection of technologies used in the physical e-learning infrastructure with compliance to minimum expectations optional or not required.*
- ■ *An institutional plan formally guides planning and selection of technologies used in the physical e-learning infrastructure with minimum expectations required formally by selection procedures.*

Selection of technologies used in the physical e-learning infrastructure is guided by formal support of innovation and experimentation.

- ☐ *No apparent consideration of support for innovation and experimentation in technology selection processes.*
- ☐ *Informal or inconsistent consideration of support for innovation and experimentation in technology selection processes.*
- ☐ *Support for innovation and experimentation guides the selection of technologies used in the physical e-learning infrastructure with compliance to minimum expectations optional or not required.*
- ■ *Support for innovation and experimentation formally guides planning and selection of technologies used in the physical e-learning infrastructure with minimum expectations required formally by selection procedures.*

The deployment of new e-learning infrastructure elements is guided by the interoperability of the new technology with the pre-existing infrastructure.

- ☐ *No evidence of interoperability with pre-existing infrastructure in guiding the deployment of new e-learning infrastructure elements.*
- ☐ *Inconsistent or informal use of information on interoperability with pre-existing infrastructure in guiding the deployment of new e-learning infrastructure elements.*
- ☐ *E–learning infrastructure technology deployment is guided in general or non-specific ways by the ability of the new technology to interoperate with the pre-existing infrastructure.*
- ■ *E–learning infrastructure technology deployment is guided formally and systematically by the ability of the new technology to interoperate with the pre-existing infrastructure with deployment activities linked to information on interoperability.*

Modifications to the physical e-learning infrastructure are guided by a formal risk assessment and mitigation strategy.

- ☐ *No apparent consideration of formal risk assessment and mitigation strategies when modifying the physical e-learning infrastructure.*
- ☐ *Informal or inconsistent consideration of risk assessment and mitigation strategies when modifying the physical e-learning infrastructure.*
- ☐ *Formal risk assessment and mitigation strategies guide the modification of the physical e-learning infrastructure with compliance to minimum expectations optional or not required.*
- ■ *Formal risk assessment and mitigation strategies guide the modification of the physical e-learning infrastructure with minimum expectations required formally by the strategies.*

Regular and systematic upgrading and maintenance undertaken of all elements of the e-learning infrastructure.

- ☐ *No programme of planned maintenance apparent.*
- ☐ *Maintenance and upgrades are undertaken informally in response to vendor upgrades or infrastructure failure.*
- ☐ *Upgrade and maintenance plans cover the individual elements of the e-learning infrastructure.*
- ■ *A systematic and integrated upgrade and maintenance plan covers all elements of the e-learning infrastructure with explicit consideration of their dependencies and interoperation.*

## Definition

**Technologies used in the physical e-learning infrastructure are subject to regularly revised service level agreements that explicitly consider the impact of the technology on student learning.**

- ☐ *No evidence of service level agreements governing the physical e-learning infrastructure.*
- ☐ *Service level agreements governing the physical e-learning infrastructure defined but fail to consider formally the impact of the technology on student learning.*
- ☐ *Service level agreements governing the physical e-learning infrastructure defined and consider formally the impact of the technology on student learning, but are outdated and incomplete in the coverage of the current technologies in use.*
- ■ *Service level agreements governing the physical e-learning infrastructure defined and consider formally the impact on student learning of the current technologies used.*

Modifications to the physical e-learning infrastructure are guided by institutional e-learning strategies and technology plans.

- ☐ *No apparent consideration of institutional e-learning strategies and technology plans when modifying the physical e-learning infrastructure.*
- ☐ *Informal or inconsistent consideration of institutional e-learning strategies and technology plans when modifying the physical e-learning infrastructure.*
- ☐ *Institutional e-learning strategies and technology plans guide the modification of the physical e-learning infrastructure with compliance to minimum expectations optional or not required.*
- ■ *Institutional e-learning strategies and technology plans guide the modification of the physical e-learning infrastructure with minimum expectations required formally by the strategies and plans.*

Reliability and support requirements are formally addressed in e-learning technology purchase procedures.

- ☐ *No consideration of reliability and support issues apparent in course e-learning technology purchase activities and procedures.*
- ☐ *Informal or inconsistent consideration of reliability and support issues apparent in technology purchase activities.*
- ☐ *Formal consideration of reliability and support issues required in technology purchase procedures but not referenced in purchase decisions.*
- ■ *Formal consideration of reliability and support issues required in technology purchase procedures and explicitly referenced in purchase decisions.*

Service level agreements are used to define support and performance requirements for e-learning technologies.

- ☐ *No use of service level agreements when defining support and performance requirements for e-learning technologies.*
- ☐ *Service level agreements used inconsistently or informally as part of the definition of support and performance requirements for e-learning technologies.*
- ☐ *Support and performance requirements for e-learning technologies are formally linked with service level agreements but without detailed linkages made between the particular service levels required and support and performance characteristics required of the technologies.*
- ■ *Support and performance requirements for e-learning technologies are systematically and formally linked with service level agreements.*

Modifications to the physical e-learning infrastructure are guided by interoperability standards.

- ☐ *No apparent consideration of interoperability standards when modifying the physical e-learning infrastructure.*
- ☐ *Informal or inconsistent consideration of interoperability standards when modifying the physical e-learning infrastructure.*
- ☐ *Interoperability standards guide the modification of the physical e-learning infrastructure with compliance to minimum expectations optional or not required.*
- ■ *Interoperability standards guide the modification of the physical e-learning infrastructure with minimum expectations required formally by the standards compliance procedures.*

Staff are provided with a researched evidence base of effective e-learning infrastructure initiatives.

- ☐ *No researched evidence base of effective e-learning infrastructure initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting the effectiveness of the e-learning infrastructure initiatives.*
- ☐ *Research evidence base of effective e-learning infrastructure initiatives provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *Research evidence base of effective e-learning infrastructure initiatives provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

## Management

**Performance of technologies used in the physical e-learning infrastructure is automatically monitored.**

- ☐ *No monitoring of technologies used in the physical e-learning infrastructure.*
- ☐ *Technologies used in the physical e-learning infrastructure monitored informally.*
- ☐ *Technologies used in the physical e-learning infrastructure monitored formally, but not all technologies covered or reports produced infrequently.*
- ■ *All technologies used in the physical e-learning infrastructure monitored formally and regular reports of performance provided.*

**Formal e-learning infrastructure risk assessments and mitigation strategy reviews are undertaken with the results endorsed by institutional leadership.**

**See also**: D6(4)

- ☐ *No e-learning infrastructure risk assessment and mitigation strategy review apparent.*
- ☐ *E-learning infrastructure risk assessment and mitigation strategy is reviewed informally and without apparent leadership endorsement.*
- ☐ *E-learning infrastructure risk assessment and mitigation strategy is reviewed formally but has limited endorsement from institutional leadership or is irregularly reviewed and inconsistent with current e-learning technologies and strategies.*
- ■ *E-learning infrastructure risk assessment and mitigation strategy is reviewed formally and regularly (at least biannually) to ensure consistency with current e-learning technologies and strategies and the results endorsed formally and explicitly by institutional leadership.*

**Feedback collected regularly from staff on the effectiveness, robustness and reliability of the e-learning infrastructure.**

**See also**: D6(4)

- ☐ *No feedback collected from staff on the effectiveness, robustness and reliability of the e-learning infrastructure.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all elements of the e-learning infrastructure provided or not collected regularly from all staff using the facilities, or reported incompletely or irregularly.*
- ■ *Formal, independent, staff feedback on all of the e-learning infrastructure provided collected regularly from all staff using the facilities.*

**Feedback collected regularly from students on the effectiveness, robustness and reliability of the e-learning infrastructure.**

**See also**: D6(4)

- ☐ *No feedback collected from students on the effectiveness, robustness and reliability of the e-learning infrastructure.*
- ☐ *Limited, inconsistent or informal student feedback collected on the effectiveness, robustness and reliability of the e-learning infrastructure, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all elements of the e-learning infrastructure or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ■ *Formal, independent, student feedback on all of the e-learning infrastructure collected and reported regularly from all e-learning courses.*

Compliance of the physical e-learning infrastructure with service level agreements is regularly monitored.

- ☐ *No monitoring of compliance of the physical e-learning infrastructure with service level agreements.*
- ☐ *Limited, inconsistent or informal monitoring of compliance of the physical e-learning infrastructure with service level agreements, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of compliance of the physical e-learning infrastructure with service level agreements conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and reporting of compliance of the physical e-learning infrastructure with service level agreements.*

E-learning infrastructure (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ■ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Financial costs and benefits of the e-learning infrastructure are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of the e-learning infrastructure.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of the e-learning infrastructure, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of the e-learning infrastructure, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of the e-learning infrastructure.*

E-learning infrastructure (re)development activities are guided by staff and student user testing.

- ☐ *No use of staff and student user testing during e-learning infrastructure (re)development.*
- ☐ *Inconsistent or informal incorporation of staff and student user testing during e-learning infrastructure (re)development.*
- ☐ *Staff and student user testing guides most, but not all, e-learning infrastructure (re)development projects or only used after major elements of projects have been completed.*
- ■ *E-learning infrastructure (re)development activities are formally and explicitly guided by staff and student user testing conducted throughout the life of projects and as part of project acceptance.*

## Optimisation

**Information on performance and reliability guides the deployment and ongoing use of e-learning technologies.**

- ☐ *No information on performance and reliability guides e-learning technology use or deployment.*
- ☐ *Inconsistent or informal use of information on performance and reliability guides e-learning technology use or deployment.*
- ☐ *Information on performance and reliability explicitly guides institutional e-learning technology use and deployment, but is treated as subordinate to pedagogical features, or not linked to service level agreements.*
- ■ *Information on performance and reliability explicitly guides institutional e-learning technology use and deployment and is formally linked to service level agreements.*

**Information on the effectiveness of the physical e-learning infrastructure guides e-learning strategic planning.**

- ☐ *No use of information on the effectiveness of the physical e-learning infrastructure during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on the effectiveness of the physical e-learning infrastructure during institutional e-learning strategic planning.*
- ☐ *Information on the effectiveness of the physical e-learning infrastructure explicitly guides institutional e-learning strategic planning, but is treated as subordinate to pedagogical goals, or not linked to strategy decisions.*
- ■ *Information on the effectiveness of the physical e-learning infrastructure explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

E-learning infrastructure service level agreements are regularly reviewed.

- ☐ *No apparent reviews of e–learning infrastructure service level agreements.*
- ☐ *Informal or infrequent reviews of e–learning infrastructure service level agreements.*
- ☐ *Formal reviews of e–learning infrastructure service level agreements undertaken regularly but without regard to specific technologies or pedagogies in use.*
- ■ *Formal reviews of e–learning infrastructure service level agreements undertaken regularly and systematically to compare and improve the use of specified e-learning technologies and/or pedagogies*

Information on performance and interoperability guides the (re)development of institutional e-learning standards.

- ☐ *No use of information on performance and interoperability during (re)development of institutional e-learning standards.*
- ☐ *Informal and inconsistent use of information on performance and interoperability during (re)development of institutional e-learning standards.*
- ☐ *Information on performance and interoperability explicitly guides (re)development of institutional e-learning standards, but is treated as subordinate to technical goals, or not linked to decisions regarding the standards.*
- ■ *Information on performance and interoperability explicitly guides (re)development of institutional e-learning standards and is formally linked to decisions regarding the standards.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect changing e-learning technology reliability and robustness.

- ☐ *No consideration of e-learning technology reliability and robustness in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of e-learning technology reliability and robustness in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal consideration of e-learning technology reliability and robustness in the institutional risk assessments and mitigation strategies but the information on technology reliability and robustness is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.*
- ■ *Formal and systematic consideration of e-learning technology reliability and robustness in the institutional risk assessments and mitigation strategies with information on technology reliability and robustness linked explicitly to elements of the risks assessments and mitigation plans.*

**Table D5-1**: Descriptions of process practices by capability dimension

## Process D6.

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



### Process Background

Ad-hoc development of e-learning environments has resulted in the proliferation of a wide variety of materials and systems designed to support student learning. Many of these are developed without consideration of how they appear to students moving from course to course, how they can be reused over time, or how to learn from the experience of others in developing effective materials. Standards and guidelines can support more effective practice (Marshall, 2004) and their use can result in cheaper, more useful materials to support student learning. Standards are also key to the 'services' model gaining currency as a tool for managing the growing complexity of the physical e-learning infrastructure.

The physical e-learning infrastructure, as discussed in process D5, is a complex environment in which various media facilitate a multitude of connections and interactions through highly interdependent technical elements (Gunawardena and McIsaac, 2004). Increasingly, e-learning is being provided and managed through commercial and open source centralised systems that include Managed Learning Environments (MLEs) – incorporating all institutional information systems and processes involving learning, and Virtual Learning Environments (VLE) – a system within an MLE that facilitates learning transactions and interactions (Joint Information Systems Committee, 2003b). The terms Learning Management System (LMS), and Course Management System (CMS) are also similarly used.

A MLE is now almost ubiquitous in tertiary institutions engaged in e-learning, with many different systems, both commercial and open-source, available for use. A centralised infrastructure offers significant benefits to students by simplifying access to e-learning resources and providing consistency, while freeing teaching staff to concentrate on learning and teaching aspects (Katz, 2003). The significant resources expended by the ADL Consortium in developing the SCORM framework (http://www.adlnet.org/index.cfm?fuseaction=scormabt) show that ad-hoc initiatives are unlikely to achieve the integration of technologies needed for future e-learning implementations.

The Joint Information Systems Committee identifies two challenges for MLEs: one cultural – involving institution-wide collaboration for change in pedagogical concepts; the other technical – concerning systems integration. They comment that '[f]ull integration…is most likely to come from a standards or specifications based approach… that requires the close collaboration of the entire community of colleges, support agencies and suppliers' (2003b, p. 1).

E-learning integration, for Jochems *et al.*, (2004), involves not only integrating learning using information and communication technology (ICT), but also integrating ICT in education, so that 'e-learning is not considered merely as an addition to instruction, but as an innovation, an integral part of the educational system' (p. 7). However, Jochems *et al.* find aspects of the system's technical dimension problematic. Arguing that interoperability specifications are crucial for large interconnected networks, they note that although there are several initiatives promoting specifications, there is also a plethora of incomplete architectures, protocols and standards to contend with. Furthermore, they comment that actual implementation of network interoperability mostly falls outside the influence of e-learning. Koper (2004) points to the importance of e-learning user interfaces, which govern much of the learning interaction and have quite specific requirements that differ from those of most common applications (pp. 69-70). In concluding, Jochems *et al.* observe that although perspectives of e-learning are often reduced to either interaction or delivery capabilities, integrated e-learning must take on a 'wider, organizational, systemic perspective' (p. 206).

Expanding on the problem of e-learning 'standards', (Hirumi, 2005) notes that these are rarely true standards, rather, they are usually 'guidelines, specifications, or statements of good practice' (p. 320) such as those used in the e-Learning Guidelines for New Zealand (http://elg.massey.ac.nz). One that is close to becoming a standard is the Shareable Content Object Reference Model (SCORM), which concerns the capability of learning materials to be shared and reused. The generic standard used by many creators of specifications is the Institute of Electrical and Electronics Engineers (IEEE) Learning Technology Standards Committee (LTSC) P1484, which is working towards International Standards Organisation

(ISO) accreditation for learning technology (p. 321). The Aviation Industry's involvement in computer-based training also gives it some sway over learning technology specifications. Reporting on his analysis of six major industry specifications, Hirumi identifies two main variables; learning content, and systems operating environment. Learning content is now focused on attaining high levels of time and information efficiency, resulting in the 'disaggregation of content into smaller instructional units [thereby] providing smaller chunks of instructions (referred to as learning objects) at the moment and location of need through the use of modern telecommunication technologies' (p. 322). Definitions of learning objects vary, problematically, from 'any entity digital or non-digital that may be used for learning, education, or training' to 'the smallest stand-alone piece of instruction that contains an objective, an activity, and an assessment, wrapped by descriptive metadata' (p. 322). Metadata being the indexing information used to describe the object's nature and purpose. According to Hirumi, good progress is being made on technical specifications that govern systems matters such as interoperability. However, he perceives difficulties in the separation of guidelines and specifications into educational areas (courses and programmes) and industrial items (objects and assets), and suggests that the conversations occurring in the quest for quality e-learning may be as, or even more, helpful than the standards they seek to determine.

## Practices

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.

Table D6-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| Delivery |
|---|
| **The physical e-learning infrastructure is integrated with key institutional administrative systems.** |
| ☐ *No integration between the physical e-learning infrastructure and other key institutional administrative IT systems.* |
| ☐ *Integration between the physical e-learning infrastructure and other key institutional IT systems is dependent on human intervention for key operations or is incomplete and fails to include most key institutional administrative IT systems.* |
| ☐ *The physical e-learning infrastructure and other key institutional administrative IT systems are formally linked, but with some operations requiring human intervention or some systems remaining isolated.* |
| ■ *The physical e-learning infrastructure and other key institutional administrative IT systems are seamlessly linked with no human intervention required during normal operation.* |
| **Reference is made to appropriate standards when designing and (re)developing the physical e-learning infrastructure.** |
| ☐ *No e-learning infrastructure standards referenced during infrastructure design, (re)development initiatives.* |
| ☐ *E-learning infrastructure standards and guidelines used infrequently or informally during infrastructure design, (re)development initiatives.* |
| ☐ *E-learning infrastructure standards and guidelines formally included in infrastructure design and (re)development procedures but not applied in all cases, or linked formally to decisions.* |
| ■ *E-learning infrastructure standards and guidelines formally included in infrastructure design and (re)development procedures and explicitly linked to decisions.* |
| **E-learning infrastructure standards are defined for all technologies used in the design, (re)development and delivery of courses.** |
| ☐ *No e-learning infrastructure standards provided.* |
| ☐ *E-learning infrastructure standards incompletely or informally defined for technologies used in the design, (re)development and delivery of e-learning courses.* |
| ☐ *E-learning infrastructure standards formally defined for most technologies used in the design, (re)development and delivery of e-learning courses.* |
| ■ *E-learning infrastructure standards formally defined for all technologies used in the design, (re)development and delivery of e-learning courses.* |
| Students and staff are informed of the use of standards to guide e-learning technology deployment. |
| ☐ *No information provided to students or staff on the use of standards to guide e-learning technology deployment.* |
| ☐ *Information provided informally or inconsistently to students or staff on the use of standards to guide e-learning technology deployment.* |
| ☐ *Only staff are informed of the use of standards to guide e-learning technology deployment, or students and staff are only informed of standards subsequent to deployment.* |
| ■ *Students and staff are informed of the use of standards to guide e-learning technology deployment prior to the deployment and as part of initial use of new technologies.* |

D6

## Planning

**A searchable repository of standards for the physical e-learning infrastructure is provided.**

- ☐ *No repository of standards for the physical e-learning infrastructure provided.*
- ☐ *Standards used in the physical e-learning infrastructure are stored informally and as a consequence of use rather than as a defined activity.*
- ☐ *Standards used in the physical e-learning infrastructure are stored formally as a consequence of use but the repository is not actively maintained.*
- ■ *Standards used in and relevant to the physical e-learning infrastructure are stored formally and the repository actively maintained for use in e-learning projects and initiatives.*

Institutional reviews monitor the use of standards for the physical e-learning infrastructure.

- ☐ *No review of the use of standards for the physical e-learning infrastructure.*
- ☐ *Inconsistent or informal monitoring of the use of standards for the physical e-learning infrastructure during institutional reviews.*
- ☐ *Institutional reviews consider the use of standards for some elements of the physical e-learning infrastructure, or refer to outdated standards.*
- ■ *Institutional reviews formally and systematically address the use of standards for the physical e-learning infrastructure.*

Institutional reviews monitor risks associated with the use of standards for the physical e-learning infrastructure.

- ☐ *No review of risks associated with the use of standards for the physical e-learning infrastructure.*
- ☐ *Inconsistent or informal assessment of the risks associated with the use of standards for the physical e-learning infrastructure during institutional reviews.*
- ☐ *Institutional reviews assess the risks associated with the use of standards for some elements of the physical e-learning infrastructure, or refer to outdated standards, or assessments undertaken by non-specialists.*
- ■ *Institutional reviews include specialist assessments of the risks associated with the use of standards for the physical e-learning infrastructure.*

## Definition

**Institutional policies require the use of defined standards when designing, (re)developing or using the physical e-learning infrastructure.**

- ☐ *No requirement to use e-learning infrastructure standards.*
- ☐ *E-learning infrastructure standards fail to impose mandatory minimum requirements on infrastructure design, (re)development and use.*
- ☐ *E-learning infrastructure standards define mandatory minimum requirements on infrastructure design, (re)development and use, however, compliance incomplete or not monitored.*
- ■ *E-learning infrastructure standards define mandatory minimum requirements on infrastructure design, (re)development and use with compliance required and monitored.*

**Staff are provided with support resources (including training, guidelines and examples) for working with institutional standards for the physical e-learning infrastructure.**

- ☐ *No training, guidelines or examples provided to teaching staff on using e-learning standards and infrastructure technologies.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing or (re)developing courses.*

Staff are provided with project tools (including standard contracts and licenses, checklists and quality assurance procedures) for e-learning design and (re)development.

**See also**: D1(3), D2(3), D3(3) & S5(3)

- ☐ *No e-learning design and (re)development technical and pedagogical project tools and materials provided.*
- ☐ *E-learning project tools and materials provided that are incomplete, informal or not designed for use by non-specialist staff.*
- ☐ *E-learning project tools and materials provided that are designed for use by non-specialist staff, but fail to cover the range of e-learning technologies and pedagogies in use and/or are not used in all e-learning design and (re)development initiatives.*
- ■ *E-learning project tools and materials provided that are designed for use by non-specialist staff and which cover all of the e-learning technologies and pedagogies in use and are used in all e-learning design and (re)development initiatives.*

Staff are provided with a researched evidence base of effective e-learning standards.

- ☐ *No researched evidence base of e-learning standards provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting the effectiveness of the e-learning standards.*
- ☐ *Research evidence base of e-learning standards provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *Research evidence base of e-learning standards provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Institutional decisions to add or modify e-learning standards are guided by institutional e-learning strategies and technology plans.

- ☐ *No apparent consideration of institutional e-learning strategies and technology plans when adding or modifying e-learning standards.*
- ☐ *Informal or inconsistent consideration of institutional e-learning strategies and technology plans when adding or modifying e-learning standards.*
- ☐ *Institutional e-learning strategies and technology plans guide the addition or modification of the e-learning standards with compliance to minimum expectations optional or not required.*
- ■ *Institutional e-learning strategies and technology plans guide the addition or modification of e-learning standards with minimum expectations required formally by the strategies and plans.*

## Management

**Compliance with and use of defined institutional standards is measured and enforced through regular review of the physical e-learning infrastructure and individual courses.**

- ☐ *No e-learning infrastructure standards provided.*
- ☐ *E-learning infrastructure standards define minimum compliance requirements on infrastructure design, (re)development and delivery activities, however, compliance optional or not monitored.*
- ☐ *E-learning infrastructure standards define mandatory minimum compliance requirements on infrastructure design, (re)development and delivery activities, however, compliance is only assessed infrequently or incompletely.*
- ☐ *E-learning infrastructure standards define mandatory minimum compliance requirements on infrastructure design, (re)development and delivery activities and compliance to all standards is regularly reviewed and monitored.*

**Feedback collected regularly from staff on the effectiveness, robustness and reliability of the e-learning infrastructure.**

**See also**: D5(4)

- ☐ *No feedback collected from staff on the effectiveness, robustness and reliability of the e-learning infrastructure.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all elements of the e-learning infrastructure provided or not collected regularly from all staff using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on all of the e-learning infrastructure provided collected regularly from all staff using the facilities.*

**Feedback collected regularly from students on the effectiveness, robustness and reliability of the e-learning infrastructure.**

**See also**: D5(4)

- ☐ *No feedback collected from students on the effectiveness, robustness and reliability of the e-learning infrastructure.*
- ☐ *Limited, inconsistent or informal student feedback collected on the effectiveness, robustness and reliability of the e-learning infrastructure, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all elements of the e-learning infrastructure or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback on all of the e-learning infrastructure collected and reported regularly from all e-learning courses.*

The impact of standards on the physical e-learning infrastructure is regularly monitored.

- ☐ *No monitoring of the impact of standards on the physical e-learning infrastructure.*
- ☐ *Limited, inconsistent or informal monitoring of the impact of standards on the physical e-learning infrastructure, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the impact of standards on the physical e-learning infrastructure conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of the impact of standards on the physical e-learning infrastructure.*

Financial costs and benefits of e-learning standards are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of e-learning standards.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning standards, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning standards, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning standards.*

E-learning infrastructure (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4))

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ☐ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Formal e-learning infrastructure risk assessments and mitigation strategy reviews are undertaken with the results endorsed by institutional leadership.

**See also**: D5(4)

- ☐ *No e-learning infrastructure risk assessment and mitigation strategy review apparent.*
- ☐ *E-learning infrastructure risk assessment and mitigation strategy is reviewed informally and without apparent leadership endorsement.*
- ☐ *E-learning infrastructure risk assessment and mitigation strategy is reviewed formally but has limited endorsement from institutional leadership or is irregularly reviewed and inconsistent with current e-learning technologies and strategies.*
- ☐ *E-learning infrastructure risk assessment and mitigation strategy is reviewed formally and regularly (at least biannually) to ensure consistency with current e-learning technologies and strategies and the results endorsed formally and explicitly by institutional leadership.*

E-learning standards (re)development activities are guided by staff and student user testing.

- ☐ *No use of staff and student user testing during e-learning standards (re)development.*
- ☐ *Inconsistent or informal incorporation of staff and student user testing during e-learning standards (re)development.*
- ☐ *Staff and student user testing guides most, but not all, e-learning standards (re)development projects or only used after major elements of projects have been completed.*
- ☐ *E-learning standards (re)development activities are formally and explicitly guided by staff and student user testing conducted throughout the life of projects and as part of project acceptance.*

## Optimisation

**Information on the impact of institutional e-learning standards on student outcomes guides the content of those standards.**

- ☐ *No information on the impact of institutional e-learning standards on student outcomes used when determining the content of institutional e-learning standards and procedures.*
- ☐ *Informal and inconsistent use of information on the impact of institutional e-learning standards on student outcomes when determining the content of institutional e-learning standards and procedures.*
- ☐ *Information on the impact of institutional e-learning standards on student outcomes explicitly guides the content of institutional e-learning standards and procedures, but is treated as subordinate to technical goals, or not linked to particular standards and procedures.*
- ■ *Information on the impact of institutional e-learning standards on student outcomes explicitly guides the content of institutional e-learning standards and procedures and is formally linked to particular standards and procedures.*

**Information on the performance and integration of the e-learning infrastructure guides the content of institutional e-learning standards.**

- ☐ *No information on the performance and integration of the e-learning infrastructure used when determining the content of institutional e-learning standards and procedures.*
- ☐ *Informal and inconsistent use of information on the performance and integration of the e-learning infrastructure when determining the content of institutional e-learning standards and procedures.*
- ☐ *Information on the performance and integration of the e-learning infrastructure explicitly guides the content of institutional e-learning standards and procedures, but is treated as subordinate to technical goals, or not linked to particular standards and procedures.*
- ■ *Information on the performance and integration of the e-learning infrastructure explicitly guides the content of institutional e-learning standards and procedures and is formally linked to particular standards and procedures.*

E-learning standards are regularly reviewed.

- ☐ *No apparent reviews of e–learning standards.*
- ☐ *Informal or infrequent reviews of e–learning standards.*
- ☐ *Formal reviews of e–learning standards undertaken regularly but without regard to specific technologies or pedagogies in use.*
- ■ *Formal reviews of e–learning standards undertaken regularly and systematically to compare and improve the use of specified e-learning technologies and/or pedagogies.*

A formal procedure guides the adoption of new standards.

- ☐ *No use of a formal procedure when adopting new standards.*
- ☐ *Informal procedures guide the adoption of new standards.*
- ☐ *Adoption of new standards is undertaken formally but with inconsistent approaches used for different types of standards.*
- ■ *Adoption of new standards is undertaken formally according to a defined and consistent procedure.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect e-learning initiative outcomes.

**See also**: O1(5), O2(5), O3(5) & O5(5)

- ☐ *No consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.*
- ■ *Formal and systematic consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.*

**Table D6-1**: Descriptions of process practices by capability dimension

# Process D7.

*Resources created are designed and managed to maximise reuse*



## Process Background

It is argued that a major economic and efficiency advantage of e-learning is its potential for sharing and reusing learning materials (Jochems *et al*., 2004; Weller, 2004; Wiley, 2000). This view has given rise to a revision of learning materials as 'learning objects' in a 'learning object economy' (Campbell, 2003). The realm of learning objects is prominently promoted through the Sharable Content Object Reference Model (SCORM®) approach (Dodds and Thropp, 2004), which specifies a technical framework to standardise the creation, use, sharing, and reuse of learning objects. There are several definitions of learning objects, ranging from '…reuseable bits of learning content' (Sloep, 2004, p. 139) to '…any entity, digital or non-digital, which can be used, re-used, referenced during technology supported learning' (IEEE, 2005). The IEEE list of learning objects include: 'multimedia content, instructional content, learning objectives, instructional software and software tools, persons, organizations, or events referenced during technology supported learning' (IEEE, 2005). However Sloep (2004) notes that there are objections to the IEEE definition that do not consider the inclusion of people appropriate, and find the term 'technology supported learning' too exclusive (p. 142).

Wiley (2000) notes that the use of learning objects in e-learning is a far more complex process than the Lego metaphor, used by some, would imply: '"LEGO properties" of learning objects point toward a possible trend: the tendency to treat learning objects like components of a knowledge management system (perhaps the term "information objects" would be appropriate)' (p. 18).

Also critiquing the Lego metaphor for its oversimplification of the complexities, Littlejohn (2003) notes that, from a constructivist perspective, 'learning resources act as triggers for both internal (inner mental) and external dialogue (with tutors and peers)' (p. 2). This gives rise to the proposal that learning processes are also resources that should be regarded 'as templates (for example a framework for discussion or a learning task) that teachers could access and use…' (p. 3).

The reuse and sharing of learning objects relies on the ability to store and retrieve them effectively. To achieve this, the object's description – learning object metadata (LOM) – and content packaging (CP) specifications must be accurately documented. Although this information is extensive and agreement on its formulation is still to be reached, it will provide capability for learning objects to be not only stored and retrieved with ease but also manipulated by software such as authoring systems.

Koper (2004), identifies several issues concerning sharing and reuse that require further clarification. Firstly, there is a need to clarify types of objects that are reusable. The most reusable being small units of learning, thereby raising the issue of granularization (Duncan, 2003; Wiley, 2000), or the size of learning objects. A third issue concerns how objects are aggregated for use in learning units and activities, particularly with regard to automated processes, which, in turn introduces the issue of disaggregation, or how to deal with other course materials that are not appropriate for e-learning. Finally there is the issue of adapting learning objects, which concerns not only technical complexities, but also the intellectual and property rights involved.

The need for a systemic view of these issues introduces the notion of a learning object economy with drivers and barriers that will influence and affect local and global exchanges of learning resources (Campbell, 2003). Campbell envisions markets for both globalised commercial products and open source solutions in 'micro trading economies where resources are exchanged within and between recognised communities of practice' (p. 44).

Strijker and Collis (2006) describe an approach to identifying contextual dimensions of learning that assist with the clarifying the reuse capabilities of learning objects. There are five categories of dimension each with contexts ranging from systemic to personal. The dimensions are: cultural, ranging from systemic industrial through domestic, civic, opinion, and mercantile, to personal inspiration; learning approaches, ranging between acquisitive and participative; incentives, from organisational to personal; work processes from formal systems to personal habits; and storage that uses a repository system or

is held locally (p. 92). Strijker and Collis propose a profiling tool based on this approach that enables values to be plotted on each dimension and thereby providing strategic information about the potential reusability, or otherwise, of learning objects: 'The Learning Object Context Profiling Model can help increase awareness of stakeholders align the dimensions in a systems-oriented way…to make a reuse strategy successful' (p. 94).

Learning object sharing and reuse is, as Pegler (2005) discusses, a 'hot topic' that involves considering a wide range of conceptual approaches, including understandings of roles that learning objects may play in the future of e-learning (Bennett and McGee, 2005).

## Practices

Evidence of capability in this process is seen through the creation and use 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.

Table D7-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **E–learning resources are packaged and stored for reuse.** |
| ☐ *No apparent packaging and storing of e-learning resources for reuse.* |
| ☐ *E-learning resources are packaged and stored informally and as a consequence of use rather than as a defined activity.* |
| ☐ *E-learning resources are packaged and stored formally as a consequence of use but the process is not undertaken explicitly for reuse.* |
| ☐ *E-learning resources are packaged and stored formally and actively maintained for reuse in e-learning projects and initiatives.* |
| Metadata is provided for all e-learning resources. |
| ☐ *No metadata provided with e-learning resources.* |
| ☐ *Metadata provided informally or inconsistently with e-learning resources.* |
| ☐ *Metadata provided formally with all e-learning resources but limited to information generated automatically or supplied by non-specialist staff, or provided in a variety of formats.* |
| ☐ *Formally and systematically developed metadata created by information specialists provided formally with all e-learning resources using a common schema.* |
| Ownership and licensing information is provided for all e-learning resources. |
| ☐ *No ownership and licensing information provided with e-learning resources.* |
| ☐ *Ownership and licensing information provided informally or inconsistently with e-learning resources.* |
| ☐ *Ownership and licensing information provided formally as part of the content of e-learning resources but limited to a brief copyright statement without detailed information on permitted uses.* |
| ☐ *Ownership and licensing information provided formally with all e-learning resources including detailed contact and permitted use information.* |
| **Planning** |
| **A searchable repository of reusable e-learning resources is provided.** |
| ☐ *No repository of reusable e-learning resources provided.* |
| ☐ *Reusable e-learning resources are stored informally and as a consequence of use rather than as a defined activity.* |
| ☐ *Reusable e-learning resources are stored formally as a consequence of use but the repository is not actively maintained.* |
| ☐ *Reusable e-learning resources are stored formally and the repository actively maintained for use in e-learning projects and initiatives.* |
| **E–learning design and (re)development procedures include explicit consideration of reusing pre-existing resources before new resources are created.** |
| ☐ *No apparent consideration of licensing or purchasing and reuse of pre-existing resources before new resources are created.* |
| ☐ *Informal or inconsistent consideration of licensing or purchasing and reuse of pre-existing resources before new resources are created.* |
| ☐ *Consideration of licensing or purchasing and reuse of pre-existing resources included in e–learning design and (re)development procedures but regarded as optional or not required to be done.* |
| ☐ *Consideration of licensing or purchasing and reuse of pre-existing resources included in e–learning design and (re)development procedures and formal rejection of existing resources required before new resources are created.* |

**Incentives provided to teaching staff who create reusable e-learning resources.**

- ☐ *No recognition or incentives provided to teaching staff to create resources that can be effectively reused.*
- ☐ *Informal, inconsistent or insignificant recognition or incentives provided to teaching staff to create resources that can be effectively reused.*
- ☐ *Formal, but generic or minor, recognition or incentives provided to teaching staff to create resources that can be effectively reused.*
- ☐ *Formal and significant recognition or incentives provided to teaching staff to create resources that can be effectively reused.*

Incentives provided to teaching staff who reuse e-learning resources.

- ☐ *No recognition or incentives provided to teaching staff to reuse resources sourced internally or licensed from external repositories.*
- ☐ *Informal, inconsistent or insignificant recognition or incentives provided to teaching staff to reuse resources sourced internally or licensed from external repositories.*
- ☐ *Formal, but generic or minor, recognition or incentives provided to teaching staff to reuse resources sourced internally or licensed from external repositories.*
- ☐ *Formal and significant recognition or incentives provided to teaching staff to reuse resources sourced internally or licensed from external repositories.*

E-learning resources are explicitly designed to support ongoing maintenance and adaptation.

- ☐ *No support of ongoing maintenance and adaptation included in e-learning resource design.*
- ☐ *Design of e-learning resources makes passing or informal reference to ongoing maintenance and adaptation.*
- ☐ *E-learning resources are designed to support ongoing maintenance and adaptation through the use of generic tools without explicit consideration of adaptation or reuse in alternative contexts.*
- ☐ *E-learning resources are explicitly designed with the goal of simplifying maintenance and the support for adaptation and use in alternative contexts, with design decisions formally linked to this goal.*

Metadata templates are used during e-learning design and (re)development activities.

- ☐ *No use of metadata templates during e-learning design and (re)development.*
- ☐ *Metadata templates are used informally or inconsistently during e-learning design and (re)development.*
- ☐ *Metadata templates are used formally during e-learning design and (re)development but a variety of formats are used, or use is optional.*
- ☐ *Metadata templates are used formally and systematically during e-learning design and (re)development.*

Ownership and licensing information is formally stored during e-learning design and (re)development activities.

- ☐ *No ownership and licensing information stored during e-learning design and (re)development activities.*
- ☐ *Ownership and licensing information stored informally or inconsistently during e-learning design and (re)development activities.*
- ☐ *Ownership and licensing information stored formally during e-learning design and (re)development activities but limited to a brief copyright statement without detailed information on permitted uses.*
- ☐ *Ownership and licensing information, including detailed contact and permitted uses, stored formally during e-learning design and (re)development activities.*

E-learning resources are designed to support reuse by students.

- ☐ *E-learning resources are designed for single use tasks.*
- ☐ *Reuse of e-learning resources by students is incidental to their primary function and is considered informally or inconsistently during design and (re)development.*
- ☐ *E-learning resources are designed to support reuse by students but only within the narrow parameters of the original learning task intended for the resource.*
- ☐ *E-learning resources are explicitly designed to support reuse by students through the use of open-ended activities and the ability to substitute materials and retain information about previous student performance.*

Formal risk assessments of reuse and mitigation planning are required by e–learning reuse procedures.

- ☐ *No consideration of risks associated with reuse undertaken during e-learning design and (re)development processes.*
- ☐ *Informal or incomplete consideration of risks associated with reuse undertaken during e-learning design and (re)development processes.*
- ☐ *Formal risk analysis and planning undertaken of reuse during e-learning design and (re)development processes with compliance to minimum expectations optional or not required, or no explicit strategies for alternatives defined for reused resources.*
- ☐ *Formal risk analysis and planning undertaken of reuse during e-learning design and (re)development processes with compliance to minimum expectations required formally by processes and explicit strategies for alternatives defined for reused resources.*

## Definition

**Intellectual property agreements negotiated with all staff involved in the design, and (re)development of course resources.**

- ☐ *No contractual agreement covers intellectual property aspects of employment of staff and/or a dependence on the default position under law.*
- ☐ *Informal or incomplete coverage of intellectual property aspects of employment of staff.*
- ☐ *Intellectual property agreements formally defined for all staff engaged in the design, and (re)development of course resources but these are not explicitly discussed with affected staff and the implications not apparent in design and (re)development plans.*
- ☐ *Intellectual property agreements formally defined for all staff engaged in the design, and (re)development of course resources with the implications explicitly discussed with affected staff and the implications incorporated formally into design and (re)development plans.*

**Staff are provided with support resources (including training, guidelines and examples) on creating and adapting reusable e-learning resources.**

- ☐ *No training, guidelines or examples provided to staff on using and creating reusable e-learning resources.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all staff with the requirement that they be used prior to involvement in e-learning design and (re)development initiatives.*

**Institutional policies encourage the reuse of e-learning resources.**

- ☐ *No strategies, policies, contracts or standards provided that encourage the reuse of e-learning resources.*
- ☐ *Incomplete or informal encouragement of the reuse of e-learning resources.*
- ☐ *Institutional strategies, policies, contracts and standards encourage the reuse of e-learning resources however compliance incomplete or not required.*
- ☐ *Institutional strategies, policies, contracts and standards encourage the reuse of e-learning resources and define mandatory compliance requirements.*

Metadata templates and schemas are defined for use at a disciplinary and institutional level.

**See also**: O4(3)

- ☐ *No metadata templates and schemas are defined.*
- ☐ *Metadata templates and schemas are defined informally and used inconsistently.*
- ☐ *Generic metadata templates and schemas are defined formally but are not promoted or used throughout the institution.*
- ☐ *Metadata templates and schemas are defined formally with specific templates and schemas provided and promoted for use at a disciplinary and institutional level.*

Staff are provided with support resources (including training, guidelines and examples) on creating metadata.

- ☐ *No training, guidelines or examples provided to staff on how to create metadata.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff on how to create metadata.*
- ☐ *Detailed and specific training, guidelines and examples provided to staff on how to create metadata but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all staff on how to create metadata with the requirement that they be used prior to designing or (re)developing courses.*

Institutional standards and templates provide pre-defined intellectual property licences for use with e-learning resources.

- ☐ *No template intellectual property licences provided.*
- ☐ *Institutional standards and templates provide outdated intellectual property licences or fail to address issues arising from the use of e-learning resources.*
- ☐ *Institutional standards and templates provide generic intellectual property licences for use with e-learning resources without information on how to customise them for particular uses, or which only provide for total institutional control.*
- ☐ *Institutional standards and templates provide a set of pre-defined intellectual property licences for use with e-learning resources with information on how to customise them for particular uses, and which provide for a range of licensing scenarios.*

Institutional policies require that e-learning resources be created in a manner that supports reuse.

- ☐ *No policy requirement that e-learning resources be created in a manner that supports reuse.*
- ☐ *Policies suggest that e-learning resources be created in a manner that supports reuse.*
- ☐ *Policies require that e-learning resources be created in a manner that supports reuse but without any guidance as to the extent or type of reuse, or without any compliance mandated.*
- ☐ *Clear, formal, policy requirement that e-learning resources be created in a manner that supports reuse, including detailed information on the types of reuse that should be supported, licensing, storage and retrieval.*

Institutional policies define how digital information is retained and accessed.

**See also**: L6(3) & O4(3)

- ☐ *No guidelines or policy on information storage apparent.*
- ☐ *Informal, incomplete or outdated guidelines or policy on information storage provided.*
- ☐ *Formal guidelines or policy on information storage provided without explicit linkages to the institutional repositories in use, or without specifying how information is to be stored and accessed, or what licenses control and authorise usage.*
- ☐ *Formal guidelines or policy on information storage provided with explicit and systematic linkages to the institutional repositories in use, specifying how information is to be stored and accessed, and what licenses control and authorise usage.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L6(3), L7(3), D1(3), D2(3), D3(3), S5(3), S6(3), O1(3), O3(3), O4(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

## Management

**E–learning resources intended for reuse are tested and reviewed by staff and student users.**

- ☐ *No review and testing of e-learning resources during e-learning design and (re)development processes.*
- ☐ *Informal or incomplete review and testing of e-learning resources undertaken during e-learning design and (re)development processes and/or without the involvement of student and staff participants.*
- ☐ *Formal review and testing of e-learning resources undertaken during e-learning design and (re)development processes with compliance to minimum expectations optional or not required and/or minimal staff and student involvement.*
- ☐ *Formal review and testing of e-learning resources undertaken during e-learning design and (re)development processes with compliance to minimum expectations, staff and student involvement required formally by processes.*

**Feedback collected regularly from staff regarding the effectiveness of systems and procedures for encouraging and supporting reuse of course resources.**

- ☐ *No feedback collected from staff on the effectiveness of systems and procedures for encouraging and supporting reuse of course resources.*
- ☐ *Limited, inconsistent or informal staff feedback on the effectiveness of systems and procedures for encouraging and supporting reuse of course resources collected, or feedback collected but not reported.*
- ■ *Formal, independent, staff feedback collected on some but not all systems and procedures for encouraging and supporting reuse provided or not collected regularly from all staff using the facilities, or reported incompletely or irregularly.*
- ■ *Formal, independent, staff feedback on all of the systems and procedures for encouraging and supporting reuse provided collected regularly from all staff using the facilities.*

**The extent to which resources are being reused is monitored regularly.**

- ☐ *No monitoring of the extent to which resources are being reused.*
- ☐ *Limited, inconsistent or informal monitoring of the extent to which resources are being reused, or information collected but not reported.*
- ■ *Formal, independent, monitoring of the extent to which resources are being reused collected, but reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring of the extent to which resources are being reused.*

**The extent to which resources are being created for reuse is monitored regularly.**

- ☐ *No monitoring of the extent to which resources are created for reuse.*
- ☐ *Limited, inconsistent or informal monitoring of the extent to which resources are created for reuse, or information collected but not reported.*
- ■ *Formal, independent, monitoring of the extent to which resources are created for reuse collected, but reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring of the extent to which resources are created for reuse.*

Compliance with standards for metadata creation is monitored regularly**.**

- ☐ *No monitoring of compliance with standards for metadata creation.*
- ☐ *Limited, inconsistent or informal monitoring of compliance with standards for metadata creation, or information collected but not reported.*
- ■ *Formal, independent, monitoring of the extent of compliance with standards for metadata creation, but reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring of the extent of compliance with standards for metadata creation.*

Financial costs and benefits of reuse are regularly monitored**.**

- ☐ *No monitoring of the financial costs and benefits of reuse.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of reuse, or information collected but not reported.*
- ■ *Formal, independent, monitoring of the financial costs and benefits of reuse, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of reuse.*

Formal e-learning reuse risk assessments and mitigation strategy reviews are undertaken with the results endorsed by institutional leadership**.**

- ☐ *No e-learning reuse risk assessment and mitigation strategy review apparent.*
- ☐ *E-learning reuse risk assessment and mitigation strategy is reviewed informally and without apparent leadership endorsement.*
- ■ *E-learning reuse risk assessment and mitigation strategy is reviewed formally but has limited endorsement from institutional leadership or is irregularly reviewed and inconsistent with current e-learning technologies and strategies.*
- ■ *E-learning reuse risk assessment and mitigation strategy is reviewed formally and regularly (at least biannually) to ensure consistency with current e-learning technologies and strategies and the results endorsed formally and explicitly by institutional leadership.*

## Optimisation

**Deployment and use of e-learning technologies is guided by information on its support of reuse.**

- ☐ *No information on the support of reuse guides e-learning technology use or deployment.*
- ☐ *Inconsistent or informal use of information on the support of reuse guides e-learning technology use or deployment.*
- ■ *Information on the support of reuse by technologies explicitly guides institutional use and deployment of those technologies, but is treated as subordinate to technology features, or not linked to service level agreements.*
- ■ *Information on the support of reuse by technologies explicitly guides institutional use and deployment of those technologies and is formally linked to service level agreements.*

**Information on the effectiveness of attempts to encourage reuse guides e-learning strategic planning.**

- ☐ *No information on the effectiveness of attempts to encourage reuse used during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on the effectiveness of attempts to encourage reuse during institutional e-learning strategic planning.*
- ■ *Information on the effectiveness of attempts to encourage reuse explicitly guides institutional e-learning strategic planning, but is treated as subordinate to technical goals, or not linked to strategy decisions.*
- ■ *Information on the effectiveness of attempts to encourage reuse explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

Information on the extent of e-learning resource reuse guides e-learning initiative planning**.**

- ☐ *No use of information on the extent of e-learning resource reuse during e-learning initiative planning.*
- ☐ *Informal and inconsistent use of information on the extent of e-learning resource reuse during e-learning initiative planning.*
- ■ *Information on the extent of e-learning resource reuse explicitly guides e-learning initiative planning, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ■ *Information on the extent of e-learning resource reuse explicitly guides e-learning initiative planning and is formally linked to design decisions.*

| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing staff e-learning reuse support needs. |
|---|
| ☐ *No consideration of staff reuse support needs in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of staff reuse support needs in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of staff reuse support needs in the institutional risk assessments and mitigation strategies but the information on support needs is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ☐ *Formal and systematic consideration of current staff reuse support needs in the institutional risk assessments and mitigation strategies with information on support needs linked explicitly to elements of the risks assessments and mitigation plans.* |

**Table D7-1**: Descriptions of process practices by capability dimension

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

This process area covers the day-to-day management and support of e-learning delivery Particularly as they impact on the ability of students to engage effectively with e-learning and teaching staff to facilitate students achieving the intended learning outcomes. A goal of these processes is ensuring the efficient and effective day to day management of e-learning delivery. This means students and teaching staff can focus on the educational aspects of the course rather than peripheral issues. The individual processes are aimed at ensuring teaching staff and students are placed in the best possible way to succeed in use of e-learning pedagogies and technologies and are not hindered by lack of institutional information, support or training.

| **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 are provided with library facilities when engaging in e-learning |
| S3. | Student enquiries, questions and complaints are collected and managed formally |
| S4. | Students are provided with personal and learning support services when engaging in e-learning |
| S5. | Teaching staff are provided with e-learning pedagogical support and professional development |
| S6. | Teaching staff are provided with technical support in using digital information created by students |

**Table 4:** eMM Version Two *Support* Processes

## Process S1.

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

### Process Background



The dependence of e-learning on technology means that students must be able to receive support to ensure they can make effective use of that technology whenever they choose to study (Ragan, 1999; Salmon, 2000; Laurilard, 2002). Access to support facilities has been shown to correlate with improved learning outcomes (Fredericksen *et al*., 1999) but this is obviously predicated on students getting a professional and timely service.

Recent research shows that students' need for technical assistance is no longer seen as a significant barrier to e-learning (Muilenburg and Berge, 2005). However, although more students are gaining improved computer literacy skills, many still believe they need additional training, and older students report that they need more training than do younger students (Kvavik and Caruso, 2005, p. 9). Kvavik and Caruso consider training to be an ongoing requirement as technology advances and changes, '[w]e cannot assume that students are prepared to take advantage of these technologies in the absence of planned, systematic, and just-in-time training that is based on a recognized level of required skills' (p. 19). They also recommend a policy approach that requires institutions to 'articulate concrete IT learner competencies and literacy for students' (p. 19). Finally, Kvavik and Caruso report that the reliability of IT services and support is most important for students, who 'express frustration when networks or servers are down, technical support is unavailable, or the technology gets in the way of completing their required coursework' (p. 19).

A study by Kedar *et al*., (2003) indicates that if technological and technical problems are not promptly resolved, students express dissatisfaction with e-learning systems (Bouhnik and Marcus, 2006, p. 303). Technical problems and learning difficulties are related, according to Clyde and Delohery (2005): '…half of the students claiming technical problems…have been experiencing problems with their own learning curve' (p. 38). They recommend, as do others (for example, Vonderwell and Zacharia, 2005), a preemptive approach to these problems that assesses students' technical capabilities to ensure that appropriate levels of institutional or specific training and support are made available as needed. For Conrad and Donaldson (2004), meeting the needs of online learners also involves the online facilitator getting to know students and identifying those needs.

According to Kirschner *et al*., (2004), there can be significant difference between intentions for support and users perceptions of them. They describe an iterative model for designing for e-learning that attends to six steps, including learner competencies, interactions, and tasks, towards 'determining how computer support can be best applied' (p. 31). The model pays close attention to actual and particular learner needs, including: how best to address and support those needs, the learner's perceptions of the support provided, how the support is actually used, and how effective the support is for actual learning achievement: 'We might be tempted to say that this is "the proof of the pudding"' (p. 30).

Salmon's (2000) 5 Step Model similarly proposes a staged approach to supporting learners' technology needs that begins by helping with setting up and accessing the system, sending and receiving messages, searching and personalizing software, conferencing, and links to other systems (pp. 25-37). Salmon notes the importance of providing encouragement and motivating learners by helping them to understand how efficiencies of integrated e-learning course are beneficial: 'It is a great mistake to assume that any participant will want to divert hours and hours to online conferences without good reason' (p. 27).

## Practices

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.

Table S1-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.



### Delivery

**Students are provided with e-learning technical support through a variety of communication channels.**

- ☐ *No e-learning technical support provided to students.*
- ☐ *E-learning technical support and training is provided informally and depends on the teaching staff skills and availability.*
- ☐ *A formal e-learning technical support and training service is provided to students but requires face-to-face contact at the institution or is incomplete or offered over reduced or constrained hours of operation.*
- ☐ *A formal e-learning technical support and training service is provided to students through a variety of communication channels and with hours of operation that are consistent with student study patterns.*

Students are provided with technical support materials linked to specific e-learning facilities.

- ☐ *No technical support provided to students to assist them in making effective use of specific e-learning facilities.*
- ☐ *Incomplete, outdated or informal technical support provided to students to assist them in making effective use of specific e-learning facilities.*
- ☐ *Technical support is provided to students to assist them in making effective use of specific e-learning facilities, but support is not actively promoted, provided to all students or explicitly linked with the individual facilities.*
- ☐ *Technical support is provided to all students to assist them in making effective use of specific e-learning facilities, with use of the support facilities actively promoted and clearly linked to the individual facilities.*

Students are provided with technical support materials linked to administrative facilities.

- ☐ *No technical support provided to students to assist them in making effective use of administrative facilities.*
- ☐ *Incomplete, outdated or informal technical support provided to students to assist them in making effective use of administrative facilities.*
- ☐ *Technical support is provided to students to assist them in making effective use of administrative facilities, but support is not actively promoted, provided to all students or explicitly linked with the individual facilities.*
- ☐ *Technical support is provided to all students to assist them in making effective use of administrative facilities, with use of the support facilities actively promoted and clearly linked to the individual facilities.*

### Planning

**E-learning design and (re)development plans are guided by technology support costs to the organisation, staff and students.**

**See also**: S4(2)

- ☐ *No information on support costs included in course e-learning design and (re)development plans.*
- ☐ *Informal or inconsistent consideration of support costs included in course e-learning design and (re)development plans.*
- ☐ *Formal consideration of support costs to the institution only included in course e-learning design and (re)development plans, or not linked to design decisions.*
- ☐ *Formal consideration of support costs to the institution, staff and students included in course e-learning design and (re)development plans and is explicitly linked to design decisions.*

**Students are provided with information describing e-learning support facilities prior to enrolment.**

**See also**: S4(2)

- ☐ *Information available prior to enrolment does not contain any information for students on what support they can expect from the institution when engaging in e-learning.*
- ☐ *Information available prior to enrolment contains outdated, incomplete or informal descriptions of support students can expect from the institution when engaging in e-learning, or clear information is provided after enrolment but before studies commence.*
- ☐ *Information available prior to enrolment contains information for students on what support they can expect from the institution when engaging in e-learning in a format which is unnecessarily inconsistent or different in different courses.*
- ☐ *Information available prior to enrolment contains consistent and explicit information for students on what support they can expect from the institution when engaging in e-learning.*

**Students are provided with information describing the institutional distribution of responsibility for student support services.**

**See also**: S(2) & S4(2)

- ☐ *No information on the responsibility for student e-learning support communicated to students.*
- ☐ *Information communicated to students contains outdated, incomplete or informal descriptions of the responsibility for student e-learning support.*
- ☐ *Information on the responsibility for student e-learning support communicated to students is unnecessarily inconsistent or different in different courses.*
- ☐ *Consistent and explicit information for students on the responsibility for student e-learning support is provided formally and in multiple places.*

**E–learning design and (re)development plans are guided by the available support facilities.**

**See also**: S2(2)

- ☐ *No evidence of consideration of available support facilities in design and (re)development documents and planning activities.*
- ☐ *Inconsistent or informal consideration of available support facilities in design and (re)development documents and planning activities.*
- ☐ *E–learning design and (re)development activities formally consider available support facilities without explicitly linking those facilities with all relevant decisions.*
- ■ *E–learning design and (re)development activities formally and consistently link available support facilities with key decisions as an explicit part of standard procedures.*

Formal risk assessments of student e-learning activities and mitigation planning are required by e–learning design and (re)development procedures.

- ☐ *No consideration of risks associated with students engaging in e-learning activities undertaken during e-learning design and (re)development processes.*
- ☐ *Informal or incomplete consideration of risks associated with students engaging in e-learning activities undertaken during e-learning design and (re)development processes.*
- ☐ *Formal risk analysis and planning undertaken of students engaging in e-learning activities during e-learning design and (re)development processes with compliance to minimum expectations optional or not required, or no explicit strategies for alternatives defined for student use.*
- ■ *Formal risk analysis and planning undertaken of students engaging in e-learning activities during e-learning design and (re)development processes with compliance to minimum expectations required formally by processes and explicit strategies for alternatives defined for student use.*

Course documentation describes the available support facilities.

- ☐ *No information provided for students on accessing support facilities.*
- ☐ *Information for students on accessing support facilities is outdated, incomplete or informal.*
- ☐ *Information for students on accessing support facilities is unnecessarily inconsistent or different in different courses.*
- ■ *Information for students on accessing support facilities is provided consistently and covers the range of communication channels that can be used to access the services.*

Students are provided with documentation of the formal procedures used to resolve any concerns or complaints they raise.

**See also**: S3(2)

- ☐ *No apparent communication to students of the procedures that will be followed to resolve any concerns or complaints they raise.*
- ☐ *Students are provided with informal, inconsistent, outdated or incomplete descriptions of the procedures that will be followed to resolve any concerns or complaints they raise.*
- ☐ *Students are provided with a formal statutory description of the procedures that will be followed to resolve any concerns or complaints they raise.*
- ■ *Students are provided with a complete description in plain language of the procedures that will be followed to resolve any concerns or complaints they raise.*

Students are provided with technical support during the hours that they are engaging in e-learning activities.

- ☐ *No e-learning technical support provided to students.*
- ☐ *E-learning technical support is provided informally or requires face-to-face contact at the institution.*
- ☐ *A formal e-learning technical support service is provided to students but is incomplete or offered over reduced or constrained hours of operation.*
- ■ *A formal e-learning technical support service is provided to students through a variety of communication channels and with hours of operation that are consistent with student study patterns.*

Records of students' technical support requests and their resolution are retained in a designated repository.

- ☐ *No information on students' technical support requests and their resolution is retained.*
- ☐ *Information on students' technical support requests and their resolution is retained informally or inconsistently, or without details of the request resolution.*
- ☐ *Information on students' technical support requests and their resolution is retained formally but in multiple places and/or without the ability to be analysed.*
- ■ *Information on students' technical support requests and their resolution is retained formally in a designated repository with tools supporting the analysis and retrieval of request information.*

Service level agreements are used to define performance requirements for support providers.

- ☐ *No use of service level agreements when defining performance requirements for support providers.*
- ☐ *Service level agreements used inconsistently or informally as part of the definition of performance requirements for support providers.*
- ☐ *Performance requirements for support providers are formally linked with service level agreements but without detailed linkages made between the particular service levels required and support and performance characteristics required of the support provider.*
- ■ *Performance requirements for support providers are systematically and formally linked with service level agreements.*

## Definition

**Institutional standards define requirements for student technical support that are explicitly linked to institutional e-learning strategies and technical plans.**

- ☐ *No linkage between institutional standards for student technical support and institutional e-learning strategies or technical plans.*
- ☐ *Institutional standards for student technical support are incomplete, informal or fail to impose minimum expectations for student support on the institution.*
- ☐ *Institutional standards for student technical support are defined and impose minimum expectations for student support on the institution in line with institutional e-learning strategies and technical plans but fail to cover all of the e-learning technologies used.*
- ■ *Institutional standards for student technical support are defined for all e-learning technologies and impose minimum expectations for student support on the institution in line with institutional e-learning strategies and technical plans.*

**Institutional procedures for acquiring and maintaining e-learning technologies include the explicit consideration of student support implications.**

- ☐ *No consideration of student support needs included within Institutional procedures for acquiring and maintaining e-learning technologies.*
- ☐ *Inconsistent, informal and variable consideration of student support needs within Institutional procedures for acquiring and maintaining e-learning technologies.*
- ☐ *Student support needs formally considered within Institutional procedures for acquiring and maintaining e-learning technologies, but compliance optional or not required.*
- ☐ *Student support needs formally considered within Institutional procedures for acquiring and maintaining e-learning technologies, and compliance with minimum standards required.*

Technical support staff are provided with support resources (including training, guidelines and examples) for assisting students.

- ☐ *No training, guidelines or examples provided to technical support staff on how to provide technical support to students engaged in e-learning.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of technical support staff on how to provide technical support to students engaged in e-learning.*
- ☐ *Detailed and specific training, guidelines and examples provided to technical support staff on how to provide technical support to students engaged in e-learning but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all technical support staff on how to provide technical support to students engaged in e-learning with the requirement that they be used prior to commencement of duties, and regularly thereafter.*

## Management

**Demand for and effectiveness of the technical support provided to students is monitored regularly.**

- ☐ *No monitoring of the demand for and effectiveness of the technical support provided to students.*
- ☐ *Limited, inconsistent or informal monitoring of the demand for and effectiveness of the technical support provided to students collected, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the demand for and effectiveness of the technical support provided to students, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring of the demand for and effectiveness of the technical support provided to students.*

**Feedback collected regularly from students regarding the clarity and effectiveness of the technical support provided.**

- ☐ *No feedback collected from students on the clarity and effectiveness of the technical support provided.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all technical support provided or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback mechanisms applied regularly to all courses using the different technical support facilities.*

**Feedback collected regularly from staff regarding the clarity and effectiveness of the technical support provided to students.**

- ☐ *No feedback collected from staff on the clarity and effectiveness of the technical support provided to students.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all student technical support provided or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback collected regularly on all of the student technical support provided.*

Performance of student support facilities are regularly monitored.

- ☐ *No monitoring of student support facility performance.*
- ☐ *Limited, inconsistent or informal monitoring of student support facility performance, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of student support facility performance conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of student support facility performance.*

Compliance of e-learning technical support with defined student support service level agreements is regularly monitored.

- ☐ *No monitoring of compliance of e-learning technical support with defined student support service level agreements.*
- ☐ *Limited, inconsistent or informal monitoring of compliance of e-learning technical support with defined student support service level agreements, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of compliance of e-learning technical support with defined student support service level agreements conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of compliance of e-learning technical support with defined student support service level agreements.*

Compliance of e-learning technical support with institutional e-learning strategies and technology plans is regularly monitored.

- ☐ *No monitoring of compliance of e-learning technical support with institutional e-learning strategies and technology plans.*
- ☐ *Limited, inconsistent or informal monitoring of compliance of e-learning technical support with institutional e-learning strategies and technology plans, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of compliance of e-learning technical support with institutional e-learning strategies and technology plans conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of compliance of e-learning technical support with institutional e-learning strategies and technology plans.*

Financial costs and benefits of e-learning support facilities are regularly monitored.

**See also**: L3(4) & D1(4)

- ☐ *No monitoring of the financial costs and benefits of e-learning support facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning support facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning support facilities, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning support facilities.*

Student e-learning support is subject to formal quality assurance reviews and re-prioritisation of resources and objectives.

- ☐ *No monitoring of the e-learning technical support provided to disabled students.*
- ☐ *Limited, inconsistent or informal monitoring of the e-learning technical support provided to disabled students, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the e-learning technical support provided to disabled students conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of the e-learning technical support provided to disabled students.*

E-learning technical support provided to disabled students is regularly monitored.

- ☐ *No monitoring of the e-learning technical support provided to disabled students.*
- ☐ *Limited, inconsistent or informal monitoring of the e-learning technical support provided to disabled students, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the e-learning technical support provided to disabled students conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of the e-learning technical support provided to disabled students.*

Overlap and duplication of student e-learning support is regularly assessed.

**See also**: S2(4), S3(4) & S4(4)

- ☐ *No assessment or review of student e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in student e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in student e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ☐ *Formal and systematic assessment and review of overlap and duplication in student e-learning support facilities undertaken regularly.*

## Optimisation

**Information on the types and content of student requests for e-learning technical support guides the deployment and support of e-learning technologies.**

- ☐ *No information on the types and content of student requests for e-learning technical support guides e-learning technology support or deployment.*
- ☐ *Inconsistent or informal use of information on the types and content of student requests for e-learning technical support guides e-learning technology support or deployment.*
- ☐ *Information on the types and content of student requests for e-learning technical support explicitly guides institutional e-learning technology support and deployment, but is treated as subordinate to technology features, or not linked to service level agreements.*
- ☐ *Information on the types and content of student requests for e-learning technical support explicitly guides institutional e-learning technology support and deployment and is formally linked to service level agreements.*

**Information on the types and content of student requests for e-learning technical support guides the assessment and management of e-learning initiative risks.**

- ☐ *No information on the types and content of student requests for e-learning technical support guides e-learning initiative risk assessment or management.*
- ☐ *Inconsistent or informal use of information on the types and content of student requests for e-learning technical support guides e-learning initiative risk assessment or management.*
- ☐ *Information on the types and content of student requests for e-learning technical support explicitly guides institutional e-learning initiative risk assessment and management, but is treated as subordinate to technology features, or not linked to risk management decisions.*
- ☐ *Information on the types and content of student requests for e-learning technical support explicitly guides institutional e-learning initiative risk assessment and management and is formally linked to risk management decisions.*

Information on the performance of e-learning support guides the allocation of resources for support.

- ☐ *No use of information on the performance of e-learning support during support resource allocation.*
- ☐ *Informal and inconsistent use of information on the performance of e-learning support during support resource allocation.*
- ☐ *Information on the performance of e-learning support guides support resource allocation, but is not linked explicitly to resource allocation decisions.*
- ☐ *Information on the performance of e-learning support explicitly guides support resource allocation and is formally linked to resource allocation decisions.*

Information on when students access e-learning facilities guide the allocation of resources and hours of operation of support.

**See also**: S4(5)

- ☐ *No use of information on when students access e-learning facilities during support resource allocation.*
- ☐ *Informal and inconsistent use of information on when students access e-learning facilities during support resource allocation.*
- ☐ *Information on when students access e-learning facilities guides support resource allocation, but is not linked explicitly to resource allocation decisions or the hours of operation of support.*
- ☐ *Information on when students access e-learning facilities explicitly guides support resource allocation and is formally linked to resource allocation decisions and the hours of operation of support.*

| |
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| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing student e-learning technology use and support needs.<br>**See also**: O6(5), O7(5) & O8(5) |
| ☐ *No consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risk assessments and mitigation plans.* |
| ■ *Formal and systematic consideration of current student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risk assessments and mitigation plans.* |
| Formal risk assessments of e-learning initiatives guide planning for technical support facilities. |
| ☐ *No consideration of risks associated with e-learning initiatives undertaken during planning for technical support facilities.* |
| ☐ *Informal or incomplete consideration of risks associated with e-learning initiatives undertaken during planning for technical support facilities.* |
| ☐ *Formal risk analysis and planning undertaken of e-learning initiatives during planning for technical support facilities with compliance to minimum expectations optional or not required, or no explicit strategies defined for alternatives to support facilities.* |
| ■ *Formal risk analysis and planning undertaken of e-learning initiatives during planning for technical support facilities with compliance to minimum expectations required formally by processes and explicit strategies defined for alternatives to support facilities.* |

**Table S1-1**: Descriptions of process practices by capability dimension

## Process S2.

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

### Process Background



One of the significant benefits of campus-based learning is access to library and research facilities. Regardless of the mode of delivery, if students are to achieve the full benefit of their courses they need similar access (Lebowitz, 1997), particularly if they are to engage in research (process L6). The American Library Association guidelines for distance learning clearly state 'Access to adequate library services and resources is essential for the attainment of superior academic skills in post-secondary education' (American Library Association, 2004, Philosophy ¶ 1).

However, access to library services is as much a matter of literacy as it is one of resources and services: 'The instilling of lifelong learning skills through general bibliographic and information literacy instruction in academic libraries is a primary outcome of higher education. Such preparation and measurement of its outcomes are of equal necessity for the distance learning community as for those on the traditional campus' (American Library Association, 2004, Philosophy ¶ 2). The ALA's philosophical precepts also declare that e-learning library services must be regarded as additional to on-campus services, and that '[s]pecial funding arrangements, proactive planning, and promotion are necessary to deliver equivalent library services and to achieve equivalent results in teaching and learning, and generally to maintain quality in distance learning programs' (American Library Association, 2004, Philosophy ¶ 3). In addition to these considerations, the ALA advises that library facilities, resources, and services also need to include assistance and instruction for users to ensure optimum access and efficiency.

Access to library resources may involve multiple systems environments. Porter (2005) discusses varying degrees of integration between library and e-learning related systems environments, and differing views on how far that integration should go. She concludes that all major stakeholders need to be involved in strategic planning to ensure that implementation and maintenance of facilities, resources, and services meet shared objectives: 'In all cases the role of the LIS [Library and information services] should be carefully considered in order to maximize investment in library systems and to improve user support' (p. 26). Expressing a similar concern about the challenges of providing LIS resources, Liber (2005) comments on how 'technical innovation… accompanied by changes in organizational processes and structures…must involve the widest possible range of participants to identify how and which changes and uses of technology are best suited to their specific contexts' (p. 52).

Students' expectations of access to library materials are commensurate with technology developments. As Stubley (2005) notes 'increasingly when students have course content delivered online via the VLE, they will naturally expect that the bulk of their supporting reading should be made available in precisely this same way' (p. 125). A 'new partnership' between library and academic departments is needed to address this situation, in which 'the most important factor is the dialogue….If large-scale ownership and interest can be engendered, the chances of success are improved, even when this falls short of the creation of departmental policies' (p. 131). Stubley comments on the need to enable learner's to negotiate the enormous global information resource in ways that support different pedagogical approaches. He also notes that the increasing availability of full text electronic access to journals is opening potential for even more resources to be made directly available to students.

E-learning introduces a new way of understanding students' access to, and use of, library facilities, resources, and services. It involves three issues: the student's own capabilities for access; the organisation and management of the materials to be accessed; and, the organisation and management of the services and facilities and services used for access. Electronic access to materials presents challenges as well as opportunities, and the research literature supports a holistic, rather than a piecemeal approach to addressing both opportunities and challenges. The literature also emphasises the need for collaborative relationships between all stakeholders to engender ownership of a 'new partnership' to make the best possible services and support available to students.

## Practices

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.

Table S2-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.



### Delivery

**Students are provided with library facilities.**

- ☐ *Library services require face to face contact.*
- ☐ *Access to library services for students engaged in e-learning is informal and/or a consequence of services intended for face to face provision or other uses.*
- ☐ *Library services for students engaged in e-learning are formally provided but missing key functions and/or not actively promoted to students.*
- ☐ *Library services for students engaged in e-learning include the full range of available services for all students and are actively promoted throughout course materials in association with assessment and learning activities.*

**Course documentation describes the available library facilities.**

- ☐ *No information for students on accessing library services available through a variety of communication channels is provided.*
- ☐ *Information for students on accessing library services is outdated, incomplete or informal.*
- ☐ *Information for students on accessing library services is unnecessarily inconsistent or different in different courses or only available face-to-face or through static web pages.*
- ☐ *Information for students on accessing library services is provided consistently and covers a range of communication channels that can be used to access the services.*

Students are provided with information on how to access the full range of library facilities.

- ☐ *No information on accessing the full range of library facilities provided to students.*
- ☐ *Information on how to access the full range of library facilities provided to students is outdated, incomplete or informally communicated.*
- ☐ *Information on how to access the full range of library facilities is unnecessarily inconsistent or different in different courses.*
- ☐ *Consistent and explicit information for students on how to access the full range of library facilities provided formally and in multiple places.*

Students are provided with lists of starting points for using library facilities rather than pre-defined and complete reading lists.

- ☐ *Students are provided with pre-defined and complete reading lists or no information at all on research sources.*
- ☐ *Students are provided with complete reading lists and the optional encouragement to use library facilities during assessment.*
- ☐ *Students are provided with lists of starting points for research using library facilities in a format that is unnecessarily inconsistent or different in different courses.*
- ☐ *Consistent and explicit information for students listing starting points for research using library facilities is provided formally and in multiple places.*

### Planning

**Summaries of useful library resources are provided on a course or discipline basis.**

**See also**: L6(2)

- ☐ *No summaries of useful library resources provided to students in course materials.*
- ☐ *Informal or limited summaries of useful library resources provided, or summaries limited to reading lists associated with particular assessed work.*
- ☐ *Summaries of useful library resources provided as part of the library webpages without direct linkage from course materials.*
- ☐ *Links to summaries of useful library resources provided as part of course materials and promoted actively in conjunction with course assessments and learning activities.*

**Library staff are involved in e-learning design and (re)development initiatives.**

- ☐ *No apparent involvement of library staff in the planning and (re)development of e-learning initiatives.*
- ☐ *Informal or inconsistent involvement of library staff in the planning and (re)development of particular e-learning initiatives.*
- ☐ *Library staff involved in e-learning initiatives but this is normally limited to approval or oversight.*
- ☐ *Library staff actively involved in planning and (re)development activities for e-learning initiatives.*

**E–learning design and (re)development plans are guided by the available library services and appropriately licensed resources.**

**See also**: S1(2)

- ☐ *No evidence of consideration of available library services and resources in design and (re)development documents and planning activities.*
- ☐ *Inconsistent or informal consideration of available library services and resources in design and (re)development documents and planning activities.*
- ☐ *E–learning design and (re)development activities formally consider available library services and resources without explicitly linking those facilities with all relevant decisions.*
- ☐ *E–learning design and (re)development activities formally and consistently link available library services and resources with key decisions as an explicit part of standard procedures.*

**Students are provided with information describing the institutional distribution of responsibility for student support services.**

**See also**: S1(2) & S4(2)

- ☐ *No information on the responsibility for student library support communicated to students.*
- ☐ *Information communicated to students contains outdated, incomplete or informal descriptions of the responsibility for student library support.*
- ☐ *Information on the responsibility for student library support communicated to students is unnecessarily inconsistent or different in different courses.*
- ☐ *Consistent and explicit information for students on the responsibility for student library support is provided formally and in multiple places.*

Students are provided with information on library facilities for e-learning prior to enrolment.

**See also**: S4(3)

- ☐ *Information available prior to enrolment does not contain any information for students on what library facilities for e-learning they can expect from the institution.*
- ☐ *Information available prior to enrolment contains outdated, incomplete or informal descriptions of library facilities for e-learning students can expect from the institution, or clear information is provided after enrolment but before studies commence.*
- ☐ *Information available prior to enrolment contains information for students on what library facilities for e-learning they can expect from the institution in a format which is unnecessarily inconsistent or different in different courses.*
- ☐ *Information available prior to enrolment contains consistent and explicit information for students on what library facilities for e-learning they can expect from the institution.*

Individual courses have a designated librarian assigned on a course or discipline basis.

- ☐ *Library services provided generically.*
- ☐ *Provision of customised library support to individual courses handled informally or inconsistently, or requires face to face access.*
- ☐ *Customised library support limited to static resources provided on a disciplinary basis.*
- ☐ *Customised library support provided as necessary to each course or discipline with resources updated regularly and including both static resources and additional library services.*

Students are provided with designated library staff contact information.

**See also**: L6(2)

- ☐ *No information provided to students describing how to contact course designated library staff.*
- ☐ *Information describing how to contact course designated library staff provided to students is outdated, incomplete or informally communicated.*
- ☐ *Information describing how to contact course designated library staff is unnecessarily inconsistent or different in different courses.*
- ☐ *Consistent and explicit information for students describing how to contact course designated library staff provided formally and in multiple places.*

Students are provided with a variety of mechanisms to access physical library resources.

- ☐ *Access to physical library resources requires physical attendance at the library.*
- ☐ *Access to physical library resources outside of the library provided only through a limited or informal mechanism.*
- ☐ *Access to physical library resources outside of the library provided only for specially designated resources, courses or students.*
- ☐ *Access to physical library resources provided formally through multiple complementary mechanisms and without the need for physical attendance at the library.*

Students are provided with support resources (including training, guidelines and examples) on using library facilities.

- ☐ *No guidelines or support materials provided to students to assist them in making effective use of the library facilities.*
- ☐ *Incomplete, outdated or informal guidelines or support materials provided to students to assist them in making effective use of the library facilities.*
- ☐ *Guidelines and/or support materials provided to students to assist them in making effective use of the library facilities, but materials are not actively promoted or provided to all students.*
- ☐ *Guidelines and support materials provided to all students to assist them in making effective use of the library facilities and use of these materials actively promoted.*

Students are provided with library facilities during the hours that they are engaging in e-learning activities.

- ☐ *No library facilities provided to students engaged in e-learning.*
- ☐ *Access to library facilities for students engaged in e-learning is provided informally or requires face-to-face contact at the institution.*
- ☐ *A formal e-learning library service is provided to students but is incomplete or offered over reduced or constrained hours of operation.*
- ☐ *A formal e-learning library service is provided to students through a variety of communication channels and with hours of operation that are consistent with student study patterns.*

Library staff are involved in the (re)development of institutional e-learning strategies and policies.

- ☐ *No apparent involvement of library staff in the (re)development of institutional e-learning strategies and policies.*
- ☐ *Informal or inconsistent involvement of library staff in the (re)development of institutional e-learning strategies and policies.*
- ☐ *Library staff involved in the (re)development of institutional e-learning strategies and policies but this is normally limited to approval or oversight.*
- ☐ *Library staff actively involved in the (re)development of institutional e-learning strategies and policies.*

## Definition

**Institutional policies require that students have access to a full range of library facilities when engaged in e-learning.**

- ☐ *No institutional policy, standards, service level agreements and licenses provided which ensure that students have access to a full range of library resources and services when engaged in e-learning.*
- ☐ *Institutional policy, standards, service level agreements and licenses which ensure that students have access to a full range of library resources and services when engaged in e-learning are provided informally or incompletely.*
- ☐ *Institutional policy, standards, service level agreements and licenses which ensure that students have access to library resources and services when engaged in e-learning are provided formally but fail to cover all services.*
- ☐ *Institutional policy, standards, service level agreements and licenses which ensure that students have access to a full range of library resources and services when engaged in e-learning are provided.*

Institutional standards define requirements for student library support that are explicitly linked to institutional e-learning strategies and technical plans.

- ☐ *No linkage between institutional standards for student library support and institutional e-learning strategies or technical plans.*
- ☐ *Institutional standards for student library support are incomplete, informal or fail to impose minimum expectations for student support on the institution.*
- ☐ *Institutional standards for student library support are defined and impose minimum expectations for student support on the institution in line with institutional e-learning strategies and technical plans but fail to cover all of the e-learning technologies used.*
- ☐ *Institutional standards for student library support are defined for all e-learning technologies and impose minimum expectations for student support on the institution in line with institutional e-learning strategies and technical plans.*

Course documentation templates are provided that describe the library facilities.

- ☐ *No examples or templates provided to teaching staff describing the library facilities.*
- ☐ *Informal, incomplete or outdated examples or templates provided to teaching staff describing the library facilities.*
- ☐ *Examples and/or templates provided to teaching staff describing the library facilities available to students.*
- ☐ *Regularly updated and maintained examples and/or templates provided to teaching staff describing the library facilities available to students.*

Staff are provided with support resources (including training, guidelines and examples) on how to use library services to support student learning.

- ☐ *No training, guidelines or examples provided to staff on how to use library services to support student learning.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff on how to use library services to support student learning.*
- ☐ *Detailed and specific training, guidelines and examples provided to staff on how to use library services to support student learning but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all staff on how to use library services to support student learning with the requirement that they be used prior to designing, (re)developing or delivering courses.*

## Management

**Student use of library facilities is monitored regularly.**

- ☐ *No monitoring of students' use of library resources and services.*
- ☐ *Limited, inconsistent or informal monitoring of students' use of library resources and services collected, or measures collected but not reported.*
- ☐ *Formal, independent, monitoring of students' use of library resources and services collected, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring of students' use of library resources and services.*

**Feedback collected regularly from students regarding the effectiveness of the library facilities.**

- ☐ *No feedback collected from students on the effectiveness of the library resources and services provided.*
- ☐ *Limited, inconsistent or informal student feedback collected, or information collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all library resources and services provided or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback mechanisms applied regularly to all courses using the different library resources and services.*

**Feedback collected regularly from staff regarding the effectiveness of the library facilities.**

- ☐ *No feedback collected from staff on the effectiveness of the library resources and services provided to students.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or information collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all library resources and services provided to students or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback collected regularly on all of the library resources and services provided to students.*

Library support provided to disabled students is regularly monitored.

- ☐ *No monitoring of the library support provided to disabled students.*
- ☐ *Limited, inconsistent or informal monitoring of the library support provided to disabled students, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the library support provided to disabled students conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of the library support provided to disabled students.*

Compliance of library support with institutional e-learning strategies and technology plans is regularly monitored.

- ☐ *No monitoring of compliance of library support with institutional e-learning strategies and technology plans.*
- ☐ *Limited, inconsistent or informal monitoring of compliance of library support with institutional e-learning strategies and technology plans, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of compliance of library support with institutional e-learning strategies and technology plans conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of compliance of library support with institutional e-learning strategies and technology plans.*

Financial costs and benefits of library facilities are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of library facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of library facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of library facilities, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of library facilities.*

Library support is subject to formal quality assurance reviews and re-prioritisation of resources and objectives.

- ☐ *No monitoring of the library support provided to e-learning students.*
- ☐ *Limited, inconsistent or informal monitoring of the library support provided to e-learning students, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the library support provided to e-learning students conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of the library support provided to e-learning students.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed library services and support.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed library services and support.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed library services and support.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed library services and support undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed library services and support.*

Overlap and duplication of student e-learning support is regularly assessed.

**See also**: S1(4), S3(4) & S4(4)

- ☐ *No assessment or review of student e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in student e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in student e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ☐ *Formal and systematic assessment and review of overlap and duplication in student e-learning support facilities undertaken regularly.*

## Optimisation

**Information on the effectiveness of library facilities in supporting student learning guides e-learning strategic planning.**

- ☐ *No use of information on effectiveness of library facilities in supporting student learning during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on effectiveness of library facilities in supporting student learning during institutional e-learning strategic planning.*
- ☐ *Information on effectiveness of library facilities in supporting student learning explicitly guides institutional e-learning strategic planning, but is treated as subordinate to technical goals, or not linked to strategy decisions.*
- ☐ *Information on effectiveness of library facilities in supporting student learning explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

**Information on the effectiveness of library facilities in supporting student learning guides e-learning design and (re)development.**

- ☐ *No use of information on the effectiveness of library facilities in supporting student learning during e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of information on the effectiveness of library facilities in supporting student learning during e-learning design and (re)development.*
- ☐ *Information on the effectiveness of library facilities in supporting student learning explicitly guides e-learning design and (re)development, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ☐ *Information on the effectiveness of library facilities in supporting student learning explicitly guides e-learning design and (re)development and is formally linked to design decisions.*

Information on when students access library facilities guide the allocation of resources and hours of operation of library facilities.

- ☐ *No use of information on when students access library facilities during library resource allocation.*
- ☐ *Informal and inconsistent use of information on when students access library facilities during library resource allocation.*
- ☐ *Information on when students access library facilities guides library resource allocation, but is not linked explicitly to resource allocation decisions or the hours of operation of support.*
- ☐ *Information on when students access library facilities explicitly guides library resource allocation and is formally linked to resource allocation decisions and the hours of operation of support.*

| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing student library use and support needs. |
|---|
| ☐ *No consideration of student library use and support needs in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of student library use and support needs in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of student library use and support needs in the institutional risk assessments and mitigation strategies but the information on support needs is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ■ *Formal and systematic consideration of current student library use and support needs in the institutional risk assessments and mitigation strategies with information on support needs linked explicitly to elements of the risks assessments and mitigation plans.* |
| **Institutional risk assessments and mitigation strategies are regularly updated to reflect the performance of library support facilities.** |
| ☐ *No consideration of the performance of library support facilities in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of the performance of library support facilities in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of the performance of library support facilities in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ■ *Formal and systematic consideration of the performance of library support facilities in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.* |

**Table S2-1**: Descriptions of process practices by capability dimension

# Process S3.

*Student enquiries, questions and complaints are collected formally and managed*

## Process Background

The isolation of many students in e-learning situations calls for closer academic and administrative attention to all enquiries, questions, and complaints (Curry, 2003). While all institutions will have formal processes for student grievances, there are many other day-to-day concerns that need to be resolved quickly and professionally if they are to not to impair learning outcomes for students. Prompt, attentive responses to student enquiry communications ensure that motivation for learning is not compromised and lessens the potential for student incompletions (Moody, 2004). Dirr (2003) reports that students often resort to expressing their frustrations to each other concerning technical problems, poor support, and ambiguous course instructions. Citing Krauth and Carbajal (1999), Dirr (2003) highlights the success of institutions who have moved from a service provider approach, to a customer service approach that includes 'decision support systems that offer students a variety of opportunities for self-help and customized services' (p. 471).

Although formal procedures for addressing student enquiries, questions and complaints do not appear to be addressed directly in the literature, they are very much matters that concern e-learning quality management and evaluation researchers (Bouhnik and Marcus, 2006; Picciano, 2002). For example, Picciano (2002) commenting on measures of quality, notes that: 'Ultimately, student perceptions of their learning may be as good as other measures because these perceptions may be the catalysts for continuing to pursue coursework and other learning opportunities' (p. 22). Furthermore, Bouhnik and Marcus (2006) cite student dissatisfaction, which complains of: 'Lack of interpersonal, direct (nonmediated) interaction [and]…. In answering his or her students' questions, the teacher's ability to widen the scope of his or her answer is limited' (p. 300). Comments like these make it clear that formal documentation of all student enquiries, questions, and complaints needs to be mandatory in e-learning institutional policy.

## Practices

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.

Table S3-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **Students are provided with a mechanism for raising concerns or complaints.** |
| ☐ *No apparent communication to students on how they raise any concerns or complaints.* |
| ☐ *Students are provided with informal, inconsistent, outdated or incomplete descriptions of how they raise any concerns or complaints.* |
| ☐ *Students are provided with a formal statutory description of how they raise any concerns or complaints.* |
| ■ *Students are provided with a clear description in plain language of how they raise any concerns or complaints.* |
| **Teaching staff are provided with an opportunity to address e-learning student concerns and complaints.** |
| ☐ *No apparent communication to teaching staff of student concerns and complaints.* |
| ☐ *Information provided informally to teaching staff of student concerns and complaints or as a consequence of complaints having to be made to teaching staff in the first instance.* |
| ☐ *Teaching staff are provided with information regarding e-learning student concerns and complaints only when a formal disciplinary process has been invoked.* |
| ■ *Teaching staff are provided with information regarding e-learning student concerns and complaints immediately they are made and have an opportunity to address issues before the invocation of any further procedures.* |

## Planning

**Students are provided with a formally documented procedure for making complaints.**

- ☐ *No formal process for making complaints apparent.*
- ☐ *Process for making complaints is informal and/or mediated by the teaching staff.*
- ☐ *Formal process for making complaints provided as institutional statutes rather than in clear language and/or is not included in course outlines or similar materials.*
- ☐ *Formal process for making complaints provided in clear language and is consistently included in course outlines or similar materials.*

**Students are provided with documentation of the formal procedures used to resolve any concerns or complaints they raise.**

**See also**: S1(2)

- ☐ *No apparent communication to students of the procedures that will be followed to resolve any concerns or complaints they raise.*
- ☐ *Students are provided with informal, inconsistent, outdated or incomplete descriptions of the procedures that will be followed to resolve any concerns or complaints they raise.*
- ☐ *Students are provided with a formal statutory description of the procedures that will be followed to resolve any concerns or complaints they raise.*
- ☐ *Students are provided with a complete description in plain language of the procedures that will be followed to resolve any concerns or complaints they raise.*

Students are provided with information on the timeframes for receiving responses to concerns and complaints.

- ☐ *No information provided to students on the timeframes for receiving responses to concerns and complaints.*
- ☐ *Information communicated to students contains outdated, incomplete or informal descriptions of the timeframes for receiving responses to concerns and complaints.*
- ☐ *Information on the timeframes for receiving responses to concerns and complaints communicated to students is unnecessarily inconsistent or different in different courses.*
- ☐ *Consistent and explicit information for students on the timeframes for receiving responses to concerns and complaints is provided formally and in multiple places.*

Records of students complaints and their resolution are retained in a designated repository.

- ☐ *No information on student complaints is retained.*
- ☐ *Information on student complaints is retained informally or inconsistently, or without details of the complaint's resolution.*
- ☐ *Information on student complaints and their resolution is retained formally but in multiple places and/or without the ability to be analysed.*
- ☐ *Information on student complaints and their resolution is retained formally in a designated repository with tools supporting the analysis and retrieval of complaint information.*

Facilities for collecting and resolving student concerns and complaints operate over the same hours as e-learning activities.

- ☐ *No facilities for collecting and resolving student concerns and complaints.*
- ☐ *Facilities for collecting and resolving student concerns and complaints are provided during normal business hours.*
- ☐ *Facilities for collecting and resolving student concerns and complaints are provided over extended hours unrelated to those over which e-learning activities are operated.*
- ☐ *Facilities for collecting and resolving student concerns and complaints are provided over extended hours explicitly coordinated with the operation of e-learning.*

Formal risk assessments of student complaints and mitigation planning are required by student communication planning procedures.

- ☐ *No consideration of risks associated with student complaints undertaken during student communication planning activities.*
- ☐ *Informal or incomplete consideration of risks associated with student complaints undertaken during student communication planning activities.*
- ☐ *Risk analysis and planning addressing student complaints included in student communication planning procedures with compliance to minimum expectations optional or not required, or no explicit strategies defined for addressing student complaints.*
- ☐ *Formal risk analysis and planning addressing student complaints included in student communication planning procedures with compliance to minimum expectations required formally by procedures and explicit strategies defined for addressing student complaints.*

## Definition

**Institutional policies define requirements and procedures for the handling of student complaints.**

- ☐ *No policies, standards or guidelines define requirements for the handling of student complaints.*
- ☐ *Policies, standards and guidelines define requirements for the handling of student complaints, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for the handling of student complaints, however compliance not enforced.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for the handling of student complaints with compliance enforced.*

**Teaching and support staff are provided with support resources (including training, guidelines and examples) on handling student complaints.**

- ☐ *No training, guidelines or examples provided to staff on effective student complaint resolution.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all staff with the requirement that they be used prior to delivering or supporting courses.*

**Institutional policies define requirements for the quality and type of feedback to be provided to students.**

**See also**: L5(3)

- ☐ *No policies, standards or guidelines define requirements for the quality and type of feedback to be provided to students.*
- ☐ *Policies, standards and guidelines define requirements for the quality and type of feedback to be provided to students, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for the quality and type of feedback to be provided to students, however compliance incomplete or not enforced.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for the quality and type of feedback to be provided to students with compliance enforced.*

Institutional policies for the handling of student complaints are aligned with e-learning strategies and technology plans**.**

- ☐ *No policies defined for the handling of student complaints.*
- ☐ *Policies defining the handling of student complaints do not consider implications of e-learning.*
- ☐ *Policies defining the handling of student complaints include consideration of e-learning but without explicit links to institutional e-learning strategies or technology plans.*
- ☐ *Policies defining the handling of student complaints include consideration of e-learning linked formally and systematically to institutional e-learning strategies and technology plans.*

A single repository for collecting student concerns and complaints is provided**.**

- ☐ *No information on student complaints is retained.*
- ☐ *Information on student complaints is retained in multiple places and/or without the ability to be analysed.*
- ☐ *Information on student complaints is retained in a single repository without the ability to be analysed.*
- ☐ *Information on student complaints is retained formally in a single designated repository with tools supporting the analysis and retrieval of complaint information.*

Teaching staff role descriptions include information on staff responsibilities for handling student complaints.

- ☐ *No information on staff responsibilities for handling student complaints provided to teaching staff.*
- ☐ *Information on staff responsibilities for handling student complaints provided to teaching staff informally or inconsistently.*
- ☐ *Information on staff responsibilities for handling student complaints provided to teaching staff formally but information is generic and/or does not impose minimum expectations on staff.*
- ☐ *Detailed information on staff responsibilities for handling student complaints provided to teaching staff formally as part of their role description and imposes minimum expectations on staff.*

## Management

**Information on the type and resolution of student complaints and concerns is monitored regularly.**

- ☐ *No monitoring of the type and resolution of student complaints and concerns.*
- ☐ *Limited, inconsistent or informal monitoring of the type and resolution of student complaints and concerns, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the type and resolution of student complaints and concerns, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of information collected on the type and resolution of student complaints and concerns.*

**Feedback collected regularly from students regarding the effectiveness of the collecting and resolution of student concerns and complaints.**

- ☐ *No feedback collected from students on the effectiveness of the collecting and resolution of student concerns and complaints.*
- ☐ *Limited, inconsistent or informal student feedback collected, or information collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all student feedback and complaint facilities provided or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback mechanisms applied regularly to all courses using the different student feedback and complaint facilities.*

**Feedback collected regularly from staff regarding the effectiveness of the collecting and resolution of student concerns and complaints.**

- ☐ *No feedback collected from staff on the effectiveness of the collecting and resolution of student concerns and complaints.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or information collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all student feedback and complaint facilities provided or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback collected regularly on all of the student feedback and complaint facilities provided.*

Financial costs and benefits of student complaint facilities are regularly monitored**.**

- ☐ *No monitoring of the financial costs and benefits of student complaint facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of student complaint facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of student complaint facilities, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of student complaint facilities.*

Collection and resolution of student concerns and complaints is subject to formal quality assurance reviews and re-prioritisation of resources and objectives.

- ☐ *No reviews undertaken of student complaint collection and resolution activities.*
- ☐ *Reviews of student complaint collection and resolution activities are informal, incomplete or lack independence, and/or have no impact on resourcing.*
- ☐ *Reviews of student complaint collection and resolution activities are formal, but have no impact on resourcing, or lack independence.*
- ☐ *Formal and independent reviews of student complaint collection and resolution activities are conducted regularly and guide resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed student complaint facilities.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding student complaints.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding student complaints.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding student complaints undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ■ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding student complaints.*

Compliance of the collection and resolution of student concerns and complaints with institutional e-learning strategies and technology plans is regularly monitored.

- ☐ *No monitoring of the collection of student complaints and concerns.*
- ☐ *Limited, inconsistent or informal monitoring of the collection of student complaints and concerns, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the collection of student complaints and concerns, but reported incompletely or irregularly, or not linked to institutional e-learning strategies or technical plans.*
- ■ *Formal, independent, and regular monitoring and reporting of the collection of student complaints and concerns, with explicit linkage to institutional e-learning strategies and technical plans.*

Overlap and duplication of student e-learning support is regularly assessed.

**See also**: S1(4), S2(4) & S4(4)

- ☐ *No assessment or review of student e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in student e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in student e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ■ *Formal and systematic assessment and review of overlap and duplication in student e-learning support facilities undertaken regularly.*

## Optimisation

**Information from student concerns and complaints guides e-learning strategic planning.**

- ☐ *No use of information from student concerns and complaints during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information from student concerns and complaints during institutional e-learning strategic planning.*
- ☐ *Information from student concerns and complaints explicitly guides institutional e-learning strategic planning, but is treated as subordinate to technical goals, or not linked to strategy decisions.*
- ■ *Information from student concerns and complaints explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

**Information from student concerns and complaints guides the allocation of staff e-learning development and training resources.**

- ☐ *No use of information on student concerns and complaints during training and support resource planning and allocation.*
- ☐ *Informal and inconsistent use of information on student concerns and complaints during institutional training and support resource planning and allocation.*
- ☐ *Information on student concerns and complaints explicitly guides institutional training and support resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ■ *Information on student concerns and complaints explicitly guides institutional training and support resource planning and allocation and is formally linked to resourcing decisions.*

Information from student concerns and complaints guides the selection of new e-learning technologies.

- ☐ *No use of information on student concerns and complaints during the selection of new e-learning technologies.*
- ☐ *Informal and inconsistent use of information on student concerns and complaints during e-learning technology selection.*
- ☐ *Information on student concerns and complaints explicitly guides the selection of new e-learning technologies, but is treated as subordinate to technical goals, or not linked to selection decisions.*
- ■ *Information on student concerns and complaints explicitly guides the selection of new e-learning technologies and is formally linked to selection decisions.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect student complaints and support needs.

- ☐ *No consideration of student complaints and support requirements in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of student complaints and support requirements in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal consideration of student complaints and support requirements in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risk assessments and mitigation plans.*
- ■ *Formal and systematic consideration of current student complaints and support requirements in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risk assessments and mitigation plans.*

**Table S3-1**: Descriptions of process practices by capability dimension

## Process S4.

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

### Process Background



The use of e-learning to remove the constraint that students attend courses face-to-face does not remove the need for institutions to provide as full a range of support services as possible (Sewart, 1993). As well as technical support for e-learning students need support with personal and learning issues. Tait (2000) describes such support as 'the range of services both for individuals and for students in groups which complement the course materials or learning resources that are uniform for all learners' (p. 289). He proposes that student support has cognitive, affective, and administrative concerns: '1. cognitive: supporting and developing learning through the mediation of the standard and uniform elements of course materials and learning resources for individual students; 2. affective: providing an environment which supports students, creates commitment, and enhances self-esteem; and 3. systemic: establishing administrative processes and information management systems which are effective, transparent and overall student-friendly' (p. 289). Tait observes that although support is usually considered an administrative process, all three concerns are 'essential and interdependent' (p. 289). He comments further that while the affective consequences of poor administrative support are usually recognised, there is less appreciation of the adverse affects of poor support on student's cognitive functions: 'Where the support of students mediates teaching embodied in courseware, then it clearly relates to learning, and…cognitive outcomes. It also…relates to…providing an environment where students feel at home, where they feel valued, and which they find manageable. In this way we can see that the three core functions are truly interrelated and interdependent' (p. 289). Tait envisions a student support framework that interrelates the management system, technological infrastructure, and course requirements with student cohort characteristics, geographical issues, and the scalability of the programme: 'The success of the planning process lies in identifying within the core elements of the study support system which specific compromises provide optimal results' (p. 297).

Mishra (2005) identifies seven roles that encompass activities for supporting students: assessor, coach, counsellor, demonstrator, mentor, supervisor, tutor. He reports that teachers' self-perception of the importance of each of the roles ranked counsellor first, assessor second, coach third, and tutor fourth, thus indicating their concern for the personal needs of students (p. 152).

Established distance learning institutions recognise the importance of strong student support. For example, the UK Open University has a tutor to learner ration of 20-25:1 and tutor responsibilities include 'maintaining personal contact with their students…and mediating the learning experience' (Daniel and Mackintosh, 2003, p. 819). And, the University of South Africa has a Department of Student Support that arranges face-to-face tutorials, although Daniel and Mackintosh note that resourcing this facility is a challenge.

Student support is not just a formal service to be delivered it is also an on-going informal dynamic process that students must involve themselves in, and it needs to be fostered. As Clarke (Clarke, 2004) advises, 'support is not limited to the formal support of your tutors but can include: other learners; study circles/groups; family; friends; learning centre staff; workplace instructors; mentors; tutors' (pp. 16-17). It is important for the student to be welcomed and made sufficiently comfortable with the e-learning environment so that they are able to express and explain their need for and what they require from support. Clarke describes five key elements that the online tutor provides to help to make this happen: welcome/confidence; support; feedback; facilitation; monitoring.

### Practices

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.

Table S4-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

## Delivery

**Course documentation describes the available student personal and learning support services.**

- ☐ *No information for students on accessing personal and learning support services through a variety of communication channels is provided in course documentation.*
- ☐ *Information provided in course documentation for students on accessing personal and learning support services is outdated, incomplete or informal.*
- ☐ *Information provided in course documentation for students on accessing personal and learning support services is unnecessarily inconsistent or different in different courses.*
- ☐ *Information for students on accessing personal and learning support services is provided consistently and covers a range of communication channels that can be used to access the support.*

Institutional webpages describe the available student personal and learning support services.

- ☐ *No information for students on accessing personal and learning support services through a variety of communication channels is provided on institutional webpages.*
- ☐ *Information provided on institutional webpages for students on accessing personal and learning support services is outdated, incomplete or informal.*
- ☐ *Information provided on institutional webpages for students on accessing personal and learning support services is unnecessarily inconsistent or different in different courses.*
- ☐ *Information for students on accessing personal and learning support services is provided consistently and covers a range of communication channels that can be used to access the support.*

## Planning

**E-learning design and (re)development plans are guided by technology support costs to the organisation, staff and students.**

**See also**: S1(2)

- ☐ *No information on support costs included in course e-learning design and (re)development plans.*
- ☐ *Informal or inconsistent consideration of support costs included in course e-learning design and (re)development plans.*
- ☐ *Formal consideration of support costs to the institution only included in course e-learning design and (re)development plans, or not linked to design decisions.*
- ☐ *Formal consideration of support costs to the institution, staff and students included in course e-learning design and (re)development plans and is explicitly linked to design decisions.*

**Students are provided with information describing the institutional distribution of responsibility for student support services.**

**See also**: S1(2) & S2(2)

- ☐ *No information on the responsibility for student personal and learning support communicated to students.*
- ☐ *Information communicated to students contains outdated, incomplete or informal descriptions of the responsibility for student personal and learning support.*
- ☐ *Information on the responsibility for student personal and learning support communicated to students is unnecessarily inconsistent or different in different courses.*
- ☐ *Consistent and explicit information for students on the responsibility for student personal and learning support is provided formally and in multiple places.*

**Students are provided with information describing personal and learning support facilities prior to enrolment.**

**See also**: S1(2)

- ☐ *Information available prior to enrolment does not contain any information for students on what personal and learning support they can expect from the institution.*
- ☐ *Information available prior to enrolment contains outdated, incomplete or informal descriptions of personal and learning support students can expect from the institution, or clear information is provided after enrolment but before studies commence.*
- ☐ *Information available prior to enrolment contains information for students on what personal and learning support they can expect from the institution in a format which is unnecessarily inconsistent or different in different courses.*
- ☐ *Information available prior to enrolment contains consistent and explicit information for students on what personal and learning support they can expect from the institution.*

Students are provided with documentation of the formal procedures used to address their personal and learning support needs.

- ☐ *No documentation provided to students of the procedures that will be followed to resolve any concerns or complaints they raise.*
- ☐ *Students are provided with informal, inconsistent, outdated or incomplete documentation of the procedures that will be followed to resolve any concerns or complaints they raise.*
- ☐ *Students are provided documentation containing a formal statutory description of the procedures that will be followed to resolve any concerns or complaints they raise.*
- ☐ *Students are provided with documentation containing a complete description in plain language of the procedures that will be followed to resolve any concerns or complaints they raise.*

Records of students' personal and learning support requests and their resolution are retained in a designated repository.

- ☐ *No information on students' personal and learning support requests and their resolution are retained.*
- ☐ *Information on students' personal and learning support requests and their resolution are retained informally or inconsistently, or without details of the request's resolution.*
- ☐ *Information on students' personal and learning support requests and their resolution are retained formally but in multiple places and/or without the ability to be analysed.*
- ☐ *Information on students' personal and learning support requests and their resolution are retained formally in a designated repository with tools supporting the analysis and retrieval of request information.*

S4

Students are provided with documentation of the formal procedures to follow if responses to personal and learning support queries are unsatisfactory.

- ☐ *No apparent communication to students of the procedures that will be followed to resolve any personal and learning support queries they raise.*
- ☐ *Students are provided with informal, inconsistent, outdated or incomplete descriptions of the procedures that will be followed to resolve any personal and learning support queries they raise.*
- ☐ *Students are provided with a formal statutory description of the procedures that will be followed to resolve any personal and learning support queries they raise.*
- ☐ *Students are provided with a complete description in plain language of the procedures that will be followed to resolve any personal and learning support queries they raise.*

Students are provided with documentation on the timeframes for receiving responses to personal and learning support service queries.

- ☐ *No apparent communication to students of the timeframe for responses to any personal and learning support queries they raise.*
- ☐ *Students are provided with informal, inconsistent, outdated or incomplete descriptions of the timeframe for resolution of any personal and learning support queries they raise.*
- ☐ *Students are provided with a formal, but generic, description of the timeframe for resolution of any personal and learning support queries they raise.*
- ☐ *Students are provided with a formal description of the timeframe for resolution of any personal and learning support queries they raise, customised to the specific circumstances of the query.*

Students are provided with personal and learning support during the same hours that they are engaging in e-learning activities.

- ☐ *No personal and learning support provided to students.*
- ☐ *Personal and learning support is provided informally or requires face-to-face contact at the institution.*
- ☐ *A formal personal and learning support service is provided to students but is incomplete or offered over reduced or constrained hours of operation.*
- ☐ *A formal personal and learning support service is provided to students through a variety of communication channels and with hours of operation that are consistent with student study patterns.*

Students are provided with information describing the institutional distribution of responsibility for student support services.

**See also**: S1(2) & S2(2)

- ☐ *No information on the responsibility for student e-learning support communicated to students.*
- ☐ *Information communicated to students contains outdated, incomplete or informal descriptions of the responsibility for student e-learning support.*
- ☐ *Information on the responsibility for student e-learning support communicated to students is unnecessarily inconsistent or different in different courses.*
- ☐ *Consistent and explicit information for students on the responsibility for student e-learning support is provided formally and in multiple places.*

Formal risk assessments of student e-learning activities and mitigation planning are required by personal and learning support planning procedures.

- ☐ *No consideration of risks associated with students engaging in e-learning activities undertaken during personal and learning support planning.*
- ☐ *Informal or incomplete consideration of risks associated with students engaging in e-learning activities undertaken during personal and learning support planning.*
- ☐ *Formal risk analysis and planning undertaken of students engaging in e-learning activities during personal and learning support planning with compliance to minimum expectations optional or not required, or no explicit strategies for alternatives defined for support facilities.*
- ☐ *Formal risk analysis and planning undertaken of students engaging in e-learning activities during personal and learning support planning with compliance to minimum expectations required formally by processes and explicit strategies for alternatives defined for support facilities.*

## Definition

**Institutional standards define requirements for student personal and learning support that are explicitly linked to institutional e-learning strategies.**

- ☐ *No institutional standards for student personal and learning support are defined.*
- ☐ *Institutional standards for student personal and learning support are incomplete, informal or fail to impose minimum expectations for student support on the institution.*
- ☐ *Institutional standards for student personal and learning support are defined and impose minimum expectations for student support on the institution in line with institutional e-learning strategies, however compliance incomplete or not enforced.*
- ☐ *Institutional standards for student personal and learning support are defined and impose minimum expectations for student support on the institution in line with institutional e-learning strategies with compliance enforced.*

Support staff are provided with support resources (including training, guidelines and examples) for assisting students.

**See also**: O6(3)

- ☐ *No training, guidelines or examples of how to assist students in developing e-learning skills provided to support staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff on how to assist students in developing e-learning skills.*
- ☐ *Detailed and specific training, guidelines and examples provided on how to assist students in developing e-learning skills, but attendance and use are optional and not actively encouraged and promoted, or they fail to cover the full range of e-learning technologies and pedagogies in use.*
- ☐ *Detailed and specific training, guidelines and examples provided to all support staff how to assist students in developing e-learning skills that cover the full range of e-learning technologies and pedagogies in use.*

Course documentation templates are provided that describe the personal and learning support facilities.

- ☐ *No examples or templates provided to teaching staff describing the personal and learning support facilities available to students.*
- ☐ *Informal, incomplete or outdated examples or templates provided to teaching staff describing the personal and learning support facilities available to students.*
- ☐ *Examples and/or templates provided to teaching staff describing the personal and learning support facilities available to students.*
- ☐ *Regularly updated and maintained examples and/or templates provided to teaching staff describing the personal and learning support facilities available to students.*

## Management

**Student use of personal and learning support monitored regularly.**

- ☐ *No monitoring of the use and effectiveness of the personal and learning support provided to students.*
- ☐ *Limited, inconsistent or informal monitoring of the use and effectiveness of the personal and learning support provided to students collected, or measures collected but not reported.*
- ☐ *Formal, independent, monitoring of the use and effectiveness of the personal and learning support provided to students collected, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the use and effectiveness of the personal and learning support provided to students.*

**Feedback collected regularly from students regarding the clarity and utility of the personal and learning support provided.**

- ☐ *No feedback collected from students on the clarity and utility of the personal and learning support provided.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all personal and learning support mechanisms provided or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback mechanisms applied regularly to all courses using the different personal and learning support mechanisms provided.*

**Feedback collected regularly from staff regarding the clarity and utility of the personal and learning support provided to students.**

- ☐ *No feedback collected from staff on the clarity and utility of the personal and learning support provided to students.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, feedback collected from staff on some but not all of the personal and learning support provided to students, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback collected regularly on all of the personal and learning support facilities provided to students.*

Performance of personal and learning support facilities is regularly monitored.

- ☐ *No monitoring of personal and learning support facility performance.*
- ☐ *Limited, inconsistent or informal monitoring of personal and learning support facility performance, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of personal and learning support facility performance conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of personal and learning support facility performance.*

Personal and learning support provided to disabled students is regularly monitored.

- ☐ *No monitoring of personal and learning support provided to disabled students.*
- ☐ *Limited, inconsistent or informal monitoring of personal and learning support provided to disabled students, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of personal and learning support provided to disabled students conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of personal and learning support provided to disabled students.*

Compliance of personal and learning support with institutional e-learning strategies and technology plans is regularly monitored.

- ☐ *No monitoring of compliance of personal and learning support with institutional e-learning strategies and technology plans.*
- ☐ *Limited, inconsistent or informal monitoring of compliance of personal and learning support with institutional e-learning strategies and technology plans, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of compliance of personal and learning support with institutional e-learning strategies and technology plans conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of compliance of personal and learning support with institutional e-learning strategies and technology plans.*

Financial costs and benefits of personal and learning support facilities are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of personal and learning support facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of personal and learning support facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of personal and learning support facilities, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of personal and learning support facilities.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed student personal and learning support facilities.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed student personal and learning support facilities.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed student personal and learning support facilities.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed student personal and learning support facilities undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed student personal and learning support facilities.*

Overlap and duplication of student e-learning support is regularly assessed.

**See also**: S1(4), S2(4) & S3(4)

- ☐ *No assessment or review of student e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in student e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in student e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ■ *Formal and systematic assessment and review of overlap and duplication in student e-learning support facilities undertaken regularly.*

## Optimisation

**Information on the performance of personal and learning support services guides the resources allocated to support students.**

- ☐ *No use of information on the performance of personal and learning support services during support resource planning and allocation.*
- ☐ *Informal and inconsistent use of information on the performance of personal and learning support services during support resource planning and allocation.*
- ☐ *Information on the performance of personal and learning support services explicitly guides support resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ■ *Information on the performance of personal and learning support services explicitly guides support resource planning and allocation and is formally linked to resourcing decisions.*

**Information on student requests for personal and learning support guides the selection and deployment of e-learning technologies.**

- ☐ *No information on student requests for personal and learning support guides e-learning technology use or deployment.*
- ☐ *Inconsistent or informal use of information on student requests for personal and learning support guides e-learning technology use or deployment.*
- ☐ *Information on student requests for personal and learning support explicitly guides institutional e-learning technology use and deployment, but is treated as subordinate to technology features, or not linked to service level agreements.*
- ■ *Information on student requests for personal and learning support explicitly guides institutional e-learning technology use and deployment and is formally linked to service level agreements.*

Information on when students access e-learning facilities guide the allocation of resources and hours of operation of support.

**See also**: S1(5)

- ☐ *No use of information on when students access e-learning facilities during support resource allocation.*
- ☐ *Informal and inconsistent use of information on when students access e-learning facilities during support resource allocation.*
- ☐ *Information on when students access e-learning facilities guides support resource allocation, but is not linked explicitly to resource allocation decisions or the hours of operation of support.*
- ■ *Information on when students access e-learning facilities explicitly guides support resource allocation and is formally linked to resource allocation decisions and the hours of operation of support.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect changing student personal and learning support needs.

- ☐ *No consideration of student personal and learning support needs in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of student personal and learning support needs in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal consideration of student personal and learning support needs in the institutional risk assessments and mitigation strategies but the information on support needs is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.*
- ■ *Formal and systematic consideration of current student personal and learning support needs in the institutional risk assessments and mitigation strategies with information on support needs linked explicitly to elements of the risks assessments and mitigation plans.*

**Table S4-1**: Descriptions of process practices by capability dimension

## Process S5.

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



### Process Background

Teaching staff need training and support if they are to be effective with new technologies and the associated pedagogies. This is a complex area and teaching staff need to be able to access a range of professional supports as they encounter issues during their work (Harasim *et al.* 1995). E-learning is not just a technological add-on that teachers need to learn how to use; it is a new educational system involving new pedagogical and professional procedures and processes that require support and professional development. As Salmon (2000) puts it: 'E-moderators are the new generation of teachers and trainers who work with learners online….Successful online learning depends on teachers and trainers acquiring new competencies, on their becoming aware of its potential and on their inspiring the learners, rather than on mastering the technology' (p. viii). Just as students benefit from the use of formative and summative assessment, teaching staff can also benefit from formal assessments of their capability that can be used to guide ongoing training and support as well as informing strategy and policy on resourcing for staff development.

Laurillard (2002) argues that teachers are responsible for generating the learning environment and students are responsible for taking advantage of it. However, the institutional environment is a very complex system that controls learning, thus, teachers' responsibilities are 'commensurate with the degree of control [they] exert over the learners' (p. 1). Laurillard's view is that e-learning involves rethinking 'teaching and the use of learning technology that is informed by a more elaborated understanding of what students do when they learn' (p. 7). However, thinking differently about acting differently is not enough: 'we must also be enabled to act differently. The institutional context must afford and encourage the actions we need' (p. 7). Under the heading 'academic management', Laurillard identifies several factors for development and support, including an induction programme for staff with the objectives of: 'raising awareness of current teaching practice and use of new technology in their field; elaborating their understanding of how students learn through different media; developing their expectations of, and critical approach to, new technology; developing formative evaluation skills for improving learning design; increasing the likelihood that they will make their own contribution to the field' (p. 226). Noting that academics show resistance to educational courses, Laurillard comments that development programmes need to be optimised and 'use the most extreme form of work-based professional updating possible….and encourage new and existing staff to gain teaching credentials' (p. 226). Two other suggestions are made: One, to form multi-skilled development teams that motivate and support collaborative development; the other to initiate a forum where academics and designers can share ideas and experiences.

Commenting that staff training often privileges the technical over the pedagogical, Khan (2005) also notes that many academic and administrative staff may have not experienced e-learning themselves. He recommends that they should undertake a course using the medium in order to better understand the learner's position (p. 35). Another problematic issue for Khan is teaching staff workload, which, particularly in the early stages of e-learning implementation, is very demanding because of the additional preparation and communication requirements. Careful consideration needs to given to balancing the management and support of staff development requirements with the added workload of staff in an environment of significant change.

### Practices

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.

Table S5-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.



## Delivery

**Teaching staff are provided with support resources (including training, guidelines and examples) on the pedagogical aspects of e-learning technologies.**

- ☐ *No training, guidelines or examples provided to teaching staff on the range of e-learning technologies and pedagogies available.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing or (re)developing e-learning courses.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on researching and reflecting upon their own practice with e-learning technologies and pedagogies.**

- ☐ *No training, guidelines or examples provided to teaching staff on self reflection and personal development techniques.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing, (re)developing or delivering courses.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on how to assist students in developing e-learning skills.**

- ☐ *No training, guidelines or examples provided to teaching staff on assisting students with e-learning technologies and pedagogies.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing, (re)developing or delivering e-learning courses.*

## Planning

**E-learning design and (re)development procedures include a formal assessment of teaching staff e-learning skills.**

- ☐ *No assessment of teaching staff skills with e-learning technology and pedagogies apparent.*
- ☐ *Limited, informal or inconsistent assessment of teaching staff skills with e-learning technology and pedagogies apparent.*
- ☐ *Assessment of teaching staff skills with e-learning technology and pedagogies is undertaken formally as part of course e-learning design and (re)development processes but the information is confidential to the staff member or not acted upon by the institution.*
- ■ *Assessment of teaching staff skills with e-learning technology and pedagogies is undertaken formally and the results incorporated into course e-learning design and (re)development processes and activities.*

**E-learning design and (re)development procedures include assistance for teaching staff in changing pedagogies.**

- ☐ *No assistance for teaching staff in changing pedagogies apparent in e-learning design and (re)development procedures.*
- ☐ *Informal or inconsistent assistance for teaching staff in changing pedagogies apparent in e-learning design and (re)development procedures.*
- ☐ *Assistance for teaching staff in changing pedagogies formally included in e-learning design and (re)development procedures, but no specific responsibility normally assigned.*
- ■ *Assistance for teaching staff in changing pedagogies formally included in e-learning design and (re)development procedures, with responsibility assigned explicitly and outcomes included formally in project deliverables.*

**Teaching staff are recognised and rewarded for their engagement with innovative e-learning initiatives.**

**See also**: D1(2), E2(2) & O9(2)

- ☐ *No recognition of individual staff involvement in e-learning initiatives.*
- ☐ *Informal, inconsistent or insignificant recognition of individual staff involvement in e-learning initiatives.*
- ☐ *Formal, but generic or minor, recognition of individual staff involvement in e-learning initiatives.*
- ■ *Formal and significant recognition of individual staff involvement in e-learning initiatives.*

E-Learning support is guided by a researched evidence base.

- ☐ *No use of research evidence during e-learning support planning or delivery.*
- ☐ *Inconsistent or informal incorporation of research evidence during e-learning support planning or delivery.*
- ☐ *Research evidence on e-learning support guides most, but not all, e-learning support activities, or research is not kept in an shared evidence base for reuse by different support providers.*
- ■ *E-learning support activities are formally and explicitly linked to a shared research evidence base of effective e-learning support examples.*

Technical design and development support is formally scheduled during e-learning design and development.

**See also**: D1(2) & D2(2)

- ☐ *No assistance in e-learning course development provided.*
- ☐ *Assistance in e-learning course development allocated and planned informally and/or inconsistently.*
- ☐ *Course e-learning design and (re)development plans include allocation of assistance in e-learning course development as a generic and unspecified component.*
- ■ *Course e-learning design and (re)development plans include allocation and prioritisation of assistance in e-learning course development with detailed scheduling and timetabling of assistance.*

E-learning support is provided during the hours teaching staff are engaged in e-learning activities.

- ☐ *No e-learning support provided to teaching staff.*
- ☐ *E-learning support is provided informally or requires face-to-face contact at the institution.*
- ☐ *A formal e-learning support service is provided to teaching staff but is incomplete or offered over reduced or constrained hours of operation.*
- ☐ *A formal e-learning support service is provided to teaching staff through a variety of communication channels and with hours of operation that are consistent with teaching times.*

Formal risk assessments of staff e-learning skills and mitigation planning are required by e–learning design and (re)development procedures.

**See also**: D1(2) & D2(2)

- ☐ *No consideration of risks associated with staff e-learning skills undertaken during e-learning design and (re)development processes.*
- ☐ *Informal or incomplete consideration of risks associated with staff e-learning skills undertaken during e-learning design and (re)development processes.*
- ☐ *Formal risk analysis and planning undertaken of staff e-learning skills during e-learning design and (re)development processes with compliance to minimum expectations optional or not required, or no explicit strategies for alternatives defined for staff inexperience or abilities.*
- ☐ *Formal risk analysis and planning undertaken of staff e-learning skills during e-learning design and (re)development processes with compliance to minimum expectations required formally by processes and explicit strategies for alternatives defined for staff inexperience and abilities.*

Teaching staff employment and promotion criteria address e-learning skills.

- ☐ *No consideration of e-learning skills in teaching staff employment and promotion criteria.*
- ☐ *Incomplete or informal consideration of e-learning skills in teaching staff employment and promotion criteria.*
- ☐ *Teaching staff employment and promotion criteria include e-learning skills however inclusion is outdated or fails to include all of the technologies in use.*
- ☐ *Teaching staff employment and promotion criteria formally and systematically address e-learning skills.*

Specialist staff support the use of e-learning design and (re)development procedures.

**See also**: D1(2) & D2(2)

- ☐ *No support for use of e-learning design and (re)development procedures provided.*
- ☐ *Informal or inconsistent support provided for the use of e-learning design and (re)development procedures.*
- ☐ *Support provided for the use of e-learning design and (re)development procedures by non-specialist staff or generically as part of support provided for other activities.*
- ☐ *Systematic and formal support provided by specialist staff for the use of e-learning design and (re)development procedures.*

## Definition

**Institutional standards are defined for the assessment of teaching staff e-learning skills.**

- ☐ *No institutional standards for assessing teaching staff capability to use e-learning technology and pedagogies effectively are defined.*
- ☐ *Standards for assessing teaching staff capability to use e-learning technology and pedagogies effectively are provided but are incomplete, informal or fail to impose mandatory expectations on staff.*
- ☐ *Standards for assessing teaching staff capability to use e-learning technology and pedagogies effectively are formally defined, however compliance with these and assessment of all staff involved in e-learning design, (re)development and delivery is incomplete or not required.*
- ☐ *Standards for assessing teaching staff capability to use e-learning technology and pedagogies effectively are formally defined and all staff involved in e-learning design, (re)development and delivery are required to undertake assessment.*

**Pedagogical issues are formally addressed in e-learning design and (re)development procedures.**

**See also**: D1(3) & D2(3)

- ☐ *No consideration of pedagogical issues apparent in course e-learning design and (re)development activities.*
- ☐ *Informal or inconsistent consideration of pedagogical issues apparent in course e-learning design and (re)development activities.*
- ☐ *Formal consideration of pedagogical issues apparent in most, but not all, course e-learning design and (re)development activities, or consideration is subordinate to business and technical concerns.*
- ☐ *Formal consideration of pedagogical issues required in all course e-learning design and (re)development projects with business and technical concerns treated equally or subordinate.*

Support staff are provided with standards and guidelines covering technical and pedagogical aspects of e-learning design and (re)development.

**See also**: D1(3), D2(3 & S5(3))

- ☐ *No e-learning design and (re)development technical and pedagogical standards provided.*
- ☐ *Technical and pedagogical standards provided that are incomplete, informal or fail to impose mandatory compliance requirements on staff involved in e-learning design and (re)development initiatives.*
- ☐ *Technical and pedagogical standards provided which define mandatory compliance requirements on staff involved in e-learning design and (re)development initiatives however compliance incomplete or not required.*
- ☐ *Technical and pedagogical standards provided which define mandatory compliance requirements on staff involved in e-learning design and (re)development initiatives and compliance required.*

Teaching staff are provided with project tools (including standard contracts and licenses, checklists and quality assurance procedures) for e-learning design and (re)development.

**See also**: D1(3), D2(3), D3(3) & D6(3)

- ☐ *No e-learning design and (re)development technical and pedagogical project tools and materials provided.*
- ☐ *E-learning project tools and materials provided that are incomplete, informal or not designed for use by non-specialist staff.*
- ☐ *E-learning project tools and materials provided that are designed for use by non-specialist staff, but fail to cover the range of e-learning technologies and pedagogies in use and/or are not used in all e-learning design and (re)development initiatives.*
- ☐ *E-learning project tools and materials provided that are designed for use by non-specialist staff and which cover all of the e-learning technologies and pedagogies in use and are used in all e-learning design and (re)development initiatives.*

Allocation of support resources is guided by institutional e-learning strategies and technology plans.

**See also**: S6(3))

- ☐ *No apparent consideration of institutional e-learning strategies and technology plans when allocating support resources.*
- ☐ *Informal or inconsistent consideration of institutional e-learning strategies and technology plans when allocating support resources.*
- ☐ *Institutional e-learning strategies and technology plans guide support resource allocation, but are not linked explicitly to resource allocation decisions.*
- ☐ *Institutional e-learning strategies and technology plans guide support resource allocation and are formally linked to resource allocation decisions.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L6(3), L7(3), D1(3), D2(3), D3(3), D7(3), S6(3), O1(3), O3(3), O4(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Staff technical support requirements are formally addressed in e-learning technology purchase procedures.

**See also**: D1(3), D2(3) & S6(3)

- ☐ *No consideration of staff technical support issues apparent in course e-learning technology purchase activities and procedures.*
- ☐ *Informal or inconsistent consideration of staff technical support issues apparent in technology purchase activities.*
- ☐ *Formal consideration of staff technical support issues required in technology purchase procedures but not referenced in purchase decisions.*
- ☐ *Formal consideration of staff technical support issues required in technology purchase procedures and explicitly referenced in purchase decisions.*

## Management

**Teaching staff use of pedagogical support and assistance is regularly monitored.**

**See also**: S6(4)

- ☐ *No monitoring of the demand for and effectiveness of the pedagogical support provided to teaching staff.*
- ☐ *Limited, inconsistent or informal monitoring of the demand for and effectiveness of the pedagogical support provided to teaching staff collected, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the demand for and effectiveness of the pedagogical support provided to teaching staff collected, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular collection and reporting of the demand for and effectiveness of the pedagogical support provided to teaching staff.*

**Teaching staff capability to use e-learning technology and pedagogies effectively is regularly monitored.**

**See also**: S6(4)

- ☐ *No monitoring of the capability of teaching staff to use e-learning technology and pedagogies effectively.*
- ☐ *Limited, inconsistent or informal monitoring of the capability of teaching staff to use e-learning technology and pedagogies effectively, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the capability of teaching staff to use e-learning technology and pedagogies effectively are collected, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the capability of teaching staff to use e-learning technology and pedagogies effectively.*

**Feedback collected regularly from staff regarding the effectiveness of the pedagogical support and training provided.**

- ☐ *No feedback collected from staff on the effectiveness of the pedagogical support and training provided.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all pedagogical support and training provided or not collected regularly from all staff using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback collected regularly on all of the pedagogical support and training provided.*

Feedback collected regularly from students regarding the effectiveness of teaching staff in using e-learning technologies and pedagogies.

- ☐ *No feedback collected from students on the effectiveness of teaching staff use of e-learning technologies and pedagogies.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some teaching staff use of e-learning technologies and pedagogies or not collected regularly from all courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback collected regularly from students regarding the effectiveness of teaching staff in using e-learning technologies and pedagogies.*

Compliance of e-learning support with institutional e-learning strategies and technology plans is regularly monitored.

- ☐ *No monitoring of compliance of e-learning support with institutional e-learning strategies and technology plans.*
- ☐ *Limited, inconsistent or informal monitoring of compliance of e-learning support with institutional e-learning strategies and technology plans, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of compliance of e-learning support with institutional e-learning strategies and technology plans conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of compliance of e-learning support with institutional e-learning strategies and technology plans.*

Financial costs and benefits of staff e-learning support facilities are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of staff e-learning support facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of staff e-learning support facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of staff e-learning support facilities, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of staff e-learning support facilities.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4))

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ■ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed staff pedagogical support.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed staff pedagogical support.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed staff pedagogical support.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed staff pedagogical support undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ■ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed staff pedagogical support.*

Overlap and duplication of e-learning support is regularly assessed.

**See also**: D1(4), D2(4), S6(4), O1(4), O3(4), O5(4) & O(9)

- ☐ *No assessment or review of e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ■ *Formal and systematic assessment and review of overlap and duplication in e-learning support facilities undertaken regularly.*

## Optimisation

**Information on the e-learning technology and pedagogy skills of teaching staff guides the resources allocated for support.**

- ☐ *No use of information on the e-learning technology and pedagogy skills of teaching staff during support resource planning and allocation.*
- ☐ *Informal and inconsistent use of information on the e-learning technology and pedagogy skills of teaching staff during support resource planning and allocation.*
- ☐ *Information on the e-learning technology and pedagogy skills of teaching staff explicitly guides support resource planning and allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ■ *Information on the e-learning technology and pedagogy skills of teaching staff explicitly guides support resource planning and allocation and is formally linked to resourcing decisions.*

**Pedagogical support implications explicitly addressed when deploying e-learning technologies.**

- ☐ *No consideration of pedagogical support implications when deploying e-learning technologies.*
- ☐ *Inconsistent, informal and variable consideration of pedagogical support implications when deploying e-learning technologies.*
- ☐ *Pedagogical support implications formally considered in some but not all e-learning technology deployments.*
- ■ *Pedagogical support implications are formally included the procedures used to deploy new e-learning technologies.*

E-learning technology deployment procedures formally address the resourcing of e-learning support.

**See also**: D1(5) & D3(5)

- ☐ *No consideration of e-learning support issues apparent in e-learning technology deployment activities and procedures.*
- ☐ *Informal or inconsistent consideration of e-learning support issues apparent in e-learning technology deployment activities and procedures.*
- ☐ *Formal consideration of e-learning support issues required in e-learning technology deployment procedures but not referenced in deployment project plans and decisions.*
- ■ *Formal consideration of e-learning support issues required in e-learning technology deployment procedures and explicitly referenced in deployment project plans and decisions.*

Information on the effectiveness of design and development support guides the resourcing of e-learning support.

- ☐ *No information on the effectiveness of e-learning design and development support apparent in e-learning support resource allocation decisions.*
- ☐ *Limited, informal or inconsistent use of information on the effectiveness of e-learning design and development support apparent in support resource allocation decisions.*
- ☐ *Information on the effectiveness of e-learning design and development support used in a generic manner to guide e-learning support resource allocation decisions.*
- ■ *Information on the effectiveness of e-learning design and development support systematically incorporated into e-learning support resource allocation decisions.*

| Information on the effectiveness of design and development support guides the strategic and operational planning of e-learning. **See also**: D1(5) & D3(5) |
|---|
| ☐ *No use of information on the effectiveness of design and development support during institutional e-learning strategic and operational planning.* |
| ☐ *Informal and inconsistent use of information on the effectiveness of design and development support during institutional e-learning strategic and operational planning.* |
| ☐ *Information on the effectiveness of design and development support explicitly guides institutional e-learning strategic and operational planning, but is treated as subordinate to technical goals, or not linked to specific decisions.* |
| ☐ *Information on the effectiveness of design and development support explicitly guides institutional e-learning strategic and operational planning and is formally linked to specific decisions.* |
| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing staff e-learning technology use and support needs. **See also**: D1(5), D3(5) & O4(5) |
| ☐ *No consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ☐ *Formal and systematic consideration of current staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.* |

**Table S5-1**: Descriptions of process practices by capability dimension

# Process S6.

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

## Process Background

E-learning involves a dynamic and complex information and communications environment that necessitates technical support for teaching staff to ensure students are able make best use of facilities and resources. Skills for effectively engaging in e-learning need to be learned and learners need to be supported and encouraged by teaching staff. Any technical problems or difficulties must be quickly and efficiently resolved to ensure students remain motivated. Salmon (2000) describes a five step method that progressively introduces students to increasingly complex technical elements and the skills they involve. Step one involves establishing access; step two, establishing communication; step three, finding and exchanging information; step four, participating in conferences; step five, developing experience and independence. This staged approach enables planned technical support.

Khan (2005) advises pre-planning an approach to technical support 'and coming up with meaningful solutions so that learners can easily follow them to fix technical problems and continue their learning process' (p. 354). He adds that students' motivation is easily disrupted by technical problems, and that '[h]elping learners during disaster times is the best help' (p. 354). Clyde and Delohery (2005) also recommend planning ahead for technical resources and support to ensure a positive learning experience for students (p. 85).

Laurillard (2002) discusses how e-learning support relies on academics defining service targets and contingency measures. She describes the provision of support staff for e-learning materials and services as analogous with library staff: 'They have to be institution-based…responsive to problems and act immediately to correct errors or breakdowns…able to deal with a range of subjects…knowledgeable about access to materials, rather than details about their content…manage the complexity of material and support decisions…ensure that the materials are operationally sound' (p. 234).

As Palloff and Pratt (2002) observe, traditional expectations of the teaching-learning process are overturned in e-learning, with students largely unaware of the challenges they will encounter. Thus there is a crucial need for students and teachers to become oriented to and understand this new relationship. The information and communication challenges of 'learning to learn online' (p. 179) are such that unexpected technical difficulties can overload challenges and turn students off. Strong technical support alleviates this problem: 'When faculty and students are provided with good training and support for online teaching and learning , the likely outcomes is excitement about new ways of teaching and learning' (p. 182).

## Practices

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.

Table S6-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| Delivery |
|---|
| **Teaching staff are provided with support resources (including training, guidelines and examples) on the use of digital information by students.** |
| ☐ *No support provided to teaching staff on the use of electronically accessed or submitted information by students.* |
| ☐ *Limited or non-specific support on the use of electronically accessed or submitted information by students provided for the optional use of staff.* |
| ☐ *Support on the use of electronically accessed or submitted information by students provided but use is optional and not actively encouraged and promoted.* |
| ■ *Support on the use of electronically accessed or submitted information by students provided to all teaching staff with the requirement that it be used prior to designing, (re)developing or delivering e-learning courses.* |

Student use of digital information is supported in all courses.

- ☐ *No support of student use of digital information provided.*
- ☐ *Student use of digital information is dependent on the skills of individual teaching staff or not allowed in some courses.*
- ☐ *Courses allow the use of digital information by students but key assessment or learning tasks require the use of paper submission procedures or physical resources.*
- ■ *Courses support and encourage the use of digital information by students in all assessment and learning tasks.*

## Planning

**All student digital information is stored in a validated backup system.**

**See also**: D5(1) & O4(2)

- ☐ *No backup procedure apparent.*
- ☐ *Incomplete or informal backup procedures used to store student information.*
- ☐ *Formal and regular backup procedures used for all student information but regular validation and auditing not undertaken.*
- ■ *Formal and regular backup procedures used for all student information with regular auditing and validation of content and coverage of the backup information.*

**Access to all student digital information is authenticated and authorised.**

**See also**: O4(2)

- ☐ *No evidence of security concerns evident in course e-learning design and (re)development plans or procedures.*
- ☐ *Security issues addressed informally or incompletely in course e-learning design and (re)development plans or procedures.*
- ☐ *Security issues addressed formally in course e-learning design and (re)development plans and procedures by presumption of security in core infrastructure without validation required.*
- ■ *Security issues addressed formally in course e-learning design and (re)development plans or procedures and formal testing and validation required prior to project completion.*

**E–learning design and (re)development procedures address the use of digital information by students.**

- ☐ *No consideration of the implications of students using digital information apparent in e-learning design and (re)development procedures.*
- ☐ *The implications of students using digital information addressed informally or incompletely in e-learning design and (re)development procedures.*
- ☐ *The implications of students using digital information addressed formally in e-learning design and (re)development procedures but without requiring testing or validation.*
- ■ *The implications of students using digital information addressed formally in e-learning design and (re)development procedures with testing required prior to project completion.*

E-learning design and (re)development procedures include a formal assessment of teaching staff digital information skills.

- ☐ *No assessment of teaching staff skills with digital information apparent.*
- ☐ *Limited, informal or inconsistent assessment of teaching staff skills with digital information apparent.*
- ☐ *Assessment of teaching staff digital information skills is undertaken formally as part of course e-learning design and (re)development processes but the information is confidential to the staff member or not acted upon by the institution.*
- ■ *Assessment of teaching staff digital information skills is undertaken formally and the results incorporated into course e-learning design and (re)development processes and activities.*

Formal risk assessments of the use of digital information by students and mitigation planning are required by e–learning design and (re)development procedures.

- ☐ *No consideration of risks associated with the use of digital information by students undertaken during e-learning design and (re)development processes.*
- ☐ *Informal or incomplete consideration of risks associated with the use of digital information by students undertaken during e-learning design and (re)development processes.*
- ☐ *Formal risk analysis and planning undertaken of the use of digital information by students during e-learning design and (re)development processes with compliance to minimum expectations optional or not required, or no explicit strategies for alternatives defined for student use.*
- ■ *Formal risk analysis and planning undertaken of the use of digital information by students during e-learning design and (re)development processes with compliance to minimum expectations required formally by processes and explicit strategies for alternatives defined for student use.*

Teaching staff are provided with plagiarism and collusion detection systems.

**See also**: L6(2) & L8(2)

- ☐ *No plagiarism and collusion detection systems provided.*
- ☐ *Plagiarism and collusion detection systems are provided informally, inconsistently, or are only provided for use in courses where students are presumed to plagiarise more often, or only used on work provided by some students.*
- ☐ *Plagiarism and collusion detection systems are provided for use in all courses but use is optional and systems are used to document or confirm plagiarism only after detection by staff.*
- ■ *Plagiarism and collusion detection systems are provided and used in all courses on work submitted by all students.*

## Definition

**Teaching staff are provided with resources (including training, guidelines and examples) on supporting the use of digital information by students, including intellectual property, plagiarism and assessment aspects.**

- ☐ *No training, guidelines or examples provided to teaching staff on supporting the use of digital information by students.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing, (re)developing or delivering e-learning courses.*

**Formal procedures for e-learning design and (re)development explicitly include consideration of the use, protection and privacy of digital information by students.**

- ☐ *No consideration of the use, protection and privacy of digital information by students apparent in course e-learning design and (re)development activities.*
- ☐ *Informal or inconsistent consideration of the use, protection and privacy of digital information by students apparent in course e-learning design and (re)development activities.*
- ☐ *Formal consideration of the use, protection and privacy of digital information by students apparent in most, but not all, course e-learning design and (re)development activities or not subject to formal testing prior to project completion.*
- ☐ *Formal consideration of the use, protection and privacy of digital information by students required in all course e-learning design and (re)development projects with formal testing required prior to project completion.*

Staff technical support requirements are formally addressed in e-learning technology purchase procedures.

**See also**: D1(3), D2(3) & S5(3)

- ☐ *No consideration of staff technical support issues apparent in course e-learning technology purchase activities and procedures.*
- ☐ *Informal or inconsistent consideration of staff technical support issues apparent in technology purchase activities.*
- ☐ *Formal consideration of staff technical support issues required in technology purchase procedures but not referenced in purchase decisions.*
- ☐ *Formal consideration of staff technical support issues required in technology purchase procedures and explicitly referenced in purchase decisions.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L6(3), L7(3), D1(3), D2(3), D3(3), D7(3), S5(3), O1(3), O3(3), O4(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Allocation of support resources is guided by institutional e-learning strategies and technology plans.

**See also**: S5(3)

- ☐ *No apparent consideration of institutional e-learning strategies and technology plans when allocating support resources.*
- ☐ *Informal or inconsistent consideration of institutional e-learning strategies and technology plans when allocating support resources.*
- ☐ *Institutional e-learning strategies and technology plans guide support resource allocation, but are not linked explicitly to resource allocation decisions.*
- ☐ *Institutional e-learning strategies and technology plans guide support resource allocation and are formally linked to resource allocation decisions.*

## Management

**Teaching staff use of support resources for developing student digital information skills is monitored regularly.**

- ☐ *No monitoring of the effectiveness and uses of staff support resources for developing student digital information skills.*
- ☐ *Limited, inconsistent or informal monitoring of the effectiveness and uses of staff support resources for developing student digital information skills, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the effectiveness and uses of staff support resources for developing student digital information skills are collected, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the effectiveness and uses of staff support resources for developing student digital information skills.*

**Feedback collected regularly from students regarding the effectiveness of the digital information skills support provided.**

- ☐ *No feedback collected from students on the effectiveness of the digital information skills support provided.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all digital information skills support provided or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback mechanisms applied regularly to all courses using the digital information skills support provided.*

**Feedback collected regularly from staff regarding their effectiveness in supporting student digital information skills development.**

- ☐ *No feedback collected from staff on the effectiveness of their support of student digital information skills development.*
- ☐ *Limited, inconsistent or informal staff feedback collected on the effectiveness of their support of student digital information skills development.*
- ☐ *Formal, independent, staff feedback collected on the effectiveness of their support of student digital information skills development but not regularly or from all staff involved in the delivery and support of e-learning courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback collected regularly from all staff involved in the delivery and support of e-learning courses on the effectiveness of their support of student digital information skills development.*

Teaching staff capability to use e-learning technology and pedagogies effectively is regularly monitored.

**See also**: S5(4)

- ☐ *No monitoring of the capability of teaching staff to use e-learning technology and pedagogies effectively.*
- ☐ *Limited, inconsistent or informal monitoring of the capability of teaching staff to use e-learning technology and pedagogies effectively, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the capability of teaching staff to use e-learning technology and pedagogies effectively are collected, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the capability of teaching staff to use e-learning technology and pedagogies effectively.*

Teaching staff use of pedagogical support and assistance is regularly monitored.

**See also**: S5(4)

- ☐ *No monitoring of the demand for and effectiveness of the pedagogical support provided to teaching staff.*
- ☐ *Limited, inconsistent or informal monitoring of the demand for and effectiveness of the pedagogical support provided to teaching staff collected, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the demand for and effectiveness of the pedagogical support provided to teaching staff collected, but reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular collection and reporting of the demand for and effectiveness of the pedagogical support provided to teaching staff.*

Financial costs and benefits of student digital information skills support facilities are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of student digital information skills support facilities.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of student digital information skills support facilities, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of student digital information skills support facilities, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of student digital information skills support facilities.*

Digital information support facilities are subject to formal quality assurance reviews at key milestones.

- ☐ *No reviews undertaken of digital information support facilities.*
- ☐ *Reviews of digital information support facilities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of digital information support facilities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ☐ *Formal and independent reviews of digital information support facilities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed technical support.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed technical support.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed technical support.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed technical support undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed technical support.*

Overlap and duplication of e-learning support is regularly assessed.

**See also**: D1(4), D2(4), S5(4), O1(4), O3(4), O5(4) & O(9)

- ☐ *No assessment or review of e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ☐ *Formal and systematic assessment and review of overlap and duplication in e-learning support facilities undertaken regularly.*

## Optimisation

**Information on teaching staff skills in supporting digital information use by students guides e-learning design and (re)development.**

- ☐ *No use of information on teaching staff skills in supporting digital information use by students during e-learning design and (re)development.*
- ☐ *Informal and inconsistent use of information on teaching staff skills in supporting digital information use by students during e-learning design and (re)development.*
- ☐ *Information on teaching staff skills in supporting digital information use by students explicitly guides e-learning design and (re)development, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ☐ *Information on teaching staff skills in supporting digital information use by students explicitly guides e-learning design and (re)development and is formally linked to design decisions.*

Information on the effectiveness of digital information support guides the resourcing of support facilities.

- ☐ *No information on the effectiveness of digital information support apparent in e-learning support resource allocation decisions.*
- ☐ *Limited, informal or inconsistent use of information on the effectiveness of digital information support apparent in support resource allocation decisions.*
- ☐ *Information on the effectiveness of digital information support used in a generic manner to guide e-learning support resource allocation decisions.*
- ☐ *Information on the effectiveness of digital information support systematically incorporated into e-learning support resource allocation decisions.*

Information on the effectiveness of digital information support guides selection of new e-learning technologies.

- ☐ *No information on the effectiveness of digital information support apparent in e-learning technology selection decisions.*
- ☐ *Limited, informal or inconsistent use of information on the effectiveness of digital information support apparent in e-learning technology selection decisions.*
- ☐ *Information on the effectiveness of digital information support used in a generic manner to guide e-learning technology selection decisions.*
- ☐ *Information on the effectiveness of digital information support systematically incorporated into e-learning technology selection decisions.*

Information on the effectiveness of digital information support guides the strategic and operational planning of e-learning.

- ☐ *No information on the effectiveness of digital information support apparent in e-learning strategy and operations planning decisions.*
- ☐ *Limited, informal or inconsistent use of information on the effectiveness of digital information support apparent in e-learning strategy and operations planning decisions.*
- ☐ *Information on the effectiveness of digital information support used in a generic manner to guide e-learning strategy and operations planning decisions.*
- ☐ *Information on the effectiveness of digital information support systematically incorporated into e-learning strategy and operations planning decisions.*

| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing student digital information use and support needs. |
|---|
| ☐ *No consideration of student digital information use and support needs in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of student digital information use and support needs in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of student digital information use and support needs in the institutional risk assessments and mitigation strategies but the information on support needs is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ☐ *Formal and systematic consideration of current student digital information use and support needs in the institutional risk assessments and mitigation strategies with information on support needs linked explicitly to elements of the risks assessments and mitigation plans.* |



**Table S6-1**: Descriptions of process practices by capability dimension

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

This process area is focused on quality assurance, feedback and evaluation processes throughout the entire lifecycle of e-learning design, development and deployment. The goal is encouraging reflective practice informed by evidence from previous successes and failures. The ability of staff and students to provide informal and formal feedback and to see the results of that reflected in improvements to the quality of e-learning is key to this process area. The individual processes are directed at ensuring the evidence collected is robust and able to provide a reliable base of knowledge for future strategy and sustainable development both of infrastructure and staff skills.

| **Evaluation:** ***Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle*** | |
|---|---|
| E1. | Students are able to provide regular feedback on the quality and effectiveness of their e-learning experience |
| E2. | Teaching staff are able to provide regular feedback on quality and effectiveness of their e-learning experience |
| E3. | Regular reviews of the e-learning aspects of courses are conducted |

**Table 5:** eMM Version Two *Evaluation* Processes

# Process E1.

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

## Process Background

The need for institutions and teachers to solicit and analyse student feedback that is formative, summative, and based on multiple independent and standard evaluations is well acknowledged (Kirkpatrick, 1977; Forsyth *et al*., 1999; Arrelola, 2000; Sherry, 2003; Thompson and Irele, 2003; Brennan and Williams, 2004). Student feedback is a reliable and important measure of teaching and learning quality that can be used to inform action for improvements; it is also informative for prospective students (Brennan *et al*., 2003; Richardson, 2005a, 2005b). However, for feedback to be of use for improving teaching and learning it must be understood and acted upon (Kember *et al*., 2002).



Richardson (2005b) reports on research showing that students' perceptions of course quality influences their approaches to study (p. 24), thereby emphasising the importance of obtaining, analysing and acting upon student feedback. In a comprehensive review of the literature on student feedback instruments Richardson (2005a) identifies some obvious but key issues for obtaining reliable and useful information: 'Feedback should be sought at the level at which one is endeavouring to monitor quality…the focus should be on students' perceptions of key aspects of teaching or on key aspects of the quality of their programmes…feedback should be collected as soon as possible after the relevant educational activity' (pp. 409-10). Noting that e-learning presents new opportunities for obtaining feedback, he observes that more research is needed to study response rates and results patterns (p. 406). Richardson concludes that although teachers and students regard student feedback as useful and informative, its usefulness is often compromised by issues such as interpreting information, institutional incentives to teachers, publication of responses; and notions of teachers' and students' ownership of feedback (p. 410).

Norris and Conn (2005) investigated student response rates in online course feedback and they identify three simple strategies for achieving response rates equivalent to those of conventional classroom feedback: 1. announce the availability and location of the evaluation promptly after the completion of the course; 2. explain the value of the evaluations and feedback; 3. remind students to give feedback (pp. 26-7). In conclusion they add that, after overcoming concerns about response rates 'the real work of developing useful course evaluation instruments that will inform reliable and valid interpretations about instruction can begin' (p. 27).

## Practices

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.

Table E1-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

## Delivery

**Summative feedback collected regularly from students regarding the quality and effectiveness of their e-learning experience.**

- ☐ *No summative feedback collected from students regarding the quality and effectiveness of their e-learning experience.*
- ☐ *Informal, outdated or inconsistent summative feedback collected from students regarding the quality and effectiveness of their e-learning experience, or feedback collected infrequently.*
- ☐ *Summative feedback formally and regularly collected from students regarding the quality and effectiveness of their e-learning experience, but feedback limited to generic aspects or fails to cover all technologies in use.*
- ☐ *Summative feedback formally and regularly collected from students regarding the quality and effectiveness of the specific e-learning technologies and pedagogies used and the impact on their e-learning experiences.*

**Formative feedback collected regularly from students regarding the quality and effectiveness of their e-learning experience.**

- ☐ *No formative feedback collected from students regarding the quality and effectiveness of their e-learning experience.*
- ☐ *Informal, outdated or inconsistent formative feedback collected from students regarding the quality and effectiveness of their e-learning experience, or feedback collected infrequently.*
- ☐ *Formative feedback formally and regularly collected from students regarding the quality and effectiveness of their e-learning experience, but feedback limited to generic aspects or fails to cover all technologies in use.*
- ☐ *Formative feedback formally and regularly collected from students regarding the quality and effectiveness of the specific e-learning technologies and pedagogies used and the impact on their e-learning experiences.*

## Planning

**Students are provided with information on how feedback information has been and will be used to modify and improve their e-learning experience.**

- ☐ *No information provided to students on how feedback and evaluation information is used.*
- ☐ *Informal or outdated information provided to students on how feedback and evaluation information is used.*
- ☐ *Students are formally provided with generic information on how feedback and evaluation information is used to modify and improve the student e-learning experience.*
- ☐ *Students are formally provided with specific information on how their feedback and evaluation information will be, or has been, used to modify and improve their e-learning experience.*

**E–learning design and (re)development procedures include explicit evaluation phases assessing the quality and effectiveness of e-learning.**

- ☐ *No evaluation of quality and effectiveness apparent during e-learning design and (re)development procedures.*
- ☐ *Informal or incomplete evaluation of quality and effectiveness undertaken during e-learning design and (re)development procedures.*
- ☐ *Formal evaluation of quality and effectiveness undertaken during e-learning design and (re)development procedures with compliance to minimum expectations optional or not required.*
- ☐ *Formal evaluation of quality and effectiveness undertaken during e-learning design and (re)development procedures with compliance to minimum expectations required.*

**E–learning design and (re)development procedures include opportunities for user testing by students.**

- ☐ *No testing undertaken by students during e-learning design and (re)development procedures.*
- ☐ *Informal or incomplete testing undertaken by students during e-learning design and (re)development procedures.*
- ☐ *Formal testing undertaken by students during e-learning design and (re)development procedures with compliance to minimum expectations optional.*
- ☐ *Formal testing undertaken by students during e-learning design and (re)development procedures with compliance to minimum expectations required formally prior to delivery.*

E–learning design and (re)development procedures include collection of student information prior to project implementation.

- ☐ *No collection of information on students undertaken prior to e-learning design and (re)development processes.*
- ☐ *Informal or incomplete collection of information on students undertaken prior to e-learning design and (re)development processes.*
- ☐ *Formal collection of information on students undertaken prior to e-learning design and (re)development processes but information collection is inconsistent or unrelated to initiative objectives.*
- ☐ *Formal collection of information on students undertaken prior to e-learning design and (re)development processes using a consistent methodology linked to initiative objectives.*

Consistent evaluation procedures are used.

**See also**: E2(2)

- ☐ *No formal evaluation procedures used to collect feedback on the quality and effectiveness of e-learning.*
- ☐ *Informal evaluation procedures used to collect feedback on the quality and effectiveness of e-learning or evaluation processes used that do not specifically consider the use of e-learning technologies and pedagogies.*
- ☐ *Consistent evaluation procedures used to collect feedback on the quality and effectiveness of e-learning from most, but evaluations conducted infrequently or not by independent evaluators.*
- ☐ *Regular, consistent and independent evaluation procedures used to collect feedback on the quality and effectiveness of e-learning.*

A searchable repository of e-learning feedback information is provided.

**See also**: E2(2) & E3(2)

- ☐ *No student e-learning feedback information is retained.*
- ☐ *Student e-learning feedback information is retained informally or inconsistently, or without details of the complaint's resolution.*
- ☐ *Student e-learning feedback information is retained formally but in multiple places and/or without the ability to be analysed.*
- ☐ *Student e-learning feedback information is retained formally in a designated repository with tools supporting the analysis and retrieval of complaint information.*

## Definition

**Institutional policies define requirements for student evaluations of the educational effectiveness of e-learning initiatives.**

- ☐ *No institutional requirements for student evaluations of the educational effectiveness of e-learning initiatives are defined.*
- ☐ *Institutional standards for student evaluations of the educational effectiveness of e-learning initiatives are defined that are incomplete, informal or fail to define the frequency and content of the evaluations.*
- ■ *Institutional standards for student evaluations of the educational effectiveness of e-learning initiatives provided, including the frequency, content and reporting of the evaluations, which define mandatory compliance requirements on staff involved in e-learning courses however compliance incomplete or not required.*
- ■ *Institutional standards for student evaluations of the educational effectiveness of e-learning initiatives provided, including the frequency, content and reporting of the evaluations, and which define mandatory compliance requirements on staff involved in e-learning courses.*

**Institutional policies define requirements for the quality and type of evaluation feedback to be provided to students.**

- ☐ *No policies, standards or guidelines define requirements for the quality and type of evaluation feedback to be provided to students.*
- ☐ *Policies, standards and guidelines define requirements for the quality and type of evaluation feedback to be provided to students, but the requirements are optional, or fail to impose mandatory minimum requirements.*
- ■ *Policies, standards or guidelines define mandatory minimum requirements for the quality and type of evaluation feedback to be provided to students, however compliance incomplete or not enforced.*
- ■ *Policies, standards or guidelines define mandatory minimum requirements for the quality and type of evaluation feedback to be provided to students with compliance enforced.*

**Expert support provided for evaluations of student feedback on the quality and effectiveness of e-learning initiatives.**

- ☐ *No assistance available to staff undertaking student evaluation initiatives.*
- ☐ *Assistance in designing the collection, analysis and interpretation of student feedback on the quality and effectiveness of e-learning initiatives is informally or inconsistently available as a consequence of other evaluation support.*
- ■ *Formal and explicit assistance in designing the collection, analysis and interpretation of student feedback on the quality and effectiveness of e-learning initiatives is available but access limited or not promoted.*
- ■ *Formal and explicit assistance in designing the collection, analysis and interpretation of student feedback on the quality and effectiveness of e-learning initiatives is available and actively promoted to all staff involved in e-learning delivery.*

Teaching staff are provided with support resources (including training, guidelines and examples) on using evaluation and feedback information to improve student learning outcomes.

- ☐ *No training, guidelines or examples of using evaluation and feedback information to improve student learning outcomes provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples of using evaluation and feedback information to improve student learning outcomes provided for the optional use of staff.*
- ■ *Detailed and specific training, guidelines and examples of using evaluation and feedback information to improve student learning outcomes provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples of using evaluation and feedback information to improve student learning outcomes provided to all teaching staff with the requirement that they be used prior to the design and (re)development of courses.*

Students are provided with support resources (including training, guidelines and examples) to assist them in making effective use of staff feedback in their learning.

**See also**: L4(3), L5(3) & L8(3)

- ☐ *No guidelines or support materials provided to students to assist them in making effective use of staff feedback.*
- ☐ *Incomplete, outdated or informal guidelines or support materials provided to students to assist them in making effective use of staff feedback.*
- ■ *Guidelines and/or support materials provided to students to assist them in making effective use of staff feedback, but materials are not actively promoted or provided to all students.*
- ■ *Guidelines and support materials provided to all students to assist them in making effective use of staff feedback and use of these materials actively promoted.*

Institutional policies require that student e-learning evaluations are performed independently according to a standard timetable and defined procedures.

- ☐ *No policies, standards or guidelines define requirements for the timing, independence and conduct of evaluations.*
- ☐ *Policies, standards and guidelines define requirements for evaluations, but the requirements are optional, or fail to impose mandatory minimum requirements for the timing, independence and conduct of evaluations.*
- ■ *Policies, standards or guidelines define mandatory minimum requirements for the timing, independence and conduct of evaluations, however compliance incomplete or not enforced.*
- ■ *Policies, standards or guidelines define mandatory minimum requirements for the timing, independence and conduct of evaluations with compliance enforced.*

## Management

**Evaluation results are reported regularly in a manner that allows for comparison of the educational effectiveness of e-learning initiatives.**

**See also**: E2(4) & E3(4)

- ☐ *No reporting of student evaluations of the educational effectiveness of e-learning.*
- ☐ *Reporting of evaluation results is informal, incomplete or prevents detailed analysis.*
- ■ *Detailed evaluation results of all courses are collected regularly, reported formally and allow for analysis and comparison of the educational effectiveness of e-learning but the information is confidential and not available to all staff and students.*
- ■ *Detailed evaluation results of all courses are collected regularly, reported formally and allow for analysis and comparison of the educational effectiveness of e-learning by all staff and students.*

Financial costs and benefits of student evaluations are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of student evaluations.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of student evaluations, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of student evaluations, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of student evaluations.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ■ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed evaluation procedures.

**See also**: E2(4)

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding student evaluations.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding student evaluations.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding student evaluations undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ■ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding student evaluations.*

## Optimisation

**Information from student evaluations of e-learning guides which pedagogical and technological changes are sustained.**

- ☐ *No use of information from student evaluations of the quality and effectiveness of e-learning during e-learning initiative planning.*
- ☐ *Informal and inconsistent use of information from student evaluations of the quality and effectiveness of e-learning during institutional e-learning initiative planning activities.*
- ☐ *Information from student evaluations of the quality and effectiveness of e-learning explicitly guides institutional e-learning initiative planning, but is treated as subordinate to technical goals, or not linked to ongoing use of technologies and pedagogies.*
- ■ *Information from student evaluations of the quality and effectiveness of e-learning explicitly guides institutional e-learning initiative planning and is formally linked to ongoing use of technologies and pedagogies.*

**Information from student evaluations of e-learning guides the allocation of resources for teaching staff support.**

- ☐ *No use of information from student evaluations of the quality and effectiveness of e-learning during e-learning support planning.*
- ☐ *Informal and inconsistent use of information from student evaluations of the quality and effectiveness of e-learning during institutional e-learning support planning activities.*
- ☐ *Information from student evaluations of the quality and effectiveness of e-learning explicitly guides institutional e-learning support planning, but is treated as subordinate to technical goals, or not linked to resource allocation.*
- ■ *Information from student evaluations of the quality and effectiveness of e-learning explicitly guides institutional e-learning support planning and is formally linked to resource allocation.*

All new e-learning technologies or pedagogies are subject to formal evaluation.

**See also**: E2(5)

- ☐ *No evaluations undertaken of new e-learning technologies or pedagogies.*
- ☐ *Informal or inconsistent evaluations undertaken of new e-learning technologies or pedagogies.*
- ☐ *Formal evaluations undertaken of new e-learning technologies and pedagogies but the information is reported incompletely or inconsistently, or evaluations are not conducted independently.*
- ■ *Formal and independent evaluations undertaken of new e-learning technologies and pedagogies with the results reported consistently.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect student evaluations of e-learning.

- ☐ *No consideration of student evaluations in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of student evaluations in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal consideration of student evaluations in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risk assessments and mitigation plans.*
- ■ *Formal and systematic consideration of current student evaluations in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risk assessments and mitigation plans.*

**Table E1-1**: Descriptions of process practices by capability dimension

## Process E2.

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

### Process Background

The e-learning environment presents many new and/or different teaching and learning challenges that can benefit from valid, reliable, and informative feedback from teachers. Laurillard (2002) recommends the establishment of a forum for teachers to 'discuss their experience of learning technologies, and the academic issues surrounding the balance of learning methods' (p. 227). She suggests such a forum could discuss and debate evaluation of developments, approaches to supporting teaching and learning, integration of learning resources and teaching methods, and teachers' requirements for further technology developments (p. 227).



In a comprehensive report on improving teachers use of ICT, Scrimshaw (2004) refers to professional development approaches 'fall[ing] along a spectrum from informal mutual support to the use of formal training courses' (p. 21). He discusses several approaches and concludes that the question is 'less which specific approach is best, but which combination of methods are needed to suit the level of progress staff individually and as a whole have already reached' (p. 22).

According to Jamieson (2004) e-learning represents 'the emergence of a significant online pedagogy [which] raises host of issues…concerning the complex and idiosyncratic nature of online learning' (p. 22). A key issue is the erosion of 'traditional teacher-centred pedagogy…as online environments provide learners with greater flexibility over when, where, how, and with whom they learn' (p. 22). Jamieson discusses a flexible learning programme for academics, which includes a weekly discussion group and regular anonymous evaluation responses that demonstrate the variety and value of communities of learning practice.

Communities of practice are discussed by Gray (2004) who emphasises the benefits that the online environment offers for collegial information sharing. However she recommends that an accomplished moderator be employed to facilitate formal and informal discussion across e-learning's technical, social, organisational, and pedagogical functions (p. 33). Motteram (2006) also engages in discussion of communities of practice, which he contextualises in reporting various cross-over communities for participants in an online module of a teachers' Masters programme. Of interest to Motteram is the transformative potential that this rich contextual environment offers participants as they interact and exchange interpretations of experiences: 'These experiences appear to represent a deeper experience of learning, as well as maintaining a good balance of skills development' (p. 24).

The importance of sharing feedback information is emphasised by Ravitz and Hoadley (2005) who propose a systematic approach to reviewing e-learning as professional development: 'this model of systematic review…holds the potential to change feedback systems among stakeholder groups in online resource development' (p. 968).

### Practices

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.

Table E2-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

## Delivery

**Summative feedback collected regularly from teaching staff regarding the quality and effectiveness of their e-learning experience.**

- ☐ *No summative feedback collected from teaching staff regarding the quality and effectiveness of their e-learning experience.*
- ☐ *Informal, outdated or inconsistent summative feedback collected from teaching staff regarding the quality and effectiveness of their e-learning experience, or feedback collected infrequently.*
- ☐ *Summative feedback formally and regularly collected from teaching staff regarding the quality and effectiveness of their e-learning experience, but feedback limited to generic aspects or fails to cover all technologies in use.*
- ☐ *Summative feedback formally and regularly collected from teaching staff regarding the quality and effectiveness of the specific e-learning technologies and pedagogies used and the impact on their e-learning experiences.*

**Formative feedback collected regularly from teaching staff regarding the quality and effectiveness of their e-learning experience.**

- ☐ *No formative feedback collected from teaching staff regarding the quality and effectiveness of their e-learning experience.*
- ☐ *Informal, outdated or inconsistent formative feedback collected from teaching staff regarding the quality and effectiveness of their e-learning experience, or feedback collected infrequently.*
- ☐ *Formative feedback formally and regularly collected from teaching staff regarding the quality and effectiveness of their e-learning experience, but feedback limited to generic aspects or fails to cover all technologies in use.*
- ☐ *Formative feedback formally and regularly collected from teaching staff regarding the quality and effectiveness of the specific e-learning technologies and pedagogies used and the impact on their e-learning experiences.*

## Planning

**Staff are provided with information on how feedback information has been and will be used to modify and improve their e-learning experience.**

- ☐ *No information provided to staff on how feedback and evaluation information is used.*
- ☐ *Informal or outdated information provided to staff on how feedback and evaluation information is used.*
- ☐ *Staff are formally provided with generic information on how feedback and evaluation information is used to modify and improve their e-learning experience.*
- ☐ *Staff are formally provided with specific information on how their feedback and evaluation information will be, or has been, used to modify and improve their e-learning experience.*

**E–learning design and (re)development procedures include explicit evaluation phases assessing the quality and effectiveness of e-learning.**

**See also**: E1(2)

- ☐ *No evaluation of quality and effectiveness apparent during e-learning design and (re)development procedures.*
- ☐ *Informal or incomplete evaluation of quality and effectiveness undertaken during e-learning design and (re)development procedures.*
- ☐ *Formal evaluation of quality and effectiveness undertaken during e-learning design and (re)development procedures with compliance to minimum expectations optional or not required.*
- ☐ *Formal evaluation of quality and effectiveness undertaken during e-learning design and (re)development procedures with compliance to minimum expectations required.*

**E–learning design and (re)development procedures include opportunities for user testing by staff.**

- ☐ *No testing undertaken by staff during e-learning design and (re)development procedures.*
- ☐ *Informal or incomplete testing undertaken by staff during e-learning design and (re)development procedures.*
- ☐ *Formal testing undertaken by staff during e-learning design and (re)development procedures with compliance to minimum expectations optional.*
- ☐ *Formal testing undertaken by staff during e-learning design and (re)development procedures with compliance to minimum expectations required formally prior to delivery.*

Teaching staff are recognised and rewarded for their engagement with innovative e-learning initiatives.

**See also**: D1(2), S5(2) & O9(2)

- ☐ *No recognition of individual staff involvement in e-learning initiatives.*
- ☐ *Informal, inconsistent or insignificant recognition of individual staff involvement in e-learning initiatives.*
- ☐ *Formal, but generic or minor, recognition of individual staff involvement in e-learning initiatives.*
- ☐ *Formal and significant recognition of individual staff involvement in e-learning initiatives.*

Consistent evaluation procedures are used.

**See also**: E1(2)

- ☐ *No formal evaluation procedures used to collect feedback on the quality and effectiveness of e-learning.*
- ☐ *Informal evaluation procedures used to collect feedback on the quality and effectiveness of e-learning or evaluation processes used that do not specifically consider the use of e-learning technologies and pedagogies.*
- ☐ *Consistent evaluation procedures used to collect feedback on the quality and effectiveness of e-learning from most, but evaluations conducted infrequently or not by independent evaluators.*
- ☐ *Regular, consistent and independent evaluation procedures used to collect feedback on the quality and effectiveness of e-learning.*

E–learning design and (re)development procedures include collection of staff information prior to project implementation.

- ☐ *No evidence of collection of staff feedback, requirements or concerns regarding e-learning prior to e-learning project implementation.*
- ☐ *Inconsistent or informal collection of staff feedback, requirements or concerns regarding e-learning prior to e-learning project implementation.*
- ☐ *E–learning design and (re)development procedures include a formal collection of staff feedback, requirements or concerns regarding e-learning prior to e-learning project implementation as one of the tasks subsequent to the initiation of design and (re)development work.*
- ☐ *Staff feedback, requirements or concerns regarding e-learning are formally and explicitly collected prior to e-learning design and (re)development or as the first task undertaken.*

A searchable repository of e-learning feedback information is provided.

**See also**: E1(2) & E3(2)

- ☐ *No student e-learning feedback information is retained.*
- ☐ *Student e-learning feedback information is retained informally or inconsistently, or without details of the complaint's resolution.*
- ☐ *Student e-learning feedback information is retained formally but in multiple places and/or without the ability to be analysed.*
- ■ *Student e-learning feedback information is retained formally in a designated repository with tools supporting the analysis and retrieval of complaint information.*

## Definition

**Institutional policies define requirements for staff evaluations of the educational effectiveness of e-learning initiatives.**

- ☐ *No institutional requirements for staff evaluations of the educational effectiveness of e-learning initiatives are defined.*
- ☐ *Institutional standards for staff evaluations of the educational effectiveness of e-learning initiatives are defined that are incomplete, informal or fail to define the frequency and content of the evaluations.*
- ☐ *Institutional standards for staff evaluations of the educational effectiveness of e-learning initiatives provided, including the frequency, content and reporting of the evaluations, which define mandatory compliance requirements on staff involved in e-learning courses however compliance incomplete or not required.*
- ■ *Institutional standards for staff evaluations of the educational effectiveness of e-learning initiatives provided, including the frequency, content and reporting of the evaluations, and which define mandatory compliance requirements on staff involved in e-learning courses.*

**Expert support provided for evaluations of staff feedback on the quality and effectiveness of e-learning initiatives.**

- ☐ *No assistance available to staff undertaking staff evaluation initiatives.*
- ☐ *Assistance in designing the collection, analysis and interpretation of staff feedback on the quality and effectiveness of e-learning initiatives is informally or inconsistently available as a consequence of other evaluation support.*
- ☐ *Formal and explicit assistance in designing the collection, analysis and interpretation of staff feedback on the quality and effectiveness of e-learning initiatives is available but access limited or not promoted.*
- ■ *Formal and explicit assistance in designing the collection, analysis and interpretation of staff feedback on the quality and effectiveness of e-learning initiatives is available and actively promoted to all staff involved in e-learning delivery.*

Support staff are provided with support resources (including training, guidelines and examples) on using evaluation and feedback information to improve teaching staff support.

- ☐ *No training, guidelines or examples provided to support staff on using evaluation and feedback information to improve teaching staff support.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of support staff on using evaluation and feedback information to improve teaching staff support.*
- ☐ *Detailed and specific training, guidelines and examples provided to support staff on using evaluation and feedback information to improve teaching staff support but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all support staff on using evaluation and feedback information to improve teaching staff support with the requirement that they be used prior to conducting an evaluation.*

Institutional policies require that staff e-learning evaluations are performed independently according to a standard timetable and defined procedures.

- ☐ *No policies, standards or guidelines define requirements for the timing, independence and conduct of evaluations.*
- ☐ *Policies, standards and guidelines define requirements for evaluations, but the requirements are optional, or fail to impose mandatory minimum requirements for the timing, independence and conduct of evaluations.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for the timing, independence and conduct of evaluations, however compliance incomplete or not enforced.*
- ■ *Policies, standards or guidelines define mandatory minimum requirements for the timing, independence and conduct of evaluations with compliance enforced.*

Teaching staff are supported in researching and reflecting on their own practice and experiences of e-learning.

- ☐ *No support provided to teaching staff researching and reflecting on their own practice and experiences of e-learning.*
- ☐ *Teaching staff are provided with informal or inconsistent support in researching and reflecting on their own practice and experiences of e-learning, or such support is limited to teaching awards procedures.*
- ☐ *Teaching staff are provided with generic and optional support in researching and reflecting on their own practice and experiences of e-learning.*
- ■ *Teaching staff are encouraged to research and reflect on their own practice and experiences of e-learning with explicit support provided by specialists.*

## Management

**Evaluation results are reported regularly in a manner that allows for comparison of the educational effectiveness of e-learning initiatives.**

**See also**: E1(4) & E3(4)

- ☐ *No reporting of staff evaluations of the educational effectiveness of e-learning.*
- ☐ *Reporting of evaluation results is informal, incomplete or prevents detailed analysis.*
- ☐ *Detailed evaluation results are collected regularly, reported formally and allow for analysis and comparison of the educational effectiveness of e-learning but the information is confidential and not available to all staff and students.*
- ■ *Detailed evaluation results are collected regularly, reported formally and allow for analysis and comparison of the educational effectiveness of e-learning by all staff and students.*

Financial costs and benefits of staff evaluations are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of staff evaluations.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of staff evaluations, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of staff evaluations, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of staff evaluations.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E3(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ☐ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed evaluation procedures.

**See also**: E1(4)

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding student evaluations.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding student evaluations.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding student evaluations undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding student evaluations.*

## Optimisation

**Information from staff evaluations of e-learning guides which pedagogical and technological changes are sustained.**

- ☐ *No use of information from staff evaluations of the quality and effectiveness of e-learning during e-learning initiative planning.*
- ☐ *Informal and inconsistent use of information from staff evaluations of the quality and effectiveness of e-learning during institutional e-learning initiative planning activities.*
- ☐ *Information from staff evaluations of the quality and effectiveness of e-learning explicitly guides institutional e-learning initiative planning, but is treated as subordinate to technical goals, or not linked to ongoing use of technologies and pedagogies.*
- ☐ *Information from staff evaluations of the quality and effectiveness of e-learning explicitly guides institutional e-learning initiative planning and is formally linked to ongoing use of technologies and pedagogies.*

**Information from staff evaluations of e-learning guides the allocation of resources for teaching staff support.**

- ☐ *No use of information from staff evaluations of the quality and effectiveness of e-learning during e-learning support planning.*
- ☐ *Informal and inconsistent use of information from staff evaluations of the quality and effectiveness of e-learning during institutional e-learning support planning activities.*
- ☐ *Information from staff evaluations of the quality and effectiveness of e-learning explicitly guides institutional e-learning support planning, but is treated as subordinate to technical goals, or not linked to resource allocation.*
- ☐ *Information from staff evaluations of the quality and effectiveness of e-learning explicitly guides institutional e-learning support planning and is formally linked to resource allocation.*

All new e-learning technologies or pedagogies are subject to formal evaluation.

**See also**: E1(5)

- ☐ *No evaluations undertaken of new e-learning technologies or pedagogies.*
- ☐ *Informal or inconsistent evaluations undertaken of new e-learning technologies or pedagogies.*
- ☐ *Formal evaluations undertaken of new e-learning technologies and pedagogies but the information is reported incompletely or inconsistently, or evaluations are not conducted independently.*
- ☐ *Formal and independent evaluations undertaken of new e-learning technologies and pedagogies with the results reported consistently.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect staff evaluations of e-learning.

- ☐ *No consideration of staff evaluations of e-learning in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of staff evaluations of e-learning in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal consideration of staff evaluations of e-learning in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.*
- ☐ *Formal and systematic consideration of staff evaluations of e-learning in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.*

**Table E2-1**: Descriptions of process practices by capability dimension

## Process E3.

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

### Process Background

The dependence of e-learning on the use of an appropriate pedagogy and well-designed technology means that when assessing the success of courses and projects it is very important to ensure that the effectiveness of the technology is also formally measured. Evidence of success or limitations in the local context is an important factor in ensuring the efficient design and development of existing and new courses and projects. To improve e-learning outcomes it is important to learn from past mistakes, according to Ehrmann (2002), who argues that tracking progress is not only necessary to stay on course but also to identify solvable problems that can attract fresh resources (p. 55).



In addition to the evaluations of projects and courses (processes E1 and E2), there is a range of other data available through the standard technologies in use, such as LMSs, that can be effectively used to assess the impact a given use of technology is having on students. This data, while limited in some respects, has the advantage of being comparatively easy to collect, empirical in nature and independent of may aspects of opinion and bias that can complicate other evaluations (Bates and Poole, 2003). Similarly, while it can be challenging to do so accurately, costings and comparisons with alternative delivery approaches are essential for effective management of e-learning (Inglis, 2003; Jung, 2003).

As part of the need for review and evaluation of the effectiveness of courses and projects it is important to ensure that they meet the needs of the institution and its programmes. Review of the materials regularly ensures that they continue to meet the objectives of the students, the course and the wider programme context as well as ensuring that the online materials referenced are still appropriate and available.

Validation of e-learning processes and resources is a significant stage in the full cycle of organisational learning that describes success in terms of 'student performance, student satisfaction, staff experience, and cost effectiveness, as judged in relation to the original intentions' (Salmon, 2000, p. 236). Salmon discusses validating as one of six activities in the iterative process of creating an effective learning organisation infrastructure that enables 'the system to learn about itself' (p. 237).

Ravitz and Hoadley (2005) discuss links between systematic review and professional development and they identify needs for stakeholders that include: Quality resources for teachers; reliable programmes for policymakers and evaluators; and, refined tools that are appropriately distributed, for developers. 'These issues map onto three ongoing and related challenges: (1) professional development or training for using online resources, (2) evaluation of resources for purposes of research and development, and (3) dissemination and reuse of knowledge and practices related to knowledge management and metadata' (p. 958). Ravitz and Hoadley's proposal for a systematic review approach aims for a more collaborative and cumulative understanding of e-learning facilities and resources. They argue that the complex e-learning environment calls for stakeholders to continually learn about and share experiences and understandings: 'analysis of resources must include not just consideration of basic qualities of web design, but also awareness of the structures and processes that provide opportunities for teacher and student learning, and consideration of artifacts of resource use such as examples of student work, project ideas, lesson plans or rubrics' (p. 959).

An integrated approach to evaluating e-learning is important for improving quality and effectiveness and verifying design assumptions (Bastiaens *et al*, 2004). Bastiaens *et al.*, (2004) discuss the need for a multi-level simultaneous evaluation approach that incorporates reactions to learning experiences, learning process results, learning performance changes, and organisational results. They comment that a four level evaluation is unnecessary for every event, but recommend that reactions are considered when implementing new learning events (p. 197).

Quality issues are of concern for Barbera (2004) who identifies six qualitative dimensions for evaluation: The educational scenario; participants' teaching and learning purposes; instructional agents roles; patterns of interaction; educational instruments; and, knowledge building factors (p. 18). Indicators are ascribed to subdimensions of each dimension that also enable quantitative results to be discerned from the observations.

## Practices

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

An important factor to be conscious of in this area is that the impact of technology on student satisfaction and student learning need to be separately evaluated as they are linked but distinct. Similarly, staff satisfaction may not be related to the effectiveness of the technologies or innovations deployed.



Table E3-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **Reviews of course e-learning materials are conducted regularly.** |
| ☐ *No apparent reviews of course e-learning materials and resources* |
| ☐ *Informal or inconsistent reviews of course e-learning materials and resources undertaken, or reviews done infrequently.* |
| ☐ *Formal reviews of course e-learning materials and resources undertaken systematically using a generic or non-independent review process, or with compliance to minimum expectations optional or not reported.* |
| ☐ *Formal and independent reviews of course e-learning materials and resources undertaken systematically with explicit reference to the particular e-learning technologies and pedagogies used and compliance to minimum expectations required.* |
| **Reviews of course e-learning teaching activities are conducted regularly.** |
| ☐ *No apparent reviews of the effectiveness of the teaching provided using e-learning technologies and pedagogies.* |
| ☐ *Informal or inconsistent reviews of the effectiveness of the teaching provided using e-learning technologies and pedagogies undertaken, or reviews done infrequently.* |
| ☐ *Formal reviews of the effectiveness of the teaching provided using e-learning technologies and pedagogies undertaken systematically using a generic or non-independent review process, or with compliance to minimum expectations optional or not reported.* |
| ☐ *Formal and independent reviews of the effectiveness of the teaching provided using e-learning technologies and pedagogies undertaken systematically with explicit reference to the particular e-learning technologies and pedagogies used and compliance to minimum expectations required.* |
| Reviews of student outcomes from courses are conducted regularly. |
| ☐ *No apparent reviews of student outcomes from courses.* |
| ☐ *Informal or inconsistent reviews of student outcomes from courses undertaken, or reviews done infrequently.* |
| ☐ *Formal reviews of student outcomes from courses undertaken systematically using a generic or non-independent review process, or with compliance to minimum expectations optional or not reported.* |
| ☐ *Formal and independent reviews of student outcomes from courses undertaken systematically with explicit reference to the particular e-learning technologies and pedagogies used and compliance to minimum expectations required.* |
| Reviews of course e-learning assessment activities are conducted regularly. |
| ☐ *No apparent reviews of course e-learning assessment activities.* |
| ☐ *Informal or inconsistent reviews of course e-learning assessment activities undertaken, or reviews done infrequently.* |
| ☐ *Formal reviews of course e-learning assessment activities undertaken systematically using a generic or non-independent review process, or with compliance to minimum expectations optional or not reported.* |
| ☐ *Formal and independent reviews of course e-learning assessment activities undertaken systematically with explicit reference to the particular e-learning technologies and pedagogies used and compliance to minimum expectations required.* |
| **Planning** |
| **Students and staff are provided with information on how reviews have been and will be used to modify and improve their e-learning experiences.** |
| ☐ *No information provided to students and staff on how review and evaluation information is used.* |
| ☐ *Informal or outdated information provided to students and staff on how review and evaluation information is used.* |
| ☐ *Students and staff are formally provided with generic information on how review and evaluation information is used to modify and improve their e-learning experience.* |
| ☐ *Students and staff are formally provided with specific information on how review and evaluation information will be, or has been, used to modify and improve their e-learning experience.* |

**Regular reviews are conducted formally as part of the normal procedures for delivering courses using e-learning technologies and pedagogies.**

- ☐ *No apparent reviews of e-learning aspects of courses.*
- ☐ *Informal or inconsistent reviews of e-learning aspects of courses undertaken, or reviews done infrequently.*
- ☐ *Formal reviews of e-learning aspects of courses undertaken systematically using a generic or non-independent review process.*
- ☐ *Formal and independent reviews of e-learning aspects of courses undertaken systematically with explicit reference to the particular e-learning technologies and pedagogies used.*

**E-learning design and (re)development procedures include formal plan for assessing the success of new technologies or pedagogies.**

- ☐ *No apparent plan for assessing the success of new e-learning technologies.*
- ☐ *Informal or inconsistent plans for assessing the success of new e-learning technologies.*
- ☐ *Formal plans for assessing the success of new e-learning technologies in most, but not all, deployments, or without minimum expectations required for ongoing delivery.*
- ☐ *Formal and systematic plans for assessing the success of new e-learning technologies explicit and compliance with minimum expectations required for ongoing delivery.*

A searchable repository of e-learning feedback information is provided.

**See also**: E1(2) & E2(2)

- ☐ *No student e-learning feedback information is retained.*
- ☐ *Student e-learning feedback information is retained informally or inconsistently, or without details of the complaint's resolution.*
- ☐ *Student e-learning feedback information is retained formally but in multiple places and/or without the ability to be analysed.*
- ☐ *Student e-learning feedback information is retained formally in a designated repository with tools supporting the analysis and retrieval of complaint information.*

## Definition

**Institutional standards are defined for the regular review of the e-learning aspects of courses.**

- ☐ *No institutional standards for the review of the e-learning aspects of courses are defined.*
- ☐ *Institutional standards for the review of the e-learning aspects of courses are defined that are incomplete, informal or fail to cover all e-learning courses, technologies and pedagogies.*
- ☐ *Institutional standards for the review of the e-learning aspects of courses are provided which define mandatory compliance requirements on staff involved in e-learning courses however compliance incomplete or not required.*
- ☐ *Institutional standards for the review of the e-learning aspects of courses are provided which define mandatory compliance requirements on staff involved in e-learning courses.*

**Staff are provided with support resources (including training, guidelines and examples) in the analysis and use of review and evaluation information.**

- ☐ *No training, guidelines or examples provided to staff on using evaluation and review information.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to staff with the requirement that they be used prior to reviewing e-learning initiatives.*

Institutional standards are defined for assessing new e-learning technologies and pedagogies.

- ☐ *No institutional standards are defined for assessing new e-learning technologies and pedagogies.*
- ☐ *Standards for assessing new e-learning technologies and pedagogies are provided but are incomplete, informal or fail to impose mandatory expectations.*
- ☐ *Standards for assessing new e-learning technologies and pedagogies are formally defined, however compliance with these is incomplete or not required.*
- ☐ *Standards for assessing new e-learning technologies and pedagogies are formally defined and all new e-learning technologies and pedagogies are required to be assessed prior to adoption.*

Institutional policies require that e-learning reviews are performed independently according to a standard timetable and defined procedures.

- ☐ *No policies, standards or guidelines define requirements for the timing, independence and conduct of e-learning reviews.*
- ☐ *Policies, standards and guidelines define requirements for e-learning reviews, but the requirements are optional, or fail to impose mandatory minimum requirements for the timing, independence and conduct of e-learning reviews.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for the timing, independence and conduct of e-learning reviews, however compliance incomplete or not enforced.*
- ☐ *Policies, standards or guidelines define mandatory minimum requirements for the timing, independence and conduct of e-learning reviews with compliance enforced.*

## Management

**Reviews are reported regularly in a manner that allows for comparison of e-learning initiatives.**

**See also**: E1(4) & E2(4)

- ☐ *No reporting of reviews undertaken of e-learning initiatives.*
- ☐ *Reporting of review information is informal, incomplete or prevents detailed analysis.*
- ☐ *Detailed review information is collected regularly, reported formally and allows for analysis of the effectiveness of e-learning but the information is confidential and not available to all staff and students.*
- ☐ *Detailed review information is collected regularly, reported formally and allows for comparative analysis of the effectiveness of e-learning by all staff and students.*

Information on the success or failure of e-learning initiatives is regularly monitored.

**See also**: O1(4)

- ☐ *No monitoring of the success or failure of e-learning initiatives.*
- ☐ *Limited, inconsistent or informal monitoring of the success or failure of e-learning initiatives, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the success or failure of e-learning initiatives conducted irregularly or only covers some initiatives, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and regular reporting of the success or failure of all e-learning initiatives.*

Financial costs and benefits of formal reviews are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of formal e-learning reviews.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of formal e-learning reviews, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of formal e-learning reviews, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of formal e-learning reviews.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), O1(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ☐ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed e-learning review procedures.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed e-learning review procedures.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed e-learning review procedures.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed e-learning review procedures undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed e-learning review procedures.*

## Optimisation

**Information from e–learning reviews guides e-learning strategic planning.**

- ☐ *No use of information from e-learning evaluations and reviews during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information from e-learning evaluations and reviews during institutional e-learning strategic planning.*
- ☐ *Information from e-learning evaluations and reviews explicitly guides institutional e-learning strategic planning, but is treated as subordinate to technical goals, or not linked to strategy decisions.*
- ☐ *Information from e-learning evaluations and reviews explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

**Information on the success or failure of e-learning technologies guides the allocation of support and resources for technology use.**

- ☐ *No information on the success or failure of e-learning technologies guides the allocation of support and resources for technology use.*
- ☐ *Inconsistent or informal use of information on the success or failure of e-learning technologies guides the allocation of support and resources for technology use.*
- ☐ *Information on the success or failure of e-learning technologies explicitly guides the allocation of support and resources for technology use, but is treated as subordinate to technology features, or not linked to service level agreements.*
- ☐ *Information on the success or failure of e-learning technologies explicitly guides the allocation of support and resources for technology use and is formally linked to service level agreements.*

Information from e–learning reviews guides e-learning initiative planning.

- ☐ *No use of information from e–learning reviews during e-learning initiative planning.*
- ☐ *Informal and inconsistent use of information from e–learning reviews during e-learning initiative planning.*
- ☐ *Information from e–learning reviews explicitly guides e-learning initiative planning, but is treated as subordinate to technical goals, or not linked to design decisions.*
- ☐ *Information from e–learning reviews explicitly guides e-learning initiative planning and is formally linked to design decisions.*

Risk assessments of failed e-learning initiatives are formally reviewed to identify factors for inclusion in the risk analysis and mitigation plans of existing and future e-learning initiatives.

- ☐ *No reviews undertaken of the risk assessments of failed e-learning initiatives.*
- ☐ *Inconsistent or informal reviews of the risk assessments of failed e-learning initiatives undertaken, or the results of such reviews not reported.*
- ☐ *Reviews of the risk assessments of failed e-learning initiatives undertaken to a limited extent or infrequently, or the results not reported formally or included in other initiative's risk analysis and mitigation plans.*
- ☐ *Reviews of the risk assessments of failed e-learning initiatives undertaken systematically and the results reported formally for inclusion in other initiative's risk analysis and mitigation plans.*

| Institutional risk assessments and mitigation strategies are regularly updated to reflect e-learning review outcomes. |
|---|
| ☐ *No consideration of e-learning review outcomes in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of e-learning review outcomes in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of e-learning review outcomes in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ☐ *Formal and systematic consideration of e-learning review outcomes in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.* |

**Table E3-1**: Descriptions of process practices by capability dimension

## Organisation: *Processes associated with institutional planning and management*

This process area is concerned with the institutional planning and management of e-learning. The goal is ensuring that the use of e-learning technologies and pedagogies is well managed and planned to deliver the strategic and operational outcomes required by the institution. The individual processes are directed at ensuring the strategic, administrative and organisational aspects of e-learning are high quality, efficient and effective, particularly as institutions transition from face-to-face delivery and demands upon the e-learning infrastructure grow..

| **Organisation: *Processes associated with institutional planning and management*** | |
|---|---|
| O1. | Formal criteria guide the allocation of resources for e-learning design, development and delivery |
| O2. | Institutional learning and teaching policy and strategy explicitly address e-learning |
| O3. | E-learning technology decisions are guided by an explicit plan |
| O4. | Digital information use is guided by an institutional information integrity plan |
| O5. | E-learning initiatives are guided by explicit development plans |
| O6. | Students are provided with information on e-learning technologies prior to starting courses |
| O7. | Students are provided with information on e-learning pedagogies prior to starting courses |
| O8. | Students are provided with administration information prior to starting courses |
| O9. | E-learning initiatives are guided by institutional strategies and operational plans |

**Table 6:** eMM Version Two *Organisation* Processes

## Process O1.

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

### Process Background

Provision of expert technical and pedagogical assistance is vital if institutions are to move away from ad-hoc developments in e-learning. Like any other scarce resource, expertise in e-learning development within an institution must be managed in a way that ensures efficient and effective use. Formal criteria which align the use of these resources with defined outcomes for the institution are essential in this process (Hagner, 2000).

E-learning's increasingly significant role in educational operations and effects on overall policy is directing more attention to how e-learning criteria influence the promulgation and implementation of policy (de Freitas and Oliver, 2005). de Freitas and Oliver's recent study concluded that e-learning policy does drive organisational change in both human and technical resource areas. They advise care when considering strategic development to ensure that the extent and effects of change are appreciated and understood, 'so that the benefits and pitfalls of introducing e-learning across a higher education institution can be analysed and shared more effectively' (p. 94). Factors that de Freitas and Oliver raise include: Organisational structure and scale; previous e-learning experience; extent of investment required; organisational experiences of others; professional consultation; benefits of inter-/intra-institutional collaboration; and, critical evaluation strategies.

A systemic approach to developing a strategic plan that coherently integrates elements in a timely way is needed: 'it is not sufficient to select elements…in a fragmented or ad hoc manner' (Garrison and Anderson, 2003, p. 109). Bates and Poole (2003) discuss the value of project management when undertaking complex information technology and education projects. They argue that the process defines project management, and that includes: 'a defined set of resources…a timeline, and a clear "deliverable," in that it is clear what the project has to achieve and it is obvious when it is completed' (p. 143).

According to Davis (2004), the needs of students and the course learning outcomes underpin all teaching and learning systems; therefore planning 'flows from a full understanding of these two fundamentals' (p. 99). Although e-learning is new to many, Davis considers that it is sufficiently mature for coherent, pragmatic planning decisions to be made: 'plenty of research and information is available, and there are many successful examples of online learning systems to learn from' (p. 113).

Picciano (2006) highlights the wide range of factors and extensive information administrators must contend with in formulating policy, which he discusses in terms of pedagogical and operational issues. Observing that there is 'no single pedagogy of online learning' Picciano identifies three pedagogical aspects that he considers significant: Course management software, interaction, and reflective teaching (p. 78). Operational issues include the hardware and software infrastructure of course management systems and the supporting human resources that extend from technological implementation through teaching and learning technical assistance and instructional design support to administrative systems integration (p. 85).

Comparing policies to traffic laws or language syntax, Simonson and Bauck (2003) discuss how the growth of e-learning is increasing the need for guiding policy frameworks (p. 418). Citing previous online/distance learning policy research (Berge, 1998; Gellman-Danley and Fetzner, 1998; King *et al.*, 2000), Simonson and Bauck discuss an accepted model that categorises seven policy areas: Academic; fiscal, geographic, and governance; faculty; legal; student; technical; and, philosophical/[and cultural] (pp. 418-9). They argue that online/distance education policies need to be integrated with face-to-face policies, to make plain that 'distance education is a routine and regularly occurring component of the educational enterprise' (p. 424).

Also drawing on Berge (1998) and Gellman-Danley and Fetzner (1998), King *et al.*, (2000) propose a three tiered framework for e-learning policy analysis that points to faculty, students/participants, and management and organisation as the significant areas to identify the effectiveness of policy. Descriptions of issues in each area include: staff incentives, intellectual property; student support and access to records; and, organisational collaboration and resource management (n. p.).

## Practices

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.

Table O1-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

### Delivery

**Resources for all e-learning initiatives are allocated according to formally defined criteria.**

- ☐ *No apparent institutional criteria for e-learning resource allocation.*
- ☐ *Resources and funding for e-learning initiatives allocated on an ad-hoc, informal or inconsistent basis.*
- ☐ *Institutional criteria for selecting and prioritising the allocation of resources and funding for e-learning initiatives are inconsistently applied and/or not required for all e-learning initiatives.*
- ■ *Institutional criteria for selecting and prioritising the allocation of resources and funding for e-learning initiatives are systematically and formally applied to all e-learning initiatives.*

### Planning

**Resources for e-learning initiatives are allocated at designated times during the budget cycle.**

- ☐ *No formal process for e-learning design, development and delivery resource allocation apparent.*
- ☐ *Resource allocation for e-learning design, development and delivery is handled informally, inconsistently and as part of generic budgeting and resource allocation procedures.*
- ☐ *Resource allocation for e-learning design, development and delivery is handled formally as part of generic budgeting and resource allocation procedures without specific e-learning criteria applied.*
- ■ *Resource allocation for e-learning design, development and delivery is handled formally as part of generic budgeting and resource allocation procedures with specific e-learning criteria applied.*

**E-learning initiative plans formally link decisions with the institutional criteria used to allocate resources.**

- ☐ *No linkage with institutional e-learning resource allocation criteria apparent in e-learning initiative plans.*
- ☐ *Informal, inconsistent or outdated linkage with institutional e-learning resource allocation criteria apparent in e-learning initiative plans.*
- ☐ *Formal linkage with institutional e-learning resource allocation criteria in e-learning initiative plans encouraged but not required or assessed against minimum compliance requirements.*
- ■ *Formal linkage required with institutional e-learning resource allocation criteria in e-learning initiative plans with minimum compliance requirements applied.*

Institutional e-learning resource allocation criteria include ongoing maintenance costs.

- ☐ *No consideration of maintenance costs in e-learning resource allocation criteria.*
- ☐ *E-learning resource allocation criteria address maintenance costs informally or incidentally.*
- ☐ *E-learning resource allocation criteria address maintenance costs formally but costings are generic estimates or based on vendor information.*
- ■ *E-learning resource allocation criteria address maintenance costs systematically drawing on locally validated costing information and expert assessments.*

Formal risk assessments of e-learning initiatives and mitigation planning are required by e–learning resource allocation procedures.

**See also**: O5(2)

- ☐ *No consideration of risks associated with e-learning initiatives undertaken during planning for e–learning resource allocation.*
- ☐ *Informal or incomplete consideration of risks associated with e-learning initiatives undertaken during planning for e–learning resource allocation.*
- ☐ *Formal risk analysis and planning undertaken of e-learning initiatives during planning for e–learning resource allocation with compliance to minimum expectations optional or not required, or no explicit strategies defined for alternatives to initiatives.*
- ■ *Formal risk analysis and planning undertaken of e-learning initiatives during planning for e–learning resource allocation with compliance to minimum expectations required formally by processes and explicit strategies defined for alternatives to initiatives.*

### Definition

**E-learning initiative resource allocation criteria are explicitly linked to the institutional e-learning strategies and technology plans.**

**See also**: O9(1)

- ☐ *No linkage between resource allocation criteria for e-learning design, (re)development and delivery, and institutional e-learning strategies and technology plans.*
- ☐ *Informal, inconsistent or outdated linkage with institutional e-learning strategies and technology plans included in the criteria for allocating resources for e-learning design, (re)development and delivery.*
- ☐ *Formal, but generic, linkages between resource allocation criteria and institutional e-learning strategies and technology plans.*
- ■ *Formal, explicit and systematic linkages between resource allocation criteria and institutional e-learning strategies and technology plans.*

**Staff are provided with support resources (including training, guidelines and examples) on the development of e-learning proposals using the resource allocation criteria.**

- ☐ *No training, guidelines or examples provided to staff on developing e-learning proposals and plans.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to developing proposals or plans for e-learning initiatives.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L6(3), L7(3), D1(3), D2(3), D3(3), D7(3), S5(3), S6(3), O3(3), O4(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

E-learning resource allocation is coordinated throughout the institution.

- ☐ *No coordination of e-learning resource allocation.*
- ☐ *Coordination of e-learning resource allocation throughout the institution is informal or inconsistent.*
- ☐ *E-learning resource allocation is coordinated throughout the institution for infrastructure and shared facilities.*
- ☐ *E-learning resource allocation is systematically coordinated throughout the institution to ensure that all initiatives are complementary and build on each other.*

## Management

**Information on the success or failure of e-learning initiatives is regularly monitored.**

**See also**: E3(4)

- ☐ *No monitoring of the success or failure of e-learning initiatives.*
- ☐ *Limited, inconsistent or informal monitoring of the success or failure of e-learning initiatives, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the success or failure of e-learning initiatives conducted irregularly or only covers some initiatives, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and regular reporting of the success or failure of all e-learning initiatives.*

**Feedback collected regularly from students regarding the impact of e-learning initiatives on their learning.**

- ☐ *No feedback collected from students on the impact of e-learning initiatives on their learning.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all e-learning projects and initiatives, or not collected regularly from all courses affected by the initiatives, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback on all e-learning initiatives collected and reported regularly from all courses affected by the initiatives.*

**Feedback collected regularly from staff regarding the impact of e-learning initiatives on student learning.**

- ☐ *No feedback collected from staff on the effectiveness of e-learning projects and initiatives for enabling student learning and assisting staff teaching responsibilities.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all e-learning initiatives, or not collected regularly from all e-learning projects and initiatives, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on all e-learning initiatives collected and reported regularly from all staff involved in the initiatives.*

Strategic impact of the e-learning resource allocation criteria is regularly monitored.

- ☐ *No monitoring of the strategic impact of the e-learning resource allocation criteria.*
- ☐ *Limited, inconsistent or informal monitoring of the strategic impact of the e-learning resource allocation criteria, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the strategic impact of the e-learning resource allocation criteria conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of the strategic impact of the e-learning resource allocation criteria.*

Financial costs and benefits of e-learning resource allocation criteria are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of e-learning resource allocation criteria.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning resource allocation criteria, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning resource allocation criteria, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning resource allocation criteria.*

E-learning initiatives are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O2(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ■ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

E-learning resource allocation decisions are regularly reported.

- ☐ *No reporting of e-learning resource allocation decisions.*
- ☐ *Reporting of e-learning resource allocation decisions is informal, incomplete or prevents detailed analysis.*
- ☐ *Detailed information on e-learning resource allocation decisions are collected regularly, reported formally and allow for analysis and comparison of the educational effectiveness of e-learning resources but the information is confidential and not available to all staff and students.*
- ■ *Detailed information on e-learning resource allocation decisions are collected regularly, reported formally and allow for analysis and comparison of the educational effectiveness of e-learning by all staff and students.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed resource allocation criteria.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed resource allocation criteria.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed resource allocation criteria.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed resource allocation criteria undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ■ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed resource allocation criteria.*

Overlap and duplication of e-learning support is regularly assessed.

**See also**: D1(4), D2(4), S5(4), S6(4), O3(4), O5(4) & O(9)

- ☐ *No assessment or review of e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ■ *Formal and systematic assessment and review of overlap and duplication in e-learning support facilities undertaken regularly.*

## Optimisation

**Information from pilot e-learning initiatives guides the allocation of support and resources for the use of piloted e-learning technologies and pedagogies.**

- ☐ *Outcomes of e-learning pilots have no impact on support and resourcing for e-learning technologies and pedagogies.*
- ☐ *Outcomes of e-learning pilots are used informally to allocate support and resourcing for e-learning technologies and pedagogies.*
- ☐ *Outcomes of e-learning pilots are formally used to allocate support and resourcing for e-learning technologies and pedagogies, but the allocations are not explicitly linked to pilot outcomes or the allocations are inconsistent.*
- ■ *Outcomes of e-learning pilots are consistently and formally used to allocate support and resourcing for e-learning technologies and pedagogies with resource decisions linked to pilot outcomes.*

**Information on the strategic impact of e-learning resource allocation criteria guides e-learning strategic planning.**

- ☐ *No use of information on the strategic impact of e-learning resource allocation criteria during institutional e-learning strategic planning.*
- ☐ *Informal and inconsistent use of information on the strategic impact of e-learning resource allocation criteria during institutional e-learning strategic planning.*
- ☐ *Information on the strategic impact of e-learning resource allocation criteria explicitly guides institutional e-learning strategic planning, but is treated as subordinate to financial goals, or not linked to strategy decisions.*
- ■ *Information on the strategic impact of e-learning resource allocation criteria explicitly guides institutional e-learning strategic planning and is formally linked to strategy decisions.*

Successful e-learning projects and initiatives are documented as case studies linked to e-learning resource allocation criteria.

- ☐ *No documentation of successful e-learning projects and initiatives.*
- ☐ *Successful e-learning projects and initiatives are documented informally or incompletely without linkages to e-learning resource allocation criteria.*
- ☐ *Successful e-learning projects and initiatives are documented formally and systematically without detailed and evidence based linkages to e-learning resource allocation criteria.*
- ■ *Successful e-learning projects and initiatives are documented formally and systematically with detailed and specific linkages to individual e-learning resource allocation criteria supported by emprirical evidence.*

Applications for e-learning resource allocation are analysed for reuse.

- ☐ *No analysis of applications for e-learning resource allocation for reuse.*
- ☐ *Informal and inconsistent reuse of information from applications for e-learning resource allocation.*
- ☐ *Information from applications for e-learning resource allocation guides preparation of future applications by the same unit of the institution.*
- ■ *Information from applications for e-learning resource allocation systematically and formally analysed for reuse in preparation of all future applications for resources.*

| |
|---|
| Institutional risk assessments and mitigation strategies are regularly updated to reflect e-learning initiative outcomes.<br>**See also**: D6(5), O2(5), O3(5) & O5(5)) |
| ☐ *No consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ■ *Formal and systematic consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.* |
| E-learning initiative resource allocation criteria reviewed as part of reviews of institutional e-learning strategies and technology plans. |
| ☐ *No consideration of e-learning initiative resource allocation criteria during reviews of institutional e-learning strategies and technology plans.* |
| ☐ *Reviews of institutional e-learning strategies and technology plans assess e-learning initiative resource allocation criteria informally or incidentally to other e-learning activities.* |
| ☐ *Reviews of institutional e-learning strategies and technology plans assess e-learning initiative resource allocation criteria formally but only the financial aspects.* |
| ■ *Reviews of institutional e-learning strategies and technology plans assess e-learning initiative resource allocation criteria formally, including financial, technological, pedagogical and student impacts of the criteria.* |

**Table O1-1**: Descriptions of process practices by capability dimension

## Process O2.

*Institutional learning and teaching policy and strategy explicitly address e-learning*

### Process Background

The emergence of e-learning as a 'significant…pedagogy [which] raises a host of issues…concerning the complex and idiosyncratic nature of online learning' (Jamieson, 2004, p. 22) that is 'forcing universities to rethink their foundations and shift their paradigms' (Howard *et al*., 2004, p. vii), highlights the importance of explicitly addressing its requirements. Posing questions about matters like adapting teaching practice, and interpreting online communications, Jamieson observes that e-learning brings pedagogical, technological, and operational challenges to teaching practice (p. 22). E-learning involves a 'major realignment of the institutions organizational identity' (p. 26) that calls for intensive, strategic professional development activity.



The increasingly ubiquitous e-learning environment is also giving institutions cause to question and redefine their understanding of learning experiences, and to reflect on the shift in focus from content to the context and processes of learning: 'Institutions face the challenge of developing a vision and strategic direction…to move forward while not reducing their agility to adapt to new developments' (Garrison and Anderson, 2003, p. 105). Garrison and Anderson identify ten topics that should be considered for strategic planning and policy: 1. Vision; 2. Needs and risk assessment; 3. Description of educational principles and outcomes; 4. Implementation initiatives and strategy; 5. Infrastructure; 6. Info-structure; 7. Support services; 8. Budget and resources; 9. Research and development; 10. Benchmarking (p. 108). They also comment that sustainable innovation emerges through middle-level leadership rather top down or bottom up management approaches: 'middle-level leaders…have the expertise and commitment, along with access to both senior management and the grass-roots…to formulate realistic strategic direction and influence institutional leadership' (p. 108).

Turoff *et al*. (2004) comment on the importance administrators attached to research funding compared with teaching, and remark that e-learning's more learning-centric focus is likely to require a reassessment of approaches to balancing academic teaching and research duties. Furthermore, they note that the e-learning environment 'will make the quality of teaching more visible to the public and prospective students' (p. 18), thus making learning and teaching policy and strategy more imperative.

Describing her thesis as Rethinking University Teaching, Laurillard (2002) reconceptualises teaching as mediating learning, or '[m]aking student learning possible' (p. 11). Such a view requires an institution to recognise itself as a learning organisation, that is, 'to be capable of adaptive learning….[which involves] an internal learning conversation that allows it to learn from experience, and adapt to its environment' (p. 215). Laurillard proposes an iterative strategy that draws on internal dialogues of practice involving academic, operational, and administrative groups, which contribute to a recursive Conversational Framework that is discursive, adaptive, interactive, and reflective (p. 86). The Conversational Framework enables a negotiation of understandings that brings all stakeholder interests into policy and strategy considerations.

Awareness of the importance of integrated e-learning is accompanied by managerial questions, challenges, and uncertainties (van der Klink and Jochems, 2004, p. 151). van der Klink and Jochems argue that e-learning is integral to, not an adjunct of, teaching and learning, and that planning for, and implementing, e-learning requires an holistic integrated approach (p. 155). They discuss the integrated approach having four perspectives: technological, strategic, pedagogical, and organisational, and caution against 'technologically driven motives to adopt new types of technological infrastructure' (p. 162). Readily available e-learning infrastructural products may enhance teaching delivery at the expense of learning content, whereas 'real innovation…requires an approach that ensures different aspects are taken into account' (p. 162). Garrison and Anderson (2003) also call for institutional focus on integration, but caution that resistance is likely. They advise institutional leaders to 'understand the dynamics of change and be prepared to start small but successfully. [Leaders] have to recognize and incubate e-learning as a disruptive technology, while demonstrating how it can meet the challenges and demands of the knowledge era' (p. 114).

New roles, structures and alliances are emerging as learning technologies become embedded in higher educational institutions, but more coherent institutional support is needed (Joint Information Systems Committee, 2003a). This Joint Information Systems Committee study identified new and changing roles for learning technology specialists, academics and other professionals, and learning support professionals. The study recommends the articulation of an institutional statement on the role of e-learning; recognition and reward for personnel; an organisational framework for multidisciplinary /cross boundary collaboration; and, auditing of these actions (p. 2).

## Practices

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.

Table O2-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.



### Delivery

**E–learning technologies and pedagogies explicitly addressed in relevant institutional learning and teaching policies and strategies.**

- ☐ *No inclusion of e-learning aspects in relevant institutional policies and strategies apparent.*
- ☐ *Incomplete or informal inclusion of e-learning aspects in relevant institutional policies and strategies apparent.*
- ☐ *Institutional strategies, policies, contracts and standards include e-learning aspects however inclusion is unnecessarily inconsistent between documents or outdated or fails to include all of the technologies and pedagogies in use.*
- ■ *Institutional strategies, policies, contracts and standards formally and systematically include accurate consideration of e-learning aspects of all of the technologies and pedagogies in use.*

### Planning

**Staff with experience in e-learning are formally involved in the (re)development of institutional learning and teaching strategies and policies.**

**See also**: O9(2)

- ☐ *No apparent involvement of staff with experience in the design, (re)development and delivery of e-learning in the (re)development of institutional learning and teaching strategies and policies.*
- ☐ *Informal or inconsistent involvement of staff with experience in the design, (re)development and delivery of e-learning in the (re)development of institutional learning and teaching strategies and policies.*
- ☐ *Staff with experience in the design, (re)development and delivery of e-learning able to comment or provide feedback during the (re)development of institutional learning and teaching strategies and policies.*
- ■ *Staff with experience in the design, (re)development and delivery of e-learning formally and directly involved in the (re)development of institutional learning and teaching strategies and policies.*

**Students are formally involved in the (re)development of institutional strategies and policies involving e-learning.**

**See also**: O9(2)

- ☐ *No apparent involvement of students in the (re)development of institutional learning and teaching strategies and policies involving e-learning.*
- ☐ *Informal or inconsistent involvement of students in the (re)development of institutional learning and teaching strategies and policies involving e-learning.*
- ☐ *Students able to comment or provide feedback during the (re)development of institutional learning and teaching strategies and policies involving e-learning.*
- ■ *Students formally and directly involved in the (re)development of institutional learning and teaching strategies and policies involving e-learning.*

**Inclusion of e-learning aspects in relevant institutional policies and strategies is formally endorsed by the institutional leadership.**

- ☐ *No support of inclusion of e-learning aspects in relevant institutional policies and strategies apparent.*
- ☐ *Inclusion of e-learning aspects in relevant institutional policies and strategies is endorsed informally or implied.*
- ☐ *Inclusion of e-learning aspects in relevant institutional policies and strategies has limited or outdated endorsement from institutional leadership.*
- ■ *Inclusion of e-learning aspects in relevant institutional policies and strategies is endorsed formally, explicitly and regularly by institutional leadership.*

E-learning initiative development plans formally link decisions with the institutional e-learning strategies and associated operational plans.

**See also**: O3(2), O5(2), O6(2), O7(2), O8(2) & O9(2)

- ☐ *No evidence of consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *Inconsistent or informal consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *E-learning initiative development plans formally consider institutional e-learning strategies and policies without explicitly linking those strategies and associated operational plans with all relevant decisions.*
- ■ *E-learning initiative development plans formally and consistently link institutional e-learning strategies and associated operational plans with key decisions as an explicit part of standard procedures.*

Learning and teaching policy and strategy reviews are guided by the implications of e-learning.

- ☐ *No consideration of e-learning during reviews of institutional learning and teaching policies and strategies.*
- ☐ *Reviews of institutional learning and teaching policies and strategies assess the implications of e-learning informally or incidentally to other learning activities.*
- ☐ *Reviews of institutional learning and teaching policies and strategies assess the implications of e-learning formally but only consider financial aspects.*
- ☐ *Reviews of institutional learning and teaching policies and strategies assess the implications of e-learning formally, including financial, technological, pedagogical and student impacts of the use of e-learning.*

E-learning initiative development plans formally address policy and strategy implications.

- ☐ *No consideration of policy and strategy issues apparent in e-learning initiative development plans.*
- ☐ *Informal or inconsistent consideration of policy and strategy issues apparent in e-learning initiative development plans.*
- ☐ *Formal consideration of policy and strategy issues required in e-learning initiative development plans but not referenced in development planning decisions.*
- ☐ *Formal consideration of policy and strategy issues required in e-learning initiative development plans and explicitly referenced in development planning decisions.*

## Definition

**Institutional policies require that the implications of e-learning are included when (re)developing new and existing policies.**

- ☐ *No evidence of e-learning considerations in policy templates and guidelines.*
- ☐ *Informal, inconsistent or outdated consideration of e-learning in policy templates and guidelines.*
- ☐ *Policy templates and guidelines include a requirement to consider implications of e-learning when (re)developing new and existing policy but only in general terms or without specific requirements listed.*
- ☐ *Policy templates and guidelines include a requirement to formally consider specific implications of e-learning when (re)developing new and existing policy.*

**Staff are provided with support resources (including training, guidelines and examples) on how to link e-learning initiative development plans with institutional e-learning strategic plans.**

**See also**: O5(3) & O9(3)

- ☐ *No training, guidelines or examples of how to link e-learning initiative development plans with institutional e-learning strategic plans provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted, or they fail to cover the full range of e-learning technologies and pedagogies in use.*
- ☐ *Detailed and specific training, guidelines and examples provided to all teaching staff that cover the full range of e-learning technologies and pedagogies in use, and with the requirement that they be used prior to the creation of e-learning initiative development plans.*

Staff are provided with support resources (including training, guidelines and examples) on how to address e-learning during policy and strategy development.

- ☐ *No training, guidelines or examples provided to staff on how to address e-learning during policy and strategy development.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff on how to address e-learning during policy and strategy development.*
- ☐ *Detailed and specific training, guidelines and examples provided to staff on how to address e-learning during policy and strategy development but attendance and use are optional and not actively encouraged and promoted.*
- ☐ *Detailed and specific training, guidelines and examples provided to all staff on how to address e-learning during policy and strategy development with the requirement that they be used prior to designing or (re)developing policies and strategies.*

Staff engaged in e-learning strategy and policy (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: O9(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

E-learning strategies and plans are coordinated throughout the institution.

- ☐ *No coordination of e-learning strategies and plans.*
- ☐ *Coordination of e-learning strategies and plans throughout the institution is informal or inconsistent.*
- ☐ *E-learning strategies and plans are coordinated throughout the institution for infrastructure and shared facilities.*
- ☐ *E-learning strategies and plans are systematically coordinated throughout the institution to ensure that all initiatives are complementary and build on each other.*

## Management

**Institutional learning and teaching strategies and policies are regularly and formally reviewed to ensure e-learning aspects are addressed.**

- ☐ *No reviews of the e-learning aspects of institutional learning and teaching strategies and policies.*
- ☐ *Inconsistent or informal reviews of the e-learning aspects of institutional learning and teaching strategies and policies.*
- ☐ *Reviews of the e-learning aspects of institutional learning and teaching strategies and policies undertaken to a limited extent or infrequently, or e-learning aspects treated as peripheral or as a special case.*
- ☐ *Reviews of the e-learning aspects of institutional learning and teaching strategies and policies undertaken systematically and regularly.*

**Feedback collected regularly from students regarding the effectiveness of the e-learning policies and strategies.**

- ☐ *No feedback collected from students on the effectiveness of the e-learning policies and strategies.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all e-learning policies and strategies or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback on all of the e-learning policies and strategies collected regularly from all e-learning courses and reported regularly.*

**Feedback collected regularly from staff regarding the effectiveness of the e-learning policies and strategies.**

- ☐ *No feedback collected from staff on the effectiveness of the e-learning policies and strategies.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all e-learning policies and strategies or not collected regularly from all staff, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on all e-learning policies and strategies collected and reported regularly from all staff.*

Financial costs and benefits of learning and teaching policies and strategies are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of learning and teaching policies and strategies.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of learning and teaching policies and strategies, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of learning and teaching policies and strategies, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of learning and teaching policies and strategies.*

E-learning initiatives are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O3(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ☐ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed e-learning strategies and policies.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed e-learning strategies and policies.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed e-learning strategies and policies.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed e-learning strategies and policies undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed e-learning strategies and policies.*

Compliance with learning and teaching strategies and policies is regularly monitored.

- ☐ *No monitoring of compliance with learning and teaching strategies and policies.*
- ☐ *Limited, inconsistent or informal monitoring of compliance with learning and teaching strategies and policies, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of compliance with learning and teaching strategies and policies conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of compliance with learning and teaching strategies and policies.*

## Optimisation

**Information on the outcomes of e-learning initiatives guides learning and teaching strategy and policy (re)development.**

- ☐ *No use of the outcomes of e-learning initiatives during learning and teaching strategy and policy (re)development.*
- ☐ *Informal of inconsistent use of the outcomes of e-learning initiatives during learning and teaching strategy and policy (re)development.*
- ☐ *Outcomes of e-learning initiatives included formally in learning and teaching strategy and policy (re)development, but treated as a special or limited form of delivery.*
- ☐ *Outcomes of e-learning initiatives included formally and systematically in learning and teaching strategy and policy (re)development for all forms of delivery.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect e-learning initiative outcomes.

**See also**: D6(5), O1(5), O3(5) & O5(5)

- ☐ *No consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.*
- ☐ *Formal and systematic consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.*

Institutional learning and teaching strategies and policies undergo a formal (re)assessment of risk when any significant e-learning technology failure occurs.

- ☐ *No apparent re-evaluation of institutional learning and teaching strategies and policies in response to failures.*
- ☐ *Informal, inconsistent or incomplete risk assessments undertaken of institutional learning and teaching strategies and policies in response to failures.*
- ☐ *Risk (re)assessments undertaken only of directly related institutional learning and teaching strategies and policies in response to significant e-learning technology failures, and/or assessments undertaken by nonspecialist staff.*
- ☐ *Formal and systematic risk (re)assessments undertaken by specialist staff of all institutional learning and teaching strategies and policies in response to significant e-learning technology failures.*

**Table O2-1**: Descriptions of process practices by capability dimension

## Process O3.

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

### Process Background

A risk of using technology to support learning is that poor quality technology can seriously compromise the learning outcomes (process D2) and the diversity of available technologies can encourage a range of ad-hoc and disconnected approaches that fail to build on institutional experience and success (process D1). A technology plan combines a strategic focus on the selection of technology with practical experience based on previous work in the institution to ensure that technological resources are chosen in ways that build capability rather than dilute it.



E-learning operates in a complex, dynamic, continually evolving environment, which includes 'mechanisms to facilitate the development of and access to a variety of learning services; an underpinning technological platform; means to help potential learners select and enrol in learning experiences; and supporting administrative processes' (Elloumi, 2004, p.61). Elloumi argues that because technology change is constant and accelerating technology planning must be embedded in a wider institutional strategy that generatively encompasses all teaching and learning, and servicing aspects (pp. 61-2).

To this end Gunawardena and McIsaac (2004) discuss the need to understand the various types of technology and their defining characteristics when dealing with e-learning technology decisions. They identify six factors that are helpful in this regard: 1. Delivery and access; 2. human-machine interface; 3. social presence; 4. symbolic characteristics; 5. interaction; 6. control (p. 374). However, they note that these factors are interdependent: 'They are not entities in and of themselves but interact with each other to make up the total environment in which a specific [technological] medium operates' (p. 374).

The implications and challenges of rapid change affecting planning also concern Bates and Poole (2003). They propose the SECTIONS model for selecting and applying technology, which identifies the following criteria: Students, Ease of use, Costs, Teaching and learning, Interactivity, Organizational issues, Novelty, Speed (pp. 79-80). In concluding their discussion of the model, Bates and Poole remark on its heuristic nature and comment that it 'is not mechanical or "scientific." There are many different factors to be taken into account, and the decisions will need to be context specific' (p. 105). They also emphasise the complexity of the decision making process and, in addition to proposing the use of a framework to identify factors for consideration, they recommend the following strategies: Formulating questions that enable a systematic analysis of the factors; reviewing responses to the question; assessing available skill resources; and, making an intuitive or subjective decision based on all the information obtained (p. 105).

Picciano (2006) discusses the multitude of e-learning operational issues confronting administrators and emphasises the importance of addressing the technological infrastructure. He notes that in addition to implementing and maintaining complex data networks that must be continuously available, increasingly, decisions are required on establishment, integration, and maintenance of course management systems (pp. 84).

A systemic approach to developing a coherent and timely technology implementation plan is advocated by Garrison and Anderson (2003). They refer to an info-structure, which includes the design of institutional connectivity, creation of a knowledge management system, provision of digital content, and creation of standards (p. 108).

Finally, observing that there are often strong pressures to adopt new technology infrastructures, van der Klink and Jochems (2004) caution against teaching and learning resource 'substitution, in other words replacement of written materials by electronic delivery without substantial improvements or benefits' (p. 162).

## Practices

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.

Table O3-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| **Delivery** |
|---|
| **Institutional e-learning technology plans guide the adoption of technology during e-learning initiatives.** |
| ☐ *No institutional e-learning technology plans apparent during e-learning initiatives.* |
| ☐ *E-learning initiatives guided by informally expressed or outdated e-learning technology plans.* |
| ☐ *Institutional e-learning technology plans formally expressed but inconsistently followed during e-learning initiatives.* |
| ■ *Institutional e-learning technology plans formally expressed and systematically followed during e-learning initiatives, with all technology decisions formally linked to the plan.* |
| Institutional e-learning technology plans describe the procedures for acquiring, deploying, supporting, maintaining and upgrading hardware and software for e-learning. |
| ☐ *No formal procedures for acquiring, deploying, supporting, maintaining and upgrading hardware and software for e-learning.* |
| ☐ *Procedures for acquiring, deploying, supporting, maintaining and upgrading hardware and software for e-learning are informal or inconsistently defined.* |
| ☐ *Formal procedures for acquiring, deploying, supporting, maintaining and upgrading hardware and software for e-learning are defined independently of each other.* |
| ■ *Coherent and systematic procedures for acquiring, deploying, supporting, maintaining and upgrading hardware and software for e-learning are formally defined.* |
| **Planning** |
| **E–learning design and (re)development activities formally link decisions regarding e-learning technologies and pedagogies with the institutional e-learning technology plans.** |
| ☐ *No evidence of consideration of institutional e-learning technology plans in design and (re)development documents and planning activities.* |
| ☐ *Inconsistent or informal consideration of institutional e-learning technology plans in design and (re)development documents and planning activities.* |
| ☐ *E–learning design and (re)development activities formally consider institutional e-learning technology plans without explicitly linking those strategies and policies with all relevant decisions.* |
| ■ *E–learning design and (re)development activities formally and consistently link institutional e-learning technology plans with key decisions as an explicit part of standard procedures.* |
| **Institutional e-learning technology plans have clearly defined and empirically measureable objectives and milestones.** |
| ☐ *No institutional e-learning technology plans apparent.* |
| ☐ *Institutional e-learning technology plans have informally expressed or generic objectives.* |
| ☐ *Institutional e-learning technology plans have clearly defined outcomes without defined milestones or measures of success.* |
| ■ *Institutional e-learning technology plans have clearly defined outcomes with defined milestones and empirically measureable objectives.* |
| **Institutional e-learning technology plans are formally endorsed and explicitly supported by the institutional leadership.** |
| ☐ *No leadership endorsement of institutional e-learning technology plans apparent.* |
| ☐ *Institutional e-learning technology plans are endorsed informally or by implication.* |
| ☐ *Institutional e-learning technology plans have limited or outdated endorsement from institutional leadership.* |
| ■ *Institutional e-learning technology plans are endorsed formally, explicitly and regularly by institutional leadership.* |
| **E-learning initiative plans include risk assessment and mitigation plans linked to the institutional e-learning technology plans and associated risk assessments.** |
| ☐ *No risk assessment and mitigation plans apparent in e-learning initiative plans.* |
| ☐ *Informal or incomplete consideration of risks and mitigation strategies undertaken during e-learning initiative planning.* |
| ☐ *Formal risk analysis and mitigation planning undertaken during e-learning initiative planning with compliance to minimum expectations optional or not required, or assessments undertaken by non-specialist staff, or risk assessments not actively updated during projects.* |
| ■ *Formal risk analysis and mitigation planning undertaken and maintained by specialist staff during e-learning initiative planning with compliance to minimum expectations required formally by procedures.* |

E-learning initiative development plans formally link decisions with the institutional e-learning strategies and associated operational plans.

**See also**: O2(2), O5(2), O6(2), O7(2), O8(2) & O9(2)

- ☐ *No evidence of consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *Inconsistent or informal consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *E-learning initiative development plans formally consider institutional e-learning strategies and policies without explicitly linking those strategies and associated operational plans with all relevant decisions.*
- ■ *E-learning initiative development plans formally and consistently link institutional e-learning strategies and associated operational plans with key decisions as an explicit part of standard procedures.*

Teaching staff are formally involved in the development and review of institutional e-learning technology plans.

- ☐ *No apparent involvement of teaching staff in the (re)development of e-learning technology plans.*
- ☐ *Informal or inconsistent involvement of teaching staff in the (re)development of e-learning technology plans.*
- ☐ *Teaching staff able to comment or provide feedback during the (re)development of e-learning technology plans.*
- ■ *Teaching staff formally and directly involved in the (re)development of e-learning technology plans.*

Students are formally involved in the development and review of institutional e-learning technology plans.

- ☐ *No apparent involvement of students in the (re)development of e-learning technology plans.*
- ☐ *Informal or inconsistent involvement of students in the (re)development of e-learning technology plans.*
- ☐ *Students are able to comment or provide feedback during the (re)development of e-learning technology plans.*
- ■ *Students are formally and directly involved in the (re)development of e-learning technology plans.*

E-learning initiative plans address maintenance of e-learning technologies.

- ☐ *No consideration of maintenance costs in e-learning initiative plans.*
- ☐ *E-learning initiative plans address maintenance costs informally or incidentally.*
- ☐ *E-learning initiative plans address maintenance costs formally but costings are generic estimates or based on vendor information.*
- ■ *E-learning initiative plans address maintenance costs systematically drawing on locally validated costing information and expert assessments.*

## Definition

**Institutional policies require that all e-learning initiatives comply with institutional e-learning technology plans.**

- ☐ *No compliance with institutional e-learning technology plans required.*
- ☐ *Informal compliance with institutional e-learning technology plans, or compliance optionally encouraged.*
- ☐ *Compliance with institutional e-learning technology plans required in general terms and without specific minimum requirements apparent.*
- ■ *Systematic and explicit compliance with institutional e-learning technology plans required and apparent in e-learning design and (re)development procedures.*

**Staff are provided with support resources (including training, guidelines and examples) on the use of e-learning technology plans as part of e-learning design and (re)development.**

- ☐ *No training, guidelines or examples provided to staff on using institutional e-learning technology plans to guide e-learning decisions.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Training, guidelines and examples provided to all staff with the requirement that they be used prior to involvement in e-learning design and (re)development.*

**Resources for staff e-learning development and support are allocated with reference to institutional e-learning technology plans.**

- ☐ *No reference to technology plans when resources allocated for staff e-learning development and support.*
- ☐ *Resources allocated for staff e-learning development and support informally.*
- ☐ *Resources allocated for staff e-learning development and support make general and non-specific references to institutional e-learning technology plans.*
- ■ *Resources allocated for staff e-learning development and support formally and with explicit reference to specific institutional e-learning technology plan outcomes.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L6(3), L7(3), D1(3), D2(3), D3(3), D7(3), S5(3), S6(3), O1(3), O4(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Formal risk assessment and mitigation strategies are included in institutional e-learning technology plans.

- ☐ *No risk assessment and mitigation strategies apparent in institutional e-learning technology plans.*
- ☐ *Informal or incomplete assessment of risks and mitigation strategies included in institutional e-learning technology plans.*
- ☐ *Formal risk analysis and mitigation strategic planning included in institutional e-learning technology plans with c assessments undertaken by non-specialist staff, or risk assessments not actively updated.*
- ■ *Formal risk analysis and mitigation strategic planning included in institutional e-learning technology plans and maintained by specialist staff.*

E-learning technology plans are coordinated throughout the institution.

- ☐ *No coordination of e-learning technology plans.*
- ☐ *Coordination of e-learning technology plans throughout the institution is informal or inconsistent.*
- ☐ *E-learning technology plans are coordinated throughout the institution for infrastructure and shared facilities.*
- ☐ *E-learning technology plans are systematically coordinated throughout the institution to ensure that all initiatives are complementary and build on each other.*

## Management

**Compliance with institutional e-learning technology plans during e-learning design and development activities is regularly monitored.**

- ☐ *No monitoring of compliance with institutional e-learning technology plans during e-learning design and development activities.*
- ☐ *Infrequent or informal monitoring of compliance with institutional e-learning technology plans during e-learning design and development activities, or information collected but not reported.*
- ☐ *Formal monitoring of compliance with compliance with institutional e-learning technology plans during e-learning design and development activities, but without minimum expectations for compliance enforced, or information reported incompletely or irregularly.*
- ☐ *Formal monitoring and reporting of compliance with compliance with institutional e-learning technology plans during e-learning design and development activities undertaken regularly with minimum expectations for compliance enforced.*

**Feedback collected regularly from staff regarding the effectiveness of institutional e-learning technology plans as tools for guiding the design and (re)development of courses and programmes.**

- ☐ *No feedback collected from staff on the effectiveness of institutional e-learning technology plans.*
- ☐ *Limited, inconsistent or informal staff feedback collected on the effectiveness of institutional e-learning technology plans, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on the effectiveness of institutional e-learning technology plans irregularly or from only some staff, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on the effectiveness of institutional e-learning technology plans collected and reported regularly from all staff.*

Financial costs and benefits of e-learning technology plans are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of e-learning technology plans.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning technology plans, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning technology plans, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning technology plans.*

E-learning initiatives are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O4(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ☐ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed institutional e-learning technology plans.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed institutional e-learning technology plans.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed institutional e-learning technology plans.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed institutional e-learning technology plans undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed institutional e-learning technology plans.*

Overlap and duplication of e-learning support is regularly assessed.

**See also**: D1(4), D2(4), S5(4), S6(4), O1(4), O5(4) & O(9)

- ☐ *No assessment or review of e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ☐ *Formal and systematic assessment and review of overlap and duplication in e-learning support facilities undertaken regularly.*

## Optimisation

**Information on compliance with institutional e-learning technology plans guides e-learning initiative support and resourcing.**

- ☐ *No information on compliance with institutional e-learning technology plans guides e-learning initiative support and resourcing.*
- ☐ *Inconsistent or informal use of information on compliance with institutional e-learning technology plans guides e-learning initiative support and resourcing.*
- ☐ *Information on compliance with institutional e-learning technology plans explicitly guides institutional e-learning initiative support and resourcing, but is treated as subordinate to technology features, or not linked to resourcing decisions.*
- ☐ *Information on compliance with institutional e-learning technology plans explicitly guides institutional e-learning initiative support and resourcing and is formally linked to resourcing decisions.*

| |
|---|
| **Institutional e-learning technology plans undergo a formal (re)assessment of risk when any significant e-learning technology failure occurs.** |
| ☐ *No apparent re-evaluation of e-learning technology plans in response to failures.* |
| ☐ *Informal, inconsistent or incomplete risk assessments undertaken of e-learning technology plans in response to failures.* |
| ☐ *Risk (re)assessments undertaken only of directly related e-learning technology plans in response to failures, and/or assessments undertaken by non-specialist staff.* |
| ☐ *Formal and systematic risk (re)assessments undertaken by specialist staff of all e-learning technology plans in response to failures.* |
| Institutional e-learning technology plans undergo a formal re-evaluation as part of e-learning initiatives**.** |
| ☐ *No apparent re-evaluation of e-learning technology plans as part of e-learning initiatives.* |
| ☐ *Informal, inconsistent or incomplete re-evaluations undertaken of e-learning technology plans as part of e-learning initiatives.* |
| ☐ *Re-evaluations undertaken only of directly related e-learning technology plans in response to failures.* |
| ☐ *Formal and systematic re-evaluations undertaken by specialist staff of e-learning technology plans as part of e-learning initiatives.* |
| Institutional risk assessments and mitigation strategies are regularly updated to reflect e-learning initiative outcomes**.**<br>**See also**: D6(5), O1(5), O2(5) & O5(5) |
| ☐ *No consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.* |
| ☐ *Formal and systematic consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.* |

**Table O3-1**: Descriptions of process practices by capability dimension

## Process O4.

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

### Process Background

In addition to being reliable and failsafe, the technology infrastructure used to support e-learning should also ensure that, as much as possible, the information within systems is protected from corruption and loss. A technology plan considering aspects of information integrity can combine a strategic view of institutional e-learning directions with practical consideration of risks and the integration with other systems within the institution.

A knowledge- or learning-management system focused on communities of practice is best-suited to an e-learning culture: 'Knowledge or learning management is the needed "middleware" that links repositories and the educational process' (Garrison and Anderson, 2003, p. 109). Garrison and Anderson discuss the evolving field of knowledge management as a way of overcoming the difficulties of navigating and managing the increasingly 'chaotic sea of data, information, and knowledge' (p. 109). They argue that knowledge management, comprising three core activities: content management, course management, and pedagogical management, 'can provide the interoperability for all components to synergistically work together for the enhancement of e-learning' (p. 109). To date, there has been strong development in content and course management areas but considerably less in the pedagogical management area. Because knowledge repositories are mostly unrecognised in pedagogical communities of practice, valuable information is underutilized: 'Moreover, such communities can contextualize and provide meaning to tacit intuitive knowledge through the sharing of experiences that cannot be objectively codified' (p. 111).

In a comprehensive review of the security of technology systems, Kvavik and Voloudakis (2003) discuss the complex issues involved in 'preserving confidentiality; protecting information from unauthorized use or disclosure; assuring information's integrity, including accuracy and completeness of the data, through protecting from unauthorized unanticipated, and unintentional modification; and, making data available to authorized users on a timely basis' (p. 9). Their key findings identify two dimensions: security technologies and a security culture, which both involve institutional values and rules. Kvavik and Voloudakis elaborate on an institution's position as originating in the following matters: 'Perceptions about the risks…internal, external or both; the institution's propensity to take on or accept risks; the resources an institution has to deploy, both financial and human; and, the institution's priorities and culture reflecting where it feels it can effectively make changes' (p. 10). They emphasise that without attending to the human aspects of security, technological solutions are ineffective. In concluding they consider that although loss-of-service damage and identity theft pose serious threats, the unintended mistakes of authorised users are often the most hazardous (p. 17).

In the United Kingdom the Universities and Colleges Information Systems Association (UCISA) and the Joint Information Systems Committee (JISC) provide extensive support for information systems management in education. The UCISA (2004) presents comprehensive information on responsible, reliable, ethical, legal, and secure use of information systems. The wide-ranging reference material is also regularly revised. JISC's valuable support material takes the form of key issues briefing papers and includes topics such as: Developing an institutional records management programme (Joint Information Systems Committee, 2004b); Open access (Joint Information Systems Committee, 2005b); The data deluge: Preparing for the explosion in data (Joint Information Systems Committee, 2004a); and, Digital repositories (Joint Information Systems Committee, 2005a). This resource is also regularly revised and updated.

## Practices

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.

Table O4-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.



### Delivery

**Integrity and validity of digital information is regularly monitored.**

- ☐ *No monitoring of digital information integrity and validity apparent.*
- ☐ *Informal or infrequent monitoring of digital information integrity and validity, or information collected but not reported.*
- ☐ *Formal monitoring of digital information integrity and validity undertaken of core systems only, or reported incompletely or irregularly.*
- ■ *Formal, systematic and regular monitoring and reporting of digital information integrity and validity undertaken of all information stored in all e-learning systems.*

### Planning

**E–learning design and (re)development activities formally link decisions with institutional digital information integrity plans.**

- ☐ *No evidence of consideration of institutional digital information integrity plans in design and (re)development documents and planning activities.*
- ☐ *Inconsistent or informal consideration of institutional digital information integrity plans in design and (re)development documents and planning activities.*
- ☐ *E–learning design and (re)development activities formally consider institutional digital information integrity plans without explicitly linking those strategies and policies with all relevant decisions.*
- ■ *E–learning design and (re)development activities formally and consistently link institutional digital information integrity plans with key decisions as an explicit part of standard procedures.*

**All course digital information is stored in a validated backup system.**

**See also**: D5(1) & S6(2)

- ☐ *No backup procedure apparent.*
- ☐ *Incomplete or informal backup procedures used to store course information.*
- ☐ *Formal and regular backup procedures used for all course information but regular validation and auditing not undertaken.*
- ■ *Formal and regular backup procedures used for all course information with regular auditing and validation of content and coverage of the backup information.*

**Access to all course digital information is authenticated and authorised.**

**See also**: S6(2)

- ☐ *No evidence of security concerns evident in course e-learning design and (re)development plans or procedures.*
- ☐ *Security issues addressed informally or incompletely in course e-learning design and (re)development plans or procedures.*
- ☐ *Security issues addressed formally in course e-learning design and (re)development plans and procedures by presumption of security in core infrastructure without validation required.*
- ■ *Security issues addressed formally in course e-learning design and (re)development plans or procedures and formal testing and validation required prior to project completion.*

Institutional repositories provided for digital information.

- ☐ *No repository of digital information provided.*
- ☐ *Digital information is stored informally and as a consequence of use rather than as a defined activity.*
- ☐ *Digital information is stored formally as a consequence of use but the institutional repositories are is not actively maintained.*
- ■ *Digital information is stored formally and the institutional repositories actively maintained for use by staff and students.*

E-learning initiative plans address digital information support requirements.

- ☐ *No consideration of digital information support in e-learning initiative plans.*
- ☐ *E-learning initiative plans address digital information support informally or incidentally.*
- ☐ *E-learning initiative plans address digital information support formally but assume only the use of designated and predefined resources.*
- ■ *E-learning initiative plans address digital information support systematically allowing for the use of a wide range of information sources.*

E–learning design and (re)development procedures address the integrity and validity of digital information.

- ☐ *No consideration of the integrity and validity of digital information in e-learning design and (re)development procedures.*
- ☐ *E-learning design and (re)development procedures address the integrity and validity of digital information informally or incidentally.*
- ☐ *E-learning design and (re)development procedures address the integrity and validity of digital information formally but assume only the use of designated and predefined resources or do not include formal verification.*
- ■ *E-learning design and (re)development procedures address the integrity and validity of digital information systematically allowing for the use of a wide range of information sources and formal verification of integrity and validity.*

Institutional risk assessments and mitigation strategies address the risks associated with digital information use in e-learning initiatives.

- ☐ *No consideration digital information use in institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of digital information use in institutional risk assessments and mitigation strategies.*
- ☐ *Institutional risk assessments and mitigation strategies formally and systematically address risks arising from the use of digital information, but the information is outdated or fails to cover all of the information sources, e-learning technologies and pedagogies in use.*
- ■ *Institutional risk assessments and mitigation strategies formally and systematically address risks arising from the range of digital information sources, e-learning technologies, and pedagogies currently in use.*

## Definition

**Institutional digital information integrity plans are defined.**

- ☐ *No apparent institutional plans for ensuring the integrity and validity of digital information.*
- ☐ *Informal or outdated institutional plans for ensuring the integrity and validity of digital information.*
- ☐ *Institutional plans for ensuring the integrity and validity of digital information are defined but incompletely cover technologies in use or are not regularly tested.*
- ■ *Institutional plans for ensuring the integrity and validity of all digital information are defined and regularly tested.*

**Institutional support standards are defined for the use of digital information in e-learning design and (re)development.**

- ☐ *No standards defined on the support resources and assistance for staff using digital information when designing and (re)developing e-learning courses.*
- ☐ *Standards on the support resources and assistance for staff using digital information when designing and (re)developing e-learning courses fail to impose mandatory minimum requirements or expectations on staff or the institution.*
- ☐ *Standards on the support resources and assistance for staff using digital information when designing and (re)developing e-learning courses impose mandatory minimum requirements or expectations on staff and the institution however compliance incomplete or not required.*
- ■ *Standards on the support resources and assistance for staff using digital information when designing and (re)developing e-learning courses impose mandatory minimum requirements or expectations on staff and the institution and compliance is required.*

**Institutional policies define how digital information is retained and accessed.**

**See also**: L6(3) & D7(3)

- ☐ *No guidelines or policy on information storage apparent.*
- ☐ *Informal, incomplete or outdated guidelines or policy on information storage provided.*
- ☐ *Formal guidelines or policy on information storage provided without explicit linkages to the institutional repositories in use, or without specifying how information is to be stored and accessed, or what licenses control and authorise usage.*
- ■ *Formal guidelines or policy on information storage provided with explicit and systematic linkages to the institutional repositories in use, specifying how information is to be stored and accessed, and what licenses control and authorise usage.*

Teaching staff are provided with resources (including training, guidelines and examples) on using of digital information.

- ☐ *No training, guidelines or examples provided to teaching staff on using digital information.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing, (re)developing or delivering e-learning courses.*

Teaching staff are provided with resources (including training, guidelines and examples) on intellectual property law and licences.

- ☐ *No training, guidelines or examples provided to teaching staff on intellectual property law and licences.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing, (re)developing or delivering e-learning courses.*

Formal procedures for e-learning design and (re)development explicitly include consideration of the use, protection and privacy of digital information.

- ☐ *No consideration of the use, protection and privacy of digital information apparent in course e-learning design and (re)development activities.*
- ☐ *Informal or inconsistent consideration of the use, protection and privacy of digital information apparent in course e-learning design and (re)development activities.*
- ☐ *Formal consideration of the use, protection and privacy of digital information apparent in most, but not all, course e-learning design and (re)development activities or not subject to formal testing prior to project completion.*
- ■ *Formal consideration of the use, protection and privacy of digital information required in all course e-learning design and (re)development projects with formal testing required prior to project completion.*

Metadata templates and schemas are defined for use at a disciplinary and institutional level.

**See also**: D7(3)

- ☐ *No metadata templates and schemas are defined.*
- ☐ *Metadata templates and schemas are defined informally and used inconsistently.*
- ☐ *Generic metadata templates and schemas are defined formally but are not promoted or used throughout the institution.*
- ☐ *Metadata templates and schemas are defined formally with specific templates and schemas provided and promoted for use at a disciplinary and institutional level.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: L6(3), L7(3), D1(3), D2(3), D3(3), D7(3), S5(3), S6(3), O1(3), O3(3) & O5(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Information integrity plans are coordinated throughout the institution.

- ☐ *No coordination of information integrity plans.*
- ☐ *Coordination of information integrity plans throughout the institution is informal or inconsistent.*
- ☐ *Information integrity plans are coordinated throughout the institution for infrastructure and shared facilities.*
- ☐ *Information integrity plans are systematically coordinated throughout the institution to ensure that all initiatives are complementary and build on each other.*

## Management

**Compliance with institutional information integrity plans is regularly monitored.**

- ☐ *No monitoring of compliance with the institutional information integrity plan.*
- ☐ *Limited, inconsistent or informal monitoring of compliance with the institutional information integrity plan, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of compliance with the institutional information integrity plan conducted irregularly or only covers some e-learning initiatives, or reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of compliance with the institutional information integrity plan.*

**Feedback collected regularly from staff regarding the effectiveness of the institutional information integrity plan as a tool for guiding e-learning design and (re)development.**

- ☐ *No feedback collected from staff on the effectiveness of the institutional information integrity plan.*
- ☐ *Limited, inconsistent or informal staff feedback collected on the effectiveness of the institutional information integrity plan, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on the effectiveness of the institutional information integrity plan irregularly or from only some staff, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on the effectiveness of the institutional information integrity plan collected and reported regularly from all staff.*

Digital information strategies and plans are coordinated throughout the institution.

- ☐ *No coordination of digital information strategies and plans.*
- ☐ *Coordination of digital information strategies and plans throughout the institution is informal or inconsistent.*
- ☐ *Digital information strategies and plans are coordinated throughout the institution for infrastructure and shared facilities.*
- ☐ *Digital information strategies and plans are systematically coordinated throughout the institution to ensure that all initiatives are complementary and build on each other.*

Digital information support facilities are regularly monitored.

- ☐ *No monitoring of digital information support facility performance.*
- ☐ *Limited, inconsistent or informal monitoring of digital information support facility performance, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of digital information support facility performance conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of digital information support facility performance.*

Financial costs and benefits of institutional information integrity plans are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of institutional information integrity plans.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of institutional information integrity plans, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of institutional information integrity plans, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of institutional information integrity plans.*

E-learning initiatives are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O5(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ■ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed institutional information integrity plans.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed institutional information integrity plans.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed institutional information integrity plans.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed institutional information integrity plans undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ■ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed institutional information integrity plans.*

## Optimisation

**Institutional information integrity plans undergo a formal (re)assessment of risk when any significant e-learning technology failure occurs.**

- ☐ *No apparent re-evaluation of information integrity plans in response to failures.*
- ☐ *Informal, inconsistent or incomplete risk assessments undertaken of information integrity plans in response to failures.*
- ☐ *Risk (re)assessments undertaken only of directly related aspects of information integrity plans in response to failures, and/or assessments undertaken by non-specialist staff.*
- ■ *Formal and systematic risk (re)assessments undertaken by specialist staff of all information integrity plans in response to failures.*

**Institutional information integrity plans are formally re-evaluated when new e-learning initiatives are considered.**

- ☐ *No apparent re-evaluation of information integrity plans in response to new e-learning initiatives.*
- ☐ *Informal, inconsistent or incomplete re-evaluations undertaken of information integrity plans in response to new e-learning initiatives.*
- ☐ *Re-evaluation undertaken of directly related aspects of information integrity plans in response to new e-learning initiatives.*
- ■ *Formal and systematic re-evaluations undertaken of all information integrity plans in response to new e-learning initiatives.*

**Information on student and staff use of digital information guides institutional information integrity plan (re)development.**

- ☐ *No apparent use of information on student and staff use of digital information during information integrity plan (re)development.*
- ☐ *Informal of inconsistent use of information on student and staff use of digital information during information integrity plan (re)development.*
- ☐ *Information on student and staff use of digital information included formally as background or supporting materials during information integrity plan (re)development or not linked explicitly with resulting decisions.*
- ■ *Information on student and staff use of digital information included formally and systematically during information integrity plan (re)development and linked explicitly with resulting decisions.*

Information on the integrity and validity of digital information guides resourcing for e-learning initiatives.

- ☐ *No use of information on the integrity and validity of digital information during e-learning initiative planning and resource allocation.*
- ☐ *Informal and inconsistent use of information on the integrity and validity of digital information during institutional e-learning initiative planning and resource allocation.*
- ☐ *Information on the integrity and validity of digital information explicitly guides institutional e-learning initiative planning and resource allocation, but is treated as subordinate to technical goals, or not linked to resourcing decisions.*
- ■ *Information on the integrity and validity of digital information explicitly guides institutional e-learning initiative planning and resource allocation and is formally linked to resourcing decisions.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect changing staff e-learning technology use and support needs.

**See also**: D3(5), S5(5) & O4(5)

- ☐ *No consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal consideration of staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.*
- ■ *Formal and systematic consideration of current staff e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.*

**Table O4-1**: Descriptions of process practices by capability dimension

## Process O5.

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

### Process Background

E-learning is a new reality that expands understandings of teaching and learning practice, because 'e-learning represents a very different category and mode of communication' (Garrison and Anderson, 2003, pp. 1-2). Such extraordinary change presents both opportunities and risks that call for complete and coherent articulation of institutional rationales and plans for e-learning's complex role. A consistent rationale is presented in the literature, which positions learning first when considering educational technology and many studies and synopses of e-learning principles commence with a review of pedagogical concepts. Bates and Poole (2003), for example, state that 'choice and use of technology are absolutely dependent on beliefs and assumptions about the nature of knowledge, how our subject discipline should be taught, and how students learn' (p. 25). They add, however, that in reality few higher education teachers have learned how to teach.



Laurillard (2002), in proposing the rethinking of university teaching, argues for reconceptualising teaching as 'mediating learning' (p. 11). This view introduces the concept of situating learning technologies within a conversational framework that enables an iterative teaching and learning dialogue to identify the activities needed to complete the learning process (p. 87).

Salmon (2000) also reconceptualises the teaching role and advances the notion of e-moderating as the key to teaching online. E-moderating repositions the teacher as a facilitator of access to and communicating about learning, rather than being the deliverer. Salmon's proposal includes a model for implementing e-learning that integrates pedagogical principles and technological capabilities in a series of stages that build conceptual understanding and technical confidence (p. 25).

An integrated approach to e-learning is comprehensively explicated by Jochems *et al.*, (2004) who argue that e-learning should be 'positioned at the intersection of complex, flexible, dual learning and [take] an educational systems approach to combining pedagogical, technological, and organizational demands' (p. 8). Within this concept of integrated e-learning, Westera (2004) identifies several significant strategic points for planning, including: Develop and communicate a change strategy; clarify changes to roles and responsibilities; establish a coherent implementation plan that addresses all relevant issues; set explicit targets; ensure adequate support; involve all stakeholders; institute pilot projects; promote early successes; implement evaluation procedures and be responsive to user feedback; address ongoing maintenance and upgrading (p. 183).

Professional development, operational support, and evaluation processes are major factors in much of the strategic planning literature (Howard *et al.*, 2004; Khan, 2005). Howard *et al.,* for example, emphasise the importance of administrative, academic, and operational staff needing to develop new understandings and capabilities, to be supported in using them, and to participate in evaluating and providing feedback on e-learning strategies and processes (pp. 6-7).

### Practices

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.

Table O5-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

## Delivery

**E-learning technology and pedagogy decisions are guided by an explicit e-learning development plan.**

- ☐ *No evidence of course and programme e-learning development plans in the selection of e-learning technologies and pedagogies.*
- ☐ *Inconsistent or informal use of course and programme e-learning development plans in the selection of e-learning technologies and pedagogies.*
- ■ *E–learning design and (re)development activities reference in general or non-specific ways course and programme e-learning development plans when selecting e-learning technologies and pedagogies.*
- ■ *E–learning design and (re)development activities formally and systematically reference course and programme e-learning development plans when selecting e-learning technologies and pedagogies.*

## Planning

**Allocation of resources for e-learning design and (re)development is aligned with course and programme e-learning development plans.**

- ☐ *No linkage between resource allocation procedures for e-learning design, (re)development and delivery, and course and programme e-learning development plans.*
- ☐ *Informal, inconsistent or outdated linkage with course and programme e-learning development plans included in the procedures for allocating resources for e-learning design, (re)development and delivery.*
- ■ *Formal, but generic, linkages between resource allocation procedures and course and programme e-learning development plans.*
- ■ *Formal, explicit and systematic linkages between resource allocation procedures and course and programme e-learning development plans.*

**Teaching staff are formally involved in the creation and review of e-learning initiative development plans.**

- ☐ *No apparent involvement of teaching staff in the (re)development of e-learning initiative development plans.*
- ☐ *Informal or inconsistent involvement of teaching staff in the (re)development of e-learning initiative development plans.*
- ■ *Teaching staff able to comment or provide feedback during the (re)development of e-learning initiative development plans.*
- ■ *Teaching staff formally and directly involved in the (re)development of e-learning initiative development plans.*

**Students are formally involved in the creation and review of e-learning initiative development plans.**

- ☐ *No apparent involvement of students in the (re)development of e-learning initiative development plans.*
- ☐ *Informal or inconsistent involvement of students in the (re)development of e-learning initiative development plans.*
- ■ *Students able to comment or provide feedback during the (re)development of e-learning initiative development plans.*
- ■ *Students formally and directly involved in the (re)development of e-learning initiative development plans.*

**E-learning initiative development plans formally link decisions with the institutional e-learning strategies and associated operational plans.**

**See also**: O2(2), O3(2), O6(2), O7(2), O8(2) & O9(2)

- ☐ *No evidence of consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *Inconsistent or informal consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ■ *E-learning initiative development plans formally consider institutional e-learning strategies and policies without explicitly linking those strategies and associated operational plans with all relevant decisions.*
- ■ *E-learning initiative development plans formally and consistently link institutional e-learning strategies and associated operational plans with key decisions as an explicit part of standard procedures.*

E-learning initiative development plans are formally endorsed by the institutional leadership.

- ☐ *No support of e-learning initiative development plans apparent.*
- ☐ *E-learning initiative development plans are endorsed informally or implied.*
- ■ *E-learning initiative development plans have limited or outdated endorsement from institutional leadership.*
- ■ *E-learning initiative development plans are endorsed formally, explicitly and regularly by institutional leadership.*

Formal risk assessments of e-learning initiatives and mitigation planning are required by e–learning resource allocation procedures.

**See also**: O1(2)

- ☐ *No consideration of risks associated with e-learning initiatives undertaken during planning for e–learning resource allocation.*
- ☐ *Informal or incomplete consideration of risks associated with e-learning initiatives undertaken during planning for e–learning resource allocation.*
- ■ *Formal risk analysis and planning undertaken of e-learning initiatives during planning for e–learning resource allocation with compliance to minimum expectations optional or not required, or no explicit strategies defined for alternatives to initiatives.*
- ■ *Formal risk analysis and planning undertaken of e-learning initiatives during planning for e–learning resource allocation with compliance to minimum expectations required formally by processes and explicit strategies defined for alternatives to initiatives.*

## Definition

**Institutional policy requires formal linkages between e-learning initiative plans and an overarching institutional plan.**

**See also**: O9(3)

- ☐ *No apparent requirement for e-learning initiative development plans to link to overarching institutional plan.*
- ☐ *Informal, inconsistent or outdated links between e-learning initiative development plans and overarching institutional plan.*
- ■ *E-learning initiative development plans link to the overarching institutional plan in general or non-specific ways.*
- ■ *E-learning initiative development plans link to the overarching institutional plan formally and systematically, with explicit linkages to institutional goals and outcomes required.*

**Staff are provided with support resources (including training, guidelines and examples) on how to link e-learning initiative development plans with institutional e-learning strategic plans.**

See also: O2(3) & O9(3)

- ☐ *No training, guidelines or examples of how to link e-learning initiative development plans with institutional e-learning strategic plans provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted, or they fail to cover the full range of e-learning technologies and pedagogies in use.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff that cover the full range of e-learning technologies and pedagogies in use, and with the requirement that they be used prior to the creation of e-learning initiative development plans.*

Staff engaged in e-learning design and (re)development are provided with a researched evidence base of e-learning initiatives.

See also: L6(3), L7(3), D1(3), D2(3), D3(3), D7(3), S5(3), S6(3), O1(3), O3(3) & O4(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

E-learning initiative plans are coordinated throughout the institution.

- ☐ *No coordination of e-learning initiative plans.*
- ☐ *Coordination of e-learning initiative plans throughout the institution is informal or inconsistent.*
- ☐ *E-learning initiative plans are coordinated throughout the institution for infrastructure and shared facilities.*
- ■ *E-learning initiative plans are systematically coordinated throughout the institution to ensure that all initiatives are complementary and build on each other.*

## Management

**Information on the success or failure of e-learning initiative development plans is regularly monitored.**

- ☐ *No monitoring of the success or failure of e-learning initiative development plans.*
- ☐ *Limited, inconsistent or informal monitoring of the success or failure of e-learning initiative development plans, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the success or failure of e-learning initiative development plans conducted irregularly or only covers some initiatives, or reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and regular reporting of the success or failure of all e-learning initiative development plans.*

**Feedback collected regularly from students regarding e-learning initiative development plans.**

- ☐ *No feedback collected from students on the effectiveness of the e-learning initiative development plans.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all e-learning projects and initiatives or not collected regularly from all e-learning initiative development plans, or reported incompletely or irregularly.*
- ■ *Formal, independent, student feedback regarding the effectiveness of initiative development plans collected and reported regularly from all staff involved in e-learning delivery and support.*

**Feedback collected regularly from staff regarding e-learning initiative development plans.**

- ☐ *No feedback collected from staff on the effectiveness of the e-learning initiative development plans.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all e-learning projects and initiatives or not collected regularly from all e-learning initiative development plans, or reported incompletely or irregularly.*
- ■ *Formal, independent, staff feedback regarding the effectiveness of initiative development plans collected and reported regularly from all staff involved in e-learning delivery and support.*

Financial costs and benefits of e-learning development plans are regularly monitored.

- ☐ *No monitoring of the financial costs and benefits of e-learning development plans.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning development plans, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning development plans, but the information is reported incompletely or irregularly.*
- ■ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning development plans.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

See also: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4) & O9(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ■ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Risk assessments of e-learning initiative development plans undertaken regularly.

- ☐ *No e-learning initiative development plan risk assessment and mitigation planning undertaken.*
- ☐ *Informal or incomplete consideration of e-learning initiative development plan risks and mitigation strategies undertaken.*
- ☐ *Formal e-learning initiative development plan risk analysis and mitigation planning undertaken by nonspecialist staff, or risk assessments not regularly updated.*
- ■ *Formal e-learning initiative development plan risk analysis and mitigation planning undertaken regularly by specialist staff.*

Overlap and duplication of e-learning support is regularly assessed.

**See also**: D1(4), D2(4), S5(4), S6(4), O1(4), O3(4) & O(9)

- ☐ *No assessment or review of e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ■ *Formal and systematic assessment and review of overlap and duplication in e-learning support facilities undertaken regularly.*

## Optimisation

**E–learning initiative plans are analysed for potential reuse.**

- ☐ *No apparent analysis or reuse of e–learning project and initiative development plans.*
- ☐ *Informal and/or infrequent analysis and/or reuse of e–learning project and initiative development plans.*
- ☐ *Analysis of e–learning project and initiative development plans undertaken formally in response to failure of that project or initiative.*
- ■ *Analysis and reuse of e–learning project and initiative development plans undertaken formally in response to experience with successful and unsuccessful e-learning initiatives using related technologies or pedagogies.*

**E–learning initiative plans are regularly reviewed across all courses and programmes using similar technology or pedagogies to ensure consistency and effectiveness.**

- ☐ *No apparent reviews of e–learning project and initiative development plans.*
- ☐ *Informal or infrequent reviews of e–learning project and initiative development plans.*
- ☐ *Formal reviews of e–learning project and initiative development plans undertaken regularly but without regard to specific technologies or pedagogies in use.*
- ■ *Formal reviews of e–learning project and initiative development plans undertaken regularly and systematically to compare and improve the use of specified e-learning technologies and/or pedagogies.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect e-learning initiative outcomes.

**See also**: D6(5), O1(5), O2(5) & O3(5)

- ☐ *No consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.*
- ■ *Formal and systematic consideration of e-learning initiative outcomes in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risks assessments and mitigation plans.*

E-learning initiative development plans guide resourcing for e-learning design and (re)development.

- ☐ *No use of e-learning initiative development plans during e-learning design and (re)development resource allocation.*
- ☐ *Informal and inconsistent use of e-learning initiative development plans during e-learning design and (re)development resource allocation.*
- ☐ *Information on e-learning initiative development plans guides resource allocation, but is not linked explicitly to e-learning design and (re)development resource allocation decisions.*
- ■ *Information on e-learning initiative development plans explicitly guides resource allocation and is formally linked to e-learning design and (re)development resource allocation decisions.*

E-learning initiative development plans are formally re-evaluated when significant e-learning technology failures occur.

- ☐ *No re-evaluation of e-learning initiative development plans when significant e-learning technology failures occur.*
- ☐ *Informal and inconsistent re-evaluation of e-learning initiative development plans when significant e-learning technology failures occur.*
- ☐ *E-learning initiative development plans are re-evaluated when significant e-learning technology failures occur, but only those aspects are directly affected by the technology failure.*
- ■ *E-learning initiative development plans are formally and systematically re-evaluated when significant e-learning technology failures occur, both to assess and mitigate direct dependencies and also to minimise the likelihood of similar failures in other technologies.*

**Table O5-1**: Descriptions of process practices by capability dimension

## Process O6.

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

### Process Background

The use of e-learning is sufficiently unfamiliar to many students, and the range of possibilities so diverse, that it is important to warn students and provide them with opportunities to familiarise themselves with what to expect (Hillesheim, 1998). Many students will need to make particular arrangements so they get the most benefit from e-learning and supplying them with the information in advance ensures that they will not be forced to withdraw at a later date, or struggle to raise their technology skills while trying to learn the course content (Fredericksen *et al*., 1999; Waterhouse and Rogers, 2004, Ragan, 1999).



Continuing improvement in student computer literacy skills and technical capability, and the inherent usability of new technology systems does not lessen the need for ongoing training and detailed information about e-learning procedures and technologies (Concannon *et al*., 2005; Kvavik and Caruso, 2005). Kvavik and Caruso's recent study identified the importance of clarifying and communicating 'which information technologies we want to use…at what level of sophistication, and for what purposes' (p. 19). They add that it cannot be assumed that students will adopt new technologies without the availability of comprehensive training based on systematic planning that recognises required skill levels: 'Students need to learn how to learn with the new technologies [and] Institutions should…articulate concrete IT learner competencies and literacy for students' (p. 19).

According to Vonderwell and Turner (2005) e-learners 'need to be self-regulated, disciplined, and know how to learn and explore different sources and strategies for learning' (p. 67). These requirements, and understanding how to meet them, is a pre-requisite for e-learning, which calls for students to be 'prepared for technology, learning management, pedagogical practice, and the social roles required for online learning' (Vonderwell and Zacharia, 2005, p. 225). Bouhnik and Marcus (2006) refer to students' need for guidance to avoid functional and psychological barriers, and to ensure that the 'technology itself will remain transparent' (p. 303).

Concern about students lack of preparedness for e-learning is discussed by Hrabe *et al*., (2005) who also refer to students identifying online skills as 'requiring a "steep learning curve"' (p. 14). Hrabe *et al*. comment that e-learning preparedness is not an just issue for students with few capabilities and skills. Other students 'who consider themselves to be technically proficient may have developed bad habits… that create barriers for them in the online context' (p. 13). A technology resource, SPARK (Student Preparation and Resource Kit), is proposed to help with these issues. SPARK is an interactive CD-ROM programme that is designed to appeal to, and be instructive for, novice and competent users. It features an initial proficiency self-evaluation section that assists the user to navigate through to further sections that address their particular online learning knowledge and skill development needs. An evaluation of the SPARK programme's effectiveness reports positive experiences for both user groups. Other institutions also make learning technology resources available to students such as, for example, the Deakin Learning Toolkit (Deakin University, 2006) comprising two CD ROMs, one containing comprehensive information on e-learning methods and procedures and the other containing a range of software applications.

Kirkwood and Price (2005) note that educational purposes and pedagogy are as important as technologies, 'with students understanding not only how to work with ICTs, but why it is of benefit for them to do so' (p. 257). This view emphasises the need for teachers to be involved in explaining their role in e-learning procedures.

## Practices

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.

Table O6-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

### Delivery

**Promotional materials available to students prior to enrolment list e-learning instructions and requirements.**

- ☐ *Information available prior to enrolment does not contain any instructions and requirements for students describing e-learning technologies and pedagogies used in particular courses.*
- ☐ *Information available prior to enrolment contains outdated, incomplete or informal instructions and requirements for students describing e-learning technologies and pedagogies used in particular courses.*
- ☐ *Information available prior to enrolment contains instructions and requirements for students describing e-learning technologies and pedagogies used in particular courses in a format which is unnecessarily inconsistent or different in different courses.*
- ■ *Information available prior to enrolment contains consistent and explicit instructions and requirements for students describing e-learning technologies and pedagogies used in particular courses.*

**Courses include opportunities for students to practice with e-learning technologies and pedagogies.**

**See also**: L3(1) & O7(1)

- ☐ *No opportunities for students to practice and prepare for e-learning technologies and pedagogies explicitly identified in the course materials available prior to commencement of the course.*
- ☐ *Limited or informal opportunities for students to practice and prepare for e-learning technologies and pedagogies explicitly identified in the course materials available prior to commencement of the course.*
- ☐ *Formal opportunities for students to practice and prepare for e-learning technologies and pedagogies explicitly identified in the course materials available prior to commencement of the course, but only cover some technologies and pedagogies or some courses.*
- ■ *Formal opportunities for students to practice and prepare for e-learning technologies and pedagogies explicitly identified in the course materials available prior to commencement of the course.*

### Planning

**Course documentation describes the e-learning technologies used.**

- ☐ *Course outlines and descriptions do not contain any information on the technologies and media which will be used.*
- ☐ *Course outlines and descriptions contain outdated, incomplete or informal information and/or procedures regarding the technologies and media which will be used.*
- ☐ *Course outlines and descriptions contain information and procedures on some of the technologies and media or information on particular technologies and media is unnecessarily inconsistent or different in different courses.*
- ■ *Course outlines and descriptions contain consistent information on the technologies and media, and procedures for their use.*

**E–learning technology practice sessions or tutorials organised and provided to all students as part of the course.**

**See also**: L3(1) & O7(2)

- ☐ *No opportunities for students to practice with e-learning technologies and pedagogies provided.*
- ☐ *Limited or informal opportunities for students to practice with e-learning technologies and pedagogies provided after commencement of the course.*
- ☐ *Formal opportunities for students to practice with e-learning technologies and pedagogies provided after commencement of courses, or only cover some technologies and pedagogies or some courses.*
- ■ *Formal opportunities for students to practice with all e-learning technologies and pedagogies provided prior to commencement of, and during delivery, all courses.*

E-learning initiative development plans formally link decisions with the institutional e-learning strategies and associated operational plans.

**See also**: O2(2), O3(2), O5(2), O7(2), O8(2) & O9(2)

- ☐ *No evidence of consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *Inconsistent or informal consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *E-learning initiative development plans formally consider institutional e-learning strategies and policies without explicitly linking those strategies and associated operational plans with all relevant decisions.*
- ■ *E-learning initiative development plans formally and consistently link institutional e-learning strategies and associated operational plans with key decisions as an explicit part of standard procedures.*

Learning objectives guide e–learning design and (re)development decisions regarding technology and pedagogy.

**See also**: L1(2), D3(2) & O7(2)

- ☐ *No evidence of learning objectives in design and (re)development documents and planning activities.*
- ☐ *Inconsistent or informal use of learning objectives in design and (re)development documents and planning activities.*
- ☐ *E–learning design and (re)development activities reference learning objectives for most, but not all, projects and activities.*
- ■ *E–learning design and (re)development activities formally and consistently reference learning objectives in selecting and implementing e-learning technologies and pedagogies used.*

Institutional e-learning strategies address student access to e-learning technologies.

- ☐ *No inclusion of information on student access to e-learning technologies in relevant institutional policies and strategies.*
- ☐ *Incomplete or informal inclusion of information on student access to e-learning technologies in relevant institutional policies and strategies.*
- ☐ *Institutional strategies, policies, contracts and standards include information on student access to e-learning technologies however inclusion is unnecessarily inconsistent between documents or outdated or fails to include all of the technologies in use.*
- ■ *Institutional strategies, policies, contracts and standards formally and systematically include accurate information on student access to all e-learning technologies in use.*

Institutional risk assessments and mitigation strategies address the risks associated with communicating e-learning information to students.

**See also**: O7(2)

- ☐ *No consideration of the communication of e-learning information to students in institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of the communication of e-learning information to students in institutional risk assessments and mitigation strategies.*
- ☐ *Institutional risk assessments and mitigation strategies formally and systematically address risks arising from the communication of e-learning information to students, but the information is outdated or fails to cover all of the e-learning technologies and pedagogies in use.*
- ■ *Institutional risk assessments and mitigation strategies formally and systematically address risks arising from the communication of e-learning information to students covering all of the e-learning technologies and pedagogies currently in use.*

## Definition

**Standards for communicating e-learning technology requirements are defined for use in all course documentation.**

- ☐ *No standards for communicating the instructions and requirements regarding electronic media and technologies are defined.*
- ☐ *Standards for communicating the instructions and requirements regarding electronic media and technologies are incomplete, informal or fail to cover the range of media, technologies or publication channels in use.*
- ☐ *Standards for communicating the instructions and requirements regarding electronic media and technologies are defined for the range of media, technologies or publication channels in use however compliance incomplete or not required.*
- ■ *Standards for communicating the instructions and requirements regarding electronic media and technologies are defined for the range of media, technologies or publication channels in use with compliance required.*

**Teaching staff are provided with course documentation templates and examples explaining to students how to make effective use of e-learning technologies.**

**See also**: O7(3)

- ☐ *No examples or templates provided to teaching staff explaining to students how to make effective use of e-learning technologies and media.*
- ☐ *Informal, incomplete or outdated examples or templates provided to teaching staff explaining to students how to make effective use of e-learning technologies and media.*
- ☐ *Examples and/or templates provided to teaching staff explaining to students how to make effective use of some e-learning technologies and media in use.*
- ■ *Regularly updated and maintained examples and/or templates provided to teaching staff explaining to students how to make effective use of all available e-learning technologies and media.*

Institutional policies require students be provided opportunities to prepare and practice with e-learning technologies.

**See also**: O7(3)

- ☐ *No policies require that students be provided opportunities to prepare and practice with e-learning technologies.*
- ☐ *Policies encourage that students be provided opportunities to prepare and practice with e-learning technologies, without a formal requirement to provide those opportunities in all courses.*
- ☐ *Policies require that students be provided opportunities to prepare and practice with e-learning technologies, however compliance incomplete or not enforced, or not all technologies and pedagogies are covered.*
- ■ *Policies require that students be provided opportunities to prepare and practice with all of the e-learning technologies and pedagogies in use, and compliance with the requirements enforced.*

Teaching staff are provided with support resources (including training, guidelines and examples) on how to assist students in developing e-learning skills.

**See also**: S4(3)

- ☐ *No training, guidelines or examples of how to assist students in developing e-learning skills provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff on how to assist students in developing e-learning skills.*
- ☐ *Detailed and specific training, guidelines and examples provided how to assist students in developing e-learning skills, but attendance and use are optional and not actively encouraged and promoted, or they fail to cover the full range of e-learning technologies and pedagogies in use.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff how to assist students in developing e-learning skills that cover the full range of e-learning technologies and pedagogies in use.*

## Management

**Students' abilities to comply with e-learning technology and media expectations are regularly monitored.**

**See also**: O7(4)

- ☐ *No monitoring of students' abilities to comply with the technology and media expectations.*
- ☐ *Limited, inconsistent or informal monitoring of students' abilities to comply with the technology and media expectations, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring of students' abilities to comply with the technology and media expectations collected only in some courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, measures of students' abilities to comply with the technology and media expectations collected from all e-learning courses.*

**Feedback collected regularly from students regarding problems with technology and media that are not addressed in the provided course descriptions.**

- ☐ *No feedback collected from students regarding problems with technology and media that are not addressed in the provided course descriptions.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all technologies and media provided or not collected regularly from all courses using the facilities, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback regarding problems with technology and media collected and reported regularly from all e-learning courses.*

**Feedback collected regularly from staff regarding problems with student use of technology and media that are not addressed in the provided course descriptions.**

- ☐ *No feedback collected from staff regarding student problems with technology and media that are not addressed in the provided course descriptions.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all technologies and media provided to students or not collected regularly from all staff involved in e-learning course delivery and support, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback regarding student problems with technology and media collected and reported regularly from all staff involved in e-learning course delivery and support.*

Compliance with policies requiring students be provided opportunities to prepare and practice with e-learning technologies is regularly monitored.

**See also**: O7(4)

- ☐ *No monitoring of compliance with policies requiring students be provided opportunities to prepare and practice with e-learning technologies.*
- ☐ *Infrequent or informal monitoring of compliance with policies requiring students be provided opportunities to prepare and practice with e-learning technologies.*
- ☐ *Formal monitoring of policies requiring students be provided opportunities to prepare and practice with e-learning technologies, but without minimum expectations for compliance enforced.*
- ☐ *Formal monitoring of compliance with policies requiring students be provided opportunities to prepare and practice with e-learning technologies undertaken regularly with minimum expectations for compliance enforced.*

Financial costs and benefits to students of e-learning technologies and pedagogies are regularly monitored.

**See also**: O7(4)

- ☐ *No monitoring of the financial costs and benefits to students of e-learning technologies and pedagogies.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits to students of e-learning technologies and pedagogies, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits to students of e-learning technologies and pedagogies, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits to students of e-learning technologies and pedagogies.*

Communication procedures are subject to formal quality assurance reviews.

**See also**: O7(4) & O8(4)

- ☐ *No reviews undertaken of e-learning technology and pedagogy communication procedures.*
- ☐ *Reviews of e-learning technology and pedagogy communication procedures are informal, incomplete or lack independence, and/or have no impact on resourcing and operational procedures.*
- ☐ *Reviews of e-learning technology and pedagogy communication procedures are formal, but have no impact on resourcing and operational procedures or lack independence.*
- ☐ *Formal and independent reviews of e-learning technology and pedagogy communication procedures are conducted regularly and used to formally modify procedures and/or change resource allocations.*

Risk assessments of e-learning communication procedures undertaken regularly to identify requirements for new or changed procedures.

**See also**: O8(4)

- ☐ *No risk assessment and mitigation planning undertaken regarding e-learning communication procedures.*
- ☐ *Informal or incomplete consideration of risks and mitigation strategies undertaken regarding e-learning communication procedures.*
- ☐ *Formal risk analysis and mitigation planning regarding e-learning communication procedures undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal risk analysis and mitigation planning undertaken regularly by specialist staff regarding e-learning communication procedures.*

| Optimisation |
|---|
| **Information on the effectiveness of institutional standards for providing students with technology and media expectations guides the (re)development of those standards.** |
| ☐ *No use of information on the effectiveness of institutional standards for providing students with technology and media expectations during (re)development of the standards.* |
| ☐ *Informal and inconsistent use of information on the effectiveness of institutional standards for providing students with technology and media expectations during (re)development of the standards.* |
| ☐ *Information on the effectiveness of institutional standards for providing students with technology and media expectations explicitly guides (re)development of the standards, but is treated as subordinate to technical goals, or not linked to decisions regarding the standards.* |
| ■ *Information on the effectiveness of institutional standards for providing students with technology and media expectations explicitly guides (re)development of the standards and is formally linked to decisions regarding the standards.* |
| **Information on student preparedness for e-learning guides the allocation of support resources for e-learning initiatives.** |
| **See also**: O7(5) |
| ☐ *No use of information on student preparedness for e-learning during e-learning initiative support planning.* |
| ☐ *Informal and inconsistent use of information on student preparedness for e-learning during institutional e-learning initiative support planning activities.* |
| ☐ *Information on student preparedness for e-learning explicitly guides institutional e-learning initiative support planning, but is treated as subordinate to technical goals, or not linked to resource allocation decisions.* |
| ■ *Information on student preparedness for e-learning explicitly guides institutional e-learning initiative support planning and is formally linked to resource allocation decisions.* |
| Student and staff communication plans incorporated into any new e-learning technology deployment**.** |
| **See also**: O7(5) |
| ☐ *No inclusion of student or staff communication plans in e-learning technology deployments.* |
| ☐ *Informal or inconsistent planning during e-learning technology deployments for communication to staff or students.* |
| ☐ *Formal communication plans made during e-learning technology deployments, but only for staff not to students, or plans cover only generic information.* |
| ■ *Formal staff and student communication plans made during e-learning technology deployments systematically covering all key aspects of the technology and provided in a timely manner.* |
| Information on student preparedness for e-learning guides the allocation of support resources**.** |
| **See also**: O7(5) |
| ☐ *No use of information on student preparedness for e-learning during student e-learning support planning.* |
| ☐ *Informal and inconsistent use of information on student preparedness for e-learning during institutional student e-learning support planning activities.* |
| ☐ *Information on student preparedness for e-learning explicitly guides student e-learning support planning, but is treated as subordinate to technical goals, or not linked to resource allocation decisions.* |
| ■ *Information on student preparedness for e-learning explicitly guides student e-learning support planning and is formally linked to resource allocation decisions.* |
| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing student e-learning technology use and support needs**.** |
| **See also**: S1(5), O7(5) & O8(5) |
| ☐ *No consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risk assessments and mitigation plans.* |
| ■ *Formal and systematic consideration of current student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risk assessments and mitigation plans.* |

**Table O6-1**: Descriptions of process practices by capability dimension

# Process O7.

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

## Process Background

The term 'e-learning' encompasses a wide range of applications and activities, making confusion on the part of learners a real possibility (Clarke, 2004). Because e-learning includes many different, and often new, technical and conceptual approaches, students need to be fully informed about why and how e-learning is being implemented and applied to their study programme, and the consequential benefits to their learning (Hillesheim, 1998). Such information should be made available at the earliest opportunity to ensure students are able to understand the competency and technical requirements of a programme before enrolling. Many students will need to make particular arrangements to ensure that they get the most benefit from e-learning, and supplying them with the information in advance ensures that they are not forced to withdraw at a later date or to struggle to raise their skills (Waterhouse and Rogers, 2004).



E-learning involves learner-centred pedagogies and anticipates that students engage with more critical and self-directed approaches to learning (Garrison and Anderson, 2003). Clarke (2004) emphasises the importance of making appropriate choices because 'e-learning is a mix of different features and services, so many combinations are likely to be effective' (p. 21), and presents a checklist of topics to enable students to systematically enquire about a programme.

Also concerned for learner-centred teaching, Bates and Poole (2003) argue that the choices and uses of technology in e-learning programmes depend on epistemological beliefs and assumptions and pedagogical principles that underpin them (p. 25). Adding that perhaps 'the term should be learning-centred teaching, [thus] focusing on the process rather than the person' (p. 43), they point to the importance of explicating and initiating collaborative and cooperative teacher-learner relationships from the outset. Quoting Bates (1995) they conclude that '[c]lear objectives, good structuring of learning materials, relevance to learners' needs, etc., apply to the use of any technology for teaching, and if these principles are ignored…teaching will fail, even if the unique characteristics of the medium are stylishly exploited' (in Bates and Poole, 2003, p. 45).

Students' approaches to learning and their perception of learning contexts are interconnected (Ramsden, 1998); it is therefore crucial to provide access to all relevant information about learning approaches and technologies to '[e]nsure that the logistics of the academic context allow students to study effectively and efficiently' (Laurillard, 2002, p. 208).

Garrison and Anderson (2003) characterise e-learning as a 'disruptive technology' with the potential to 'fundamentally alter how students approach learning and outcome expectations' (p. 20). In explaining this notion, they emphasise the shift in teaching and learning principles from a presentational to a transactional approach, and they comment that this calls for a 'refocusing and rededication to traditional higher education ideals' (p. 20). In concluding, Garrison and Anderson refer to the importance of recognising 'new learning communities' emerging through a critical community of learners engaging with a transactional perspective of teaching and learning (p. 21).

## Practices

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.

Table O7-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

## Delivery

### Promotional materials available to students prior to enrolment describe e-learning pedagogies.

- ☐ *Information available prior to enrolment does not contain any information on the pedagogical rationale for e-learning approaches and technologies used in particular courses.*
- ☐ *Information available prior to enrolment contains outdated, incomplete or informal instructions and requirements for students describing the pedagogical rationale for e-learning approaches and technologies used in particular courses.*
- ☐ *Information available prior to enrolment contains the pedagogical rationale for e-learning approaches and technologies used in particular courses in a format which is unnecessarily inconsistent or different in different courses.*
- ☐ *Information available prior to enrolment contains consistent and explicit descriptions of the pedagogical rationale for e-learning approaches and technologies used in particular courses.*

### Activities requiring the use of particular media and technologies clearly link the requirements with the stated learning outcomes of the course and activity.

**See also**: L1(1), L8(1) & D3(2)

- ☐ *No use of learning objectives apparent in the course information supplied to students beyond a formal statement or description.*
- ☐ *Learning activities contain implicit, incomplete and inconsistent linkages between course learning objectives and the use of particular media and technologies..*
- ☐ *Most, but not all, learning activities contain explicit linkages between the use of particular media and technologies, and the course learning objectives or restate learning objectives using different wording.*
- ☐ *Formal statement of course learning objectives clearly and explicitly linked with the use of particular media and technologies in all learning activities using consistent language.*

### Courses include opportunities for students to practice with e-learning technologies and pedagogies.

**See also**: L3(1) & O6(1)

- ☐ *No opportunities for students to practice and prepare for e-learning technologies and pedagogies explicitly identified in the course materials available prior to commencement of the course.*
- ☐ *Limited or informal opportunities for students to practice and prepare for e-learning technologies and pedagogies explicitly identified in the course materials available prior to commencement of the course.*
- ☐ *Formal opportunities for students to practice and prepare explicitly identified in the course materials available prior to commencement of the course, but only cover some technologies and pedagogies or some courses.*
- ☐ *Formal opportunities for students to practice and prepare explicitly identified in the course materials available prior to commencement of the course.*

## Planning

### Course documentation describes the e-learning pedagogies used.

**See also**: L7(2)

- ☐ *Course documentation does not contain any information on the e-learning pedagogies which will be used.*
- ☐ *Course documentation contains outdated, incomplete or informal information and/or procedures regarding the e-learning pedagogies which will be used.*
- ☐ *Course documentation contains information on particular e-learning pedagogies that is unnecessarily inconsistent or different in different courses.*
- ☐ *Course documentation contains consistent information on the e-learning pedagogies, and procedures for their use.*

### Learning objectives guide e–learning design and (re)development decisions regarding technology and pedagogy.

**See also**: L1(2), D3(2) & O6(2)

- ☐ *No evidence of learning objectives in design and (re)development documents and planning activities.*
- ☐ *Inconsistent or informal use of learning objectives in design and (re)development documents and planning activities.*
- ☐ *E–learning design and (re)development activities reference learning objectives for most, but not all, projects and activities.*
- ☐ *E–learning design and (re)development activities formally and consistently reference learning objectives in selecting and implementing e-learning technologies and pedagogies used.*

### E–learning skills practice sessions or tutorials organised and provided to all students as part of the course.

**See also**: L3(1) & O6(2)

- ☐ *No opportunities for students to practice with e-learning technologies and pedagogies provided.*
- ☐ *Limited or informal opportunities for students to practice with e-learning technologies and pedagogies provided after commencement of the course.*
- ☐ *Formal opportunities for students to practice provided after commencement of courses, or only cover some technologies and pedagogies or some courses.*
- ☐ *Formal opportunities for students to practice with all e-learning technologies and pedagogies provided prior to commencement of, and during delivery, all courses.*

### E-learning initiative development plans formally link decisions with the institutional e-learning strategies and associated operational plans.

**See also**: O2(2), O3(2), O5(2), O6(2), O8(2) & O9(2)

- ☐ *No evidence of consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *Inconsistent or informal consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *E-learning initiative development plans formally consider institutional e-learning strategies and policies without explicitly linking those strategies and associated operational plans with all relevant decisions.*
- ☐ *E-learning initiative development plans formally and consistently link institutional e-learning strategies and associated operational plans with key decisions as an explicit part of standard procedures.*

Institutional risk assessments and mitigation strategies address the risks associated with communicating e-learning information to students.

**See also**: O6(2)

- ☐ *No consideration of the communication of e-learning information to students in institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of the communication of e-learning information to students in institutional risk assessments and mitigation strategies.*
- ■ *Institutional risk assessments and mitigation strategies formally and systematically address risks arising from the communication of e-learning information to students, but the information is outdated or fails to cover all of the e-learning technologies and pedagogies in use.*
- ■ *Institutional risk assessments and mitigation strategies formally and systematically address risks arising from the communication of e-learning information to students covering all of the e-learning technologies and pedagogies currently in use.*

## Definition

**Standards for communicating the pedagogical rationale for e-learning technology requirements are defined for use in all course documentation.**

- ☐ *No standards for communicating the pedagogical rationale for e-learning technology requirements of courses and programmes are defined.*
- ☐ *Standards are incomplete, informal or fail to cover the range of technologies or pedagogies in use.*
- ■ *Standards are defined for the range of technologies and pedagogies in use however compliance incomplete or not required.*
- ■ *Standards are defined for the range of technologies and pedagogies in use with compliance required.*

**Teaching staff are provided with course documentation templates and examples explaining to students how to make effective use of e-learning technologies.**

**See also**: O6(3)

- ☐ *No examples or templates provided to teaching staff explaining to students how to make effective use of e-learning technologies and media.*
- ☐ *Informal, incomplete or outdated examples or templates provided to teaching staff explaining to students how to make effective use of e-learning technologies and media.*
- ■ *Examples and/or templates provided to teaching staff explaining to students how to make effective use of some e-learning technologies and media in use.*
- ■ *Regularly updated and maintained examples and/or templates provided to teaching staff explaining to students how to make effective use of all available e-learning technologies and media.*

**Teaching staff are provided with support resources (including training, guidelines and examples) on supporting student e-learning skill acquisition.**

- ☐ *No training, guidelines or examples provided to teaching staff on supporting students using e-learning technologies and pedagogies.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ■ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff with the requirement that they be used prior to designing, (re)developing or delivering e-learning courses.*

Institutional policies require students be provided opportunities to prepare and practice with e-learning technologies.

**See also**: O6(3)

- ☐ *No policies require that students be provided opportunities to prepare and practice with e-learning technologies.*
- ☐ *Policies encourage that students be provided opportunities to prepare and practice with e-learning technologies, without a formal requirement to provide those opportunities in all courses.*
- ■ *Policies require that students be provided opportunities to prepare and practice with e-learning technologies, however compliance incomplete or not enforced, or not all technologies and pedagogies are covered.*
- ■ *Policies require that students be provided opportunities to prepare and practice with all of the e-learning technologies and pedagogies in use, and compliance with the requirements enforced.*

## Management

**Students' compliance with the pedagogical expectations arising from e-learning is regularly monitored.**

- ☐ *No monitoring of students' compliance with the pedagogical expectations arising from e-learning.*
- ☐ *Limited, inconsistent or informal monitoring of students' compliance with the pedagogical expectations arising from e-learning, or information collected but not reported.*
- ■ *Formal, independent, monitoring of students' compliance with the pedagogical expectations arising from e-learning conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and reporting of students' compliance with pedagogical expectations arising from e-learning conducted in all e-learning courses.*

**Feedback collected regularly from students regarding the clarity and utility of the information provided.**

- ☐ *No feedback collected from students regarding the clarity and utility of the supplied information.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ■ *Formal, independent, student feedback collected on some but not all information provided or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ■ *Formal, independent, student feedback regarding the clarity and utility of the supplied information collected and reported regularly from all e-learning courses.*

**Feedback collected regularly from staff regarding the clarity and utility of the information provided.**

- ☐ *No feedback collected from staff regarding the clarity and utility of the supplied information.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all information provided or not collected regularly from all staff involved in e-learning course delivery and support, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback regarding the clarity and utility of the supplied information collected and reported regularly from all staff involved in e-learning course delivery and support.*

Compliance with policies requiring students be provided opportunities to prepare and practice with e-learning technologies is regularly monitored.

**See also**: O6(4)

- ☐ *No monitoring of compliance with policies requiring students be provided opportunities to prepare and practice with e-learning technologies.*
- ☐ *Infrequent or informal monitoring of compliance with policies requiring students be provided opportunities to prepare and practice with e-learning technologies.*
- ☐ *Formal monitoring of policies requiring students be provided opportunities to prepare and practice with e-learning technologies, but without minimum expectations for compliance enforced.*
- ☐ *Formal monitoring of compliance with policies requiring students be provided opportunities to prepare and practice with e-learning technologies undertaken regularly with minimum expectations for compliance enforced.*

Students' abilities to comply with e-learning technology and pedagogy expectations are regularly monitored.

**See also**: O6(4)

- ☐ *No monitoring of students' abilities to comply with the technology and media expectations.*
- ☐ *Limited, inconsistent or informal monitoring of students' abilities to comply with the technology and media expectations, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring of students' abilities to comply with the technology and media expectations collected only in some courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, measures of students' abilities to comply with the technology and media expectations collected from all e-learning courses.*

Financial costs and benefits to students of e-learning technologies and pedagogies are regularly monitored.

**See also**: O6(4)

- ☐ *No monitoring of the financial costs and benefits to students of e-learning technologies and pedagogies.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits to students of e-learning technologies and pedagogies, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits to students of e-learning technologies and pedagogies, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits to students of e-learning technologies and pedagogies.*

Communication procedures are subject to formal quality assurance reviews.

**See also**: O6(4) & O8(4)

- ☐ *No reviews undertaken of e-learning technology and pedagogy communication procedures.*
- ☐ *Reviews of e-learning technology and pedagogy communication procedures are informal, incomplete or lack independence, and/or have no impact on resourcing and operational procedures.*
- ☐ *Reviews of e-learning technology and pedagogy communication procedures are formal, but have no impact on resourcing and operational procedures or lack independence.*
- ☐ *Formal and independent reviews of e-learning technology and pedagogy communication procedures are conducted regularly and used to formally modify procedures and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed communication procedures.

**See also**: O8(4)

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed communication procedures.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed communication procedures.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed communication procedures undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed communication procedures.*

## Optimisation

**Information on student preparedness for e-learning guides allocation of support resources for e-learning initiatives.**

**See also**: O6(5)

- ☐ *No use of information on student preparedness for e-learning during e-learning support planning.*
- ☐ *Informal and inconsistent use of information on student preparedness for e-learning during institutional e-learning support planning activities.*
- ☐ *Information on student preparedness for e-learning explicitly guides institutional e-learning support planning, but is treated as subordinate to technical goals, or not linked to resource allocation decisions.*
- ☐ *Information on student preparedness for e-learning explicitly guides institutional e-learning support planning and is formally linked to resource allocation decisions.*

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|---|
| Information on student preparedness for e-learning guides the allocation of support resources.<br>**See also**: O6(5) |
| ☐ *No use of information on student preparedness for e-learning during e-learning initiative support planning.* |
| ☐ *Informal and inconsistent use of information on student preparedness for e-learning during institutional e-learning initiative support planning activities.* |
| ☐ *Information on student preparedness for e-learning explicitly guides institutional e-learning initiative support planning, but is treated as subordinate to technical goals, or not linked to resource allocation decisions.* |
| ☐ *Information on student preparedness for e-learning explicitly guides institutional e-learning initiative support planning and is formally linked to resource allocation decisions.* |
| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing student e-learning technology use and support needs.<br>**See also**: S1(5), O6(5) & O8(5) |
| ☐ *No consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risk assessments and mitigation plans.* |
| ☐ *Formal and systematic consideration of current student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risk assessments and mitigation plans.* |
| Student and staff communication plans incorporated into any new e-learning technology deployment.<br>**See also**: O6(5) |
| ☐ *No inclusion of student or staff communication plans in e-learning technology deployments.* |
| ☐ *Informal or inconsistent planning during e-learning technology deployments for communication to staff or students.* |
| ☐ *Formal communication plans made during e-learning technology deployments, but only for staff not to students, or plans cover only generic information.* |
| ☐ *Formal staff and student communication plans made during e-learning technology deployments systematically covering all key aspects of the technology and provided in a timely manner.* |

**Table O7-1**: Descriptions of process practices by capability dimension

## Process O8.

*Course administration information communicated to students prior to starting courses*

### Process Background

The expanding integration of previously discrete components of institutional systems is increasing the pedagogical and operational complexity of e-learning. But it is also enabling the provision of accurate, consistent, complete, and timely administrative information for students. Levy and Ramim (2004) discuss the importance of institutional support for students that extends beyond online learning to include: 'registration, financial aid, the library, the bookstore, advisors, student organizations and virtual communities' (p. 285). Furthermore, as Khan (2005) observes, '[s]ince more and more institutions offer e-learning programs, learners have more options to compare quality, services, price, and convenience of education providers' (p. 23).



Relating the importance of coherent policy to effective e-learning, Waterhouse and Rogers (2004) promote not only the benefits that provision of comprehensive information brings to student familiarisation, but also the potential time savings available from simplifying administrative procedures. Consistent, clear information on the administrative aspects of courses ensures that staff are able to focus on teaching aspects rather than details of enrolment and also ensures that students are clear on the focus and can ensure that they are properly prepared for study (Waterhouse and Rogers, 2004).

Pacey and Keough (2003) discuss the challenges institutions face from external pressures to implement online education services. They argue the importance of a responsive institutional plan that 'to be acceptable…must be understandable, reflect the values of the institution, speak to the learner as the core of the enterprise, and communicate the "wins" to the institutional community' (p. 408). Caplan (2004) takes the view that stakeholder groups, including students, must be assured that the institution's e-learning 'is a viable means of delivering courses and programs, and accommodating student needs' (p. 176). He recommends personalising introductory materials for students, and, in addition to general, technical, and academic information, addressing: 'administrative regulations, including guidelines on plagiarism, privacy, academic appeal procedures, library facilities, and access to counseling and advisory services' (pp. 178-9).

Agre (2002) expresses concern for students personal and professional development and comments on the importance of students having access to information that enables them to establish for themselves what they want from a particular course: 'The…university should be able to facilitate this kind of self-discovery, and should not undermine it by fragmenting itself in a hundred incompatible directions' (p. 163). In addressing such administrative issues, Schauer *et al*., (2005) discuss the need for a collaborative approach because '[w]hile categories of issues can be defined, the way in which the issues are addressed becomes an interactive and responsive process as distance delivery grows and matures' (Summary ¶ 1), and students must not only be able to recognise that issues are being addressed appropriately, but also be able to participate in the responsive process. As Smith (2005) has observed, the 'virtual' nature of the online environment presents institutions with greater challenges than the physical environment does, to ensure that students are fully supported (p. 28).

### Practices

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.

Table O8-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

## Delivery

**Promotional materials available to students prior to enrolment list administrative requirements.**

- ☐ *Information available prior to enrolment does not contain any information on the administrative requirements and procedures that apply to students.*
- ☐ *Information available prior to enrolment contains outdated, incomplete or informal descriptions of the administrative requirements and procedures that apply to students.*
- ☐ *Information available prior to enrolment contains the administrative requirements and procedures that apply to students in a format which is unnecessarily inconsistent or different in different courses.*
- ■ *Information available prior to enrolment contains consistent and explicit descriptions of the administrative requirements and procedures that apply to students.*

## Planning

**Course documentation provides the administrative requirements of the course and institution.**

- ☐ *Course documentation does not contain any information on the administrative requirements of the course and institution.*
- ☐ *Course documentation contains outdated, incomplete or informal information on the administrative requirements of the course and institution.*
- ☐ *Course documentation contains information on the administrative requirements of the course and institution which is unnecessarily inconsistent or different in different courses.*
- ■ *Course documentation contains consistent information on the administrative requirements of the course and institution.*

E-learning initiative development plans formally link decisions with the institutional e-learning strategies and associated operational plans.

**See also**: O2(2), O3(2), O5(2), O6(2), O7(2) & O9(2)

- ☐ *No evidence of consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *Inconsistent or informal consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *E-learning initiative development plans formally consider institutional e-learning strategies and policies without explicitly linking those strategies and associated operational plans with all relevant decisions.*
- ■ *E-learning initiative development plans formally and consistently link institutional e-learning strategies and associated operational plans with key decisions as an explicit part of standard procedures.*

Institutional risk assessments and mitigation strategies address the risks associated with communicating administrative information to students.

- ☐ *No consideration of the communication of administrative information to students in institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of the communication of administrative information to students in institutional risk assessments and mitigation strategies.*
- ☐ *Institutional risk assessments and mitigation strategies formally and systematically address risks arising from the communication of administrative information to students, but the information is outdated or fails to cover all of the e-learning technologies and pedagogies in use.*
- ■ *Institutional risk assessments and mitigation strategies formally and systematically address risks arising from the communication of administrative information to students covering all of the e-learning technologies and pedagogies currently in use.*

## Definition

**Standards for communicating the administrative requirements of the course and institution are defined for use in all course documentation.**

- ☐ *No Standards for communicating the administrative requirements of the course and institution are defined.*
- ☐ *Standards for communicating the administrative requirements of the course and institution are incomplete, or informal.*
- ☐ *Standards for communicating the administrative requirements of the course and institution are defined however compliance incomplete or not required.*
- ■ *Standards for communicating the administrative requirements of the course and institution are defined with compliance required.*

**Staff are provided with support resources (including training, guidelines and examples) in supporting student compliance with administrative requirements.**

- ☐ *No training, guidelines or examples provided to staff on supporting students with administrative concerns.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted.*
- ■ *Detailed and specific training, guidelines and examples provided to all staff with the requirement that they be used prior to involvement with the delivery of e-learning courses.*

Teaching staff are provided with course documentation templates and examples explaining administrative requirements.

- ☐ *No examples or templates provided to teaching staff explaining administrative requirements to students.*
- ☐ *Informal, incomplete or outdated examples or templates provided to teaching staff explaining administrative requirements to students.*
- ☐ *Examples and/or templates provided to teaching staff explaining administrative requirements to students.*
- ■ *Regularly updated and maintained examples and/or templates provided to teaching staff explaining administrative requirements to students.*

Plans for informing students of the administrative requirements, associated policies and strategies are coordinated across the institution.

- ☐ *No coordination of plans for informing students of the administrative requirements, associated policies and strategies.*
- ☐ *Coordination of plans for informing students of the administrative requirements, associated policies and strategies throughout the institution is informal or inconsistent.*
- ☐ *Policies and strategies for informing students of institutional administrative requirements are coordinated throughout the institution with actual communication tasks handled by a variety of independent groups.*
- ■ *Plans for informing students of the administrative requirements, associated policies and strategies are systematically coordinated throughout the institution to ensure that all communications are consistent and build on each other.*

## Management

**Students' compliance with the administrative requirements of the course and institution is regularly monitored.**

- ☐ *No monitoring of students' compliance with the administrative requirements of the course and institution.*
- ☐ *Limited, inconsistent or informal monitoring of students' compliance with the administrative requirements of the course and institution, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of students' compliance with the administrative requirements of the course and institution conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of students' compliance with the administrative requirements of the course and institution conducted in all e-learning courses.*

**Feedback collected from students on the clarity and utility of the supplied administrative information.**

- ☐ *No feedback collected from students regarding the clarity and utility of the supplied administrative information.*
- ☐ *Limited, inconsistent or informal student feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on some but not all administrative information provided or not collected regularly from all e-learning courses, or reported incompletely or irregularly.*
- ☐ *Formal, independent, student feedback regarding the clarity and utility of the supplied administrative information collected regularly from all e-learning courses.*

**Feedback collected from staff on the clarity and utility of the supplied administrative information.**

- ☐ *No feedback collected from staff regarding the clarity and utility of the supplied administrative information.*
- ☐ *Limited, inconsistent or informal staff feedback collected, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on some but not all administrative information provided or not collected regularly from all staff involved in e-learning course delivery and support, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback regarding the clarity and utility of the supplied administrative information collected regularly from all staff involved in e-learning course delivery and support.*

Compliance with policies requiring students be provided with administrative requirements is regularly monitored.

- ☐ *No monitoring of compliance with policies requiring students be provided with administrative requirements.*
- ☐ *Limited, inconsistent or informal monitoring of compliance with policies requiring students be provided with administrative requirements, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of compliance with policies requiring students be provided with administrative requirements conducted incompletely or irregularly, or reported incompletely or irregularly.*
- ☐ *Formal, independent, monitoring and reporting of compliance with policies requiring students be provided with administrative requirements.*

Communication procedures are subject to formal quality assurance reviews.

**See also**: O6(4) & O7(4)

- ☐ *No reviews undertaken of e-learning technology and pedagogy communication procedures.*
- ☐ *Reviews of e-learning technology and pedagogy communication procedures are informal, incomplete or lack independence, and/or have no impact on resourcing and operational procedures.*
- ☐ *Reviews of e-learning technology and pedagogy communication procedures are formal, but have no impact on resourcing and operational procedures or lack independence.*
- ☐ *Formal and independent reviews of e-learning technology and pedagogy communication procedures are conducted regularly and used to formally modify procedures and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed communication procedures.

**See also**: O7(4)

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed communication procedures.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed communication procedures.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed communication procedures undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed communication procedures.*

## Optimisation

**Information from student feedback guides allocation of resources for administrative support services.**

- ☐ *No use of information from student feedback during administrative support planning.*
- ☐ *Informal and inconsistent use of information from student feedback during administrative support planning activities.*
- ☐ *Information from student feedback explicitly guides administrative support planning, but is treated as subordinate to administrative goals, or not linked to resource allocation decisions.*
- ☐ *Information from student feedback explicitly guides administrative support planning and is formally linked to resource allocation decisions.*

**Student and staff communication plans incorporated into any new administration procedures.**

- ☐ *No apparent staff or student communication plans.*
- ☐ *Communication with staff and/or students handled informally and as a consequence of other activities.*
- ☐ *New administrative procedures communicated formally to staff and students when deployed.*
- ☐ *New administrative procedures communicated formally to staff and students during development as well as when deployed.*

| Institutional risk assessments and mitigation strategies are regularly updated to reflect changing student e-learning technology use and support needs.<br>**See also**: S1(5), O6(5) & O7(5) |
|---|
| ☐ *No consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Informal or inconsistent consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies.* |
| ☐ *Formal consideration of student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risk assessments and mitigation plans.* |
| ☐ *Formal and systematic consideration of current student e-learning technology use and support requirements in the institutional risk assessments and mitigation strategies with information linked explicitly to elements of the risk assessments and mitigation plans.* |

**Table O8-1**: Descriptions of process practices by capability dimension

## Process O9.

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

### Process Background

E-learning is an educational evolution, rather than an add-on, that requires a complementary approach to the integration of its manifold, complex, and dynamic elements and processes into institutional strategies and plans. The influence of information and communication technology (ICT) on the reconceptualisation of higher education organisation, administration, and teaching and learning, has been apparent for some time (Anderson and Elloumi, 2004; Bates, 1988, 1997; Duderstadt *et al*., 2003; Dutton and Loader, 2002; Laurillard, 2002; Ramsden, 2003). Dutton and Loader (2002), refer to not only 'the administration and services of higher educational institutions…being transformed [but also] the whole environment…not just the classroom, but teaching, learning, managing and obtaining services…being increasingly embedded in electronic resources' (p. 7).



As Davis (2004) explains, successful implementation of e-learning is 'based upon a good understanding of an institution or company's core business and values, of the nature of the intended student market, and of the needs of the curriculum' (p. 101). He also considers the importance of managing change, noting that the usual dynamics of educational change are further complicated by online activities: 'Because online learning technologies evolve as quickly, and often as unexpectedly, as do the curriculum, students' expectations and connectivity, etc., the ability to manage change effectively is important' (p. 110). Davis summarises the qualities needed for an effective infrastructure as: 'a healthy working environment, with committed staff, where implementation can proceed, and where constant change is understood to be the norm' (p. 113).

Arguing the importance of competitive advantage to e-learning strategy development, Elloumi (2004) proposes a value chain analysis approach to assess external and internal competitive opportunities and effects: 'value chain analysis facilitates the strategic management of an organization' (p. 84). Benefits of using this approach include the ability to show that it is 'serving specific public needs identified in its mission statement…. and to demonstrate its ability to manage its operating systems successfully by delivering a quality service to the public served' (p. 89).

Reporting on a case study into organisational change relating to e-learning, de Freitas and Oliver (2005) conclude that e-learning policy significantly affects institutional change beginning with 'organizational redevelopment (whether formally through staffing structures or informally through locally negotiated changes in staff roles)' (p. 94). They add, however, that this process is dynamic and complex and needs to be subject to negotiation between all parties.

Duderstadt *et al*., (2003), reviewing the institutional issues and concerns of e-learning, refer to the investment trade-off between 'bricks (conventional physical infrastructure) and clicks (information technology)' (p. 49). They note that, to be sustainable, these issues need to involve collaborative partnerships; within the institution, and beyond, to include commercial, government, and global relationships. Duderstadt *et al*. present several recommendations that emphasise the unique challenges and opportunities confronting institutions in the process of strategic transformation through e-learning. In concluding they observe that 'transforming…the university is neither linear nor predictable [but] is an iterative process, since… experience leads to learning that can modify the transformation process', and they refer to the importance of considering wide-ranging initiatives including: 'institutional culture, mission, finance, organization and governance, academic programs, and external relations, all of which interact with each other' (p. 58).

Also concerned about the forces of competition, Graves (2005) emphasises the need to rethink the '"technology bolt-on" process…to redesign a service process–that is, to change the service process in substantive ways to improve its quality, flexibility, and unit cost structure' (p. 96). Describing a path to improved performance, Graves identifies technology, information, analytics, and innovation as infrastructural steps towards 'collaborative, blended, adaptive planning and cultural models focused on improving institutional performance' (p. 86).

Focusing on institution-wide reorganisation, Harloe and Perry (2005) comment on the challenges of implementing new roles and reform to make the university 'fit for purpose' whilst preserving its distinctive knowledge production functions. They argue that 'the university has to be organised in ways that retain the active commitment of their academic staff. It also has to recognise the reality of a much more complex division of roles and responsibilities between academic and administrative staff' (p. 40).

Using the metaphor of a compass, Kowch (2005) discusses the complexity of exploring, mapping and navigating the e-learning environment with a view to discovering its social capital opportunities. Observing that administrators with a very limited understanding of technology are directing huge investments, Kowch calls for more research and input from educational technologists. He argues that a 'technology-integrated educational institution is an important (potential) social capital generator; so, education leaders must know both how to design it and how to lead it' (pp. 1068-9). Kowch believes that because educational technologists readily contextualise instruction and learning as a social (relational) process that is well suited to technology-mediated environments, they have potential for e-learning environment project design and organisational (change) leadership.



## Practices

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.

Table O9-1 sets out examples of the characteristic practices which are observed in organisations operating effectively for each dimension of the process capability.

| Delivery |
|---|
| **E-learning initiative resource allocation is explicitly linked to the institutional e-learning strategies and technology plans.** <br> **See also**: O1(3) |
| ☐ *No linkage between resource allocation for e-learning design, (re)development and delivery, and institutional e-learning strategies and technology plans.* |
| ☐ *Informal, inconsistent or outdated linkage with institutional e-learning strategies and technology plans included in the allocation of resources for e-learning design, (re)development and delivery.* |
| ☐ *Formal, but generic, linkages between resource allocation and institutional e-learning strategies and technology plans.* |
| ☐ *Formal, explicit and systematic linkages between resource allocation and institutional e-learning strategies and technology plans.* |
| **Strategic impact and contribution of e-learning technologies and projects is evident in institutional governance activities.** |
| ☐ *No apparent impact of e-learning on institutional strategic and governance activities.* |
| ☐ *Informal, inconsistent or outdated linkage between the use of e-learning and institutional strategic and governance activities.* |
| ☐ *Formal, but generic, impact of the use of e-learning on institutional strategic and governance activities.* |
| ☐ *Formal, explicit and systematic changes apparent in institutional strategic and governance activities as a consequence of the use of e-learning.* |
| Institutional e-learning strategies address academic, staffing, student and financial implications of e-learning. |
| ☐ *No inclusion of information on academic, staffing, student and financial implications of e-learning in relevant institutional policies and strategies.* |
| ☐ *Incomplete or informal inclusion of information on academic, staffing, student and financial implications of e-learning in relevant institutional policies and strategies.* |
| ☐ *Institutional strategies, policies, contracts and standards include information on academic, staffing, student and financial implications of e-learning however inclusion is unnecessarily inconsistent between documents or outdated or fails to include all of the technologies in use.* |
| ☐ *Institutional strategies, policies, contracts and standards formally and systematically include accurate information on academic, staffing, student and financial implications of e-learning.* |
| E-learning strategies are formally endorsed by the institutional leadership. |
| ☐ *No support of e-learning strategies apparent.* |
| ☐ *E-learning strategies are endorsed informally or implied.* |
| ☐ *E-learning strategies have limited or outdated endorsement from institutional leadership.* |
| ☐ *E-learning strategies are endorsed formally, explicitly and regularly by institutional leadership.* |

## Planning

**Staff with experience in e-learning are formally involved in the (re)development of institutional learning and teaching strategies and policies.**

**See also**: O2(2)

- ☐ *No apparent involvement of staff in the (re)development of institutional learning and teaching strategies and policies.*
- ☐ *Informal or inconsistent involvement of staff in the (re)development of institutional learning and teaching strategies and policies.*
- ☐ *Staff able to comment or provide feedback during the (re)development of institutional learning and teaching strategies and policies.*
- ☐ *Staff formally and directly involved in the (re)development of institutional learning and teaching strategies and policies.*

**Staff are recognised and rewarded for their engagement with innovative e-learning initiatives.**

**See also**: D1(2), S5(2) & E2(2)

- ☐ *No recognition of individual staff involvement in e-learning initiatives.*
- ☐ *Informal, inconsistent or insignificant recognition of individual staff involvement in e-learning initiatives.*
- ☐ *Formal, but generic or minor, recognition of individual staff involvement in e-learning initiatives.*
- ☐ *Formal and significant recognition of individual staff involvement in e-learning initiatives.*

**Students are formally involved in the (re)development of institutional strategies and policies involving e-learning.**

**See also**: O2(2)

- ☐ *No apparent involvement of students in the (re)development of institutional learning and teaching strategies and policies involving e-learning.*
- ☐ *Informal or inconsistent involvement of students in the (re)development of institutional learning and teaching strategies and policies involving e-learning.*
- ☐ *Students able to comment or provide feedback during the (re)development of institutional learning and teaching strategies and policies involving e-learning.*
- ☐ *Students formally and directly involved in the (re)development of institutional learning and teaching strategies and policies involving e-learning.*

**Support for e-learning projects and initiatives is formally linked to strategic and operational outcomes.**

- ☐ *No linkage between support for e-learning projects and initiatives, and institutional e-learning strategic and operational outcomes.*
- ☐ *Informal, inconsistent or outdated linkage with institutional e-learning strategic and operational outcomes included in the criteria for allocating support for e-learning projects and initiatives.*
- ☐ *Formal, but generic, linkages between support for e-learning projects and initiatives and institutional e-learning strategic and operational outcomes.*
- ☐ *Formal, explicit and systematic linkages between support for e-learning projects and initiatives and institutional e-learning strategic and operational outcomes.*

Service level agreements used to define support and performance requirements for e-learning are formally linked to institutional e-learning strategies.

- ☐ *No linkage between institutional e-learning strategies and service level agreements used to define support and performance requirements for e-learning.*
- ☐ *Service level agreements used to define support and performance requirements for e-learning are linked informally or inconsistently with institutional e-learning strategies.*
- ☐ *Service level agreements used to define support and performance requirements for e-learning are formally linked with institutional e-learning strategies but without detailed linkages made between the particular service levels required and specific strategic outcomes.*
- ☐ *Service level agreements used to define support and performance requirements for e-learning are systematically and formally linked with institutional e-learning strategic objectives.*

Risk assessments undertaken as part of institutional strategic planning address e-learning.

- ☐ *No risk assessment and mitigation planning undertaken as part of institutional strategic planning regarding e-learning.*
- ☐ *Informal or incomplete consideration of risks and mitigation strategies undertaken regarding e-learning as part of institutional strategic planning.*
- ☐ *Formal risk analysis and mitigation planning regarding e-learning undertaken as part of institutional strategic planning by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal risk analysis and mitigation planning regarding e-learning undertaken as part of institutional strategic planning regularly by specialist staff.*

Institutional e-learning strategies have empirically measureable objectives and milestones.

- ☐ *No inclusion of empirically measureable objectives and milestones in institutional e-learning strategies.*
- ☐ *Incomplete or informal inclusion of objectives and milestones in institutional e-learning strategies.*
- ☐ *Institutional e-learning strategies include objectives and milestones however inclusion is unnecessarily inconsistent between documents or outdated or fails to include all of the technologies in use, or objectives are not empirically and reliably measured.*
- ☐ *Institutional e-learning strategies formally include empirically measureable objectives and milestones with detailed information on the collection of suitable evidence.*

E-learning initiative development plans formally link decisions with the institutional e-learning strategies and associated operational plans.

**See also**: O2(2), O3(2), O5(2), O6(2), O7(2) & O8(2)

- ☐ *No evidence of consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *Inconsistent or informal consideration of institutional e-learning strategies and associated operational plans in e-learning initiative development planning activities.*
- ☐ *E-learning initiative development plans formally consider institutional e-learning strategies and policies without explicitly linking those strategies and associated operational plans with all relevant decisions.*
- ☐ *E-learning initiative development plans formally and consistently link institutional e-learning strategies and associated operational plans with key decisions as an explicit part of standard procedures.*

## Definition

**Institutional policy requires formal linkages between e-learning initiative plans and an overarching institutional plan.**

**See also**: O5(3)

- ☐ *No apparent requirement for e-learning initiative development plans to link to overarching institutional plan.*
- ☐ *Informal, inconsistent or outdated links between e-learning initiative development plans and overarching institutional plan.*
- ☐ *E-learning initiative development plans link to the overarching institutional plan in general or non-specific ways.*
- ■ *E-learning initiative development plans link to the overarching institutional plan formally and systematically, with explicit linkages to institutional goals and outcomes required.*

**Staff are provided with support resources (including training, guidelines and examples) on how to link e-learning initiative development plans with institutional e-learning strategic plans.**

**See also**: O2(3) & O5(3)

- ☐ *No training, guidelines or examples of how to link e-learning initiative development plans with institutional e-learning strategic plans provided to teaching staff.*
- ☐ *Limited or non-specific training, guidelines and examples provided for the optional use of staff.*
- ☐ *Detailed and specific training, guidelines and examples provided but attendance and use are optional and not actively encouraged and promoted, or they fail to cover the full range of e-learning technologies and pedagogies in use.*
- ■ *Detailed and specific training, guidelines and examples provided to all teaching staff that cover the full range of e-learning technologies and pedagogies in use, and with the requirement that they be used prior to the creation of e-learning initiative development plans.*

Institutional strategic planning activities address e-learning.

- ☐ *No consideration of e-learning undertaken as part of institutional strategic planning.*
- ☐ *Informal or incomplete consideration of e-learning undertaken as part of institutional strategic planning.*
- ☐ *Formal planning regarding e-learning undertaken as part of institutional strategic planning supported by non-specialist staff, or e-learning aspects not regularly updated.*
- ■ *Formal planning regarding e-learning undertaken as part of institutional strategic planning and updated regularly with support from specialist staff.*

Staff engaged in e-learning strategy and policy (re)development are provided with a researched evidence base of e-learning initiatives.

**See also**: O2(3)

- ☐ *No researched evidence base of e-learning initiatives provided.*
- ☐ *Limited or non-specific research provided without tools to search the information provided, or without peer-reviewed and empirical evidence supporting use of particular e-learning technologies and pedagogies.*
- ☐ *Research evidence base of effective e-learning technologies and pedagogies provided without specific linkages to the institutional context, e-learning strategies and tools, or prior experience with e-learning.*
- ■ *Research evidence base of effective e-learning technologies and pedagogies provided with research linked explicitly to institutional e-learning strategies and tools and supported with local evidence of effectiveness and impact.*

Business plans, associated policies, strategies and service level agreements are coordinated across the institution.

- ☐ *No coordination of e-learning business plans, associated policies, strategies and service level agreements across the institution.*
- ☐ *Coordination of e-learning business plans, associated policies, strategies and service level agreements throughout the institution is informal or inconsistent.*
- ☐ *E-learning business plans, associated policies, strategies and service level agreements are coordinated throughout the institution through the use of common objectives and/or infrastructure.*
- ■ *E-learning business plans, associated policies, strategies and service level agreements are systematically coordinated throughout the institution to ensure that all e-learning activities are consistent and build on each other.*

## Management

**Success or failure of e-learning initiatives in supporting the achievement of strategy and business goals is regularly monitored.**

- ☐ *No monitoring of the success or failure of e-learning projects and initiatives in achieving strategic or business goals of the programme or institution.*
- ☐ *Limited, inconsistent or informal monitoring of the success or failure of e-learning projects and initiatives in achieving strategic or business goals of the programme or institution.*
- ☐ *Formal, independent, monitoring of the success or failure of e-learning projects and initiatives in achieving strategic or business goals of the programme or institution, but reported incompletely or irregularly.*
- ■ *Formal, independent, monitoring and reporting of the success or failure of all e-learning projects and initiatives in achieving strategic or business goals of the programme or institution.*

**Feedback collected regularly from students regarding the strategic and operational e-learning goals of the institution.**

- ☐ *No feedback collected from students on the strategic and operational e-learning goals of the institution.*
- ☐ *Limited, inconsistent or informal student feedback collected on the strategic and operational e-learning goals of the institution, or feedback collected but not reported.*
- ☐ *Formal, independent, student feedback collected on the strategic and operational e-learning goals of the institution, but not from all e-learning courses, , or reported incompletely or irregularly.*
- ■ *Formal, independent, student feedback on the strategic and operational e-learning goals of the institution collected and reported from all e-learning courses.*

**Feedback collected regularly from staff regarding the strategic and operational e-learning goals of the institution.**

- ☐ *No feedback collected from staff on the strategic and operational e-learning goals of the institution.*
- ☐ *Limited, inconsistent or informal staff feedback collected on the strategic and operational e-learning goals of the institution, or feedback collected but not reported.*
- ☐ *Formal, independent, staff feedback collected on the strategic and operational e-learning goals of the institution but not from all staff involved in e-learning course delivery and support, or reported incompletely or irregularly.*
- ☐ *Formal, independent, staff feedback on the strategic and operational e-learning goals of the institution collected and reported from all staff involved in e-learning course delivery and support.*

**Financial costs and benefits of e-learning projects and initiatives regularly monitored.**

- ☐ *No monitoring of the financial costs and benefits of e-learning projects and initiatives.*
- ☐ *Limited, inconsistent or informal monitoring of the financial costs and benefits of e-learning projects and initiatives, or information collected but not reported.*
- ☐ *Formal, independent, monitoring of the financial costs and benefits of e-learning projects and initiatives, but the information is reported incompletely or irregularly.*
- ☐ *Formal, independent, and regular monitoring and reporting of the financial costs and benefits of e-learning projects and initiatives.*

E-learning design and (re)development activities are subject to formal quality assurance reviews at key milestones.

**See also**: L1(4), L7(4), L8(4), D1(4), D2(4), D3(4), D4(4), D5(4), D6(4), S5(4), E1(4), E2(4), E3(4), O1(4), O2(4), O3(4), O4(4) & O5(4)

- ☐ *No reviews undertaken of course e-learning design and (re)development activities.*
- ☐ *Reviews of e-learning design and (re)development activities are informal, incomplete or lack independence, and/or have no impact on resourcing and project objectives.*
- ☐ *Reviews of e-learning design and (re)development activities are formal, but have no impact on resourcing and project objectives or lack independence.*
- ☐ *Formal and independent reviews of e-learning design and (re)development activities are conducted at key project milestones and used to formally modify objectives and/or change resource allocations.*

Risk assessments of e-learning initiatives undertaken regularly to identify requirements for new or changed governance and management mechanisms.

- ☐ *No e-learning initiative risk assessment and mitigation planning undertaken regarding new or changed governance and management mechanisms.*
- ☐ *Informal or incomplete consideration of e-learning initiative risks and mitigation strategies undertaken regarding new or changed governance and management mechanisms.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning regarding new or changed governance and management mechanisms undertaken by non-specialist staff, or risk assessments not regularly updated.*
- ☐ *Formal e-learning initiative risk analysis and mitigation planning undertaken regularly by specialist staff regarding new or changed governance and management mechanisms.*

Overlap and duplication of e-learning support is regularly assessed.

**See also**: D1(4), D2(4), S5(4), S6(4), O1(4), O3(4) & O5(4)

- ☐ *No assessment or review of e-learning support facilities undertaken.*
- ☐ *Assessment and review of overlap and duplication in e-learning support facilities undertaken informally or inconsistently.*
- ☐ *Formal assessment and review of overlap and duplication in e-learning support facilities undertaken irregularly or only covers some of the support facilities provided.*
- ☐ *Formal and systematic assessment and review of overlap and duplication in e-learning support facilities undertaken regularly.*

## Optimisation

**Information on the outcomes of e-learning initiatives guides reuse of e-learning strategic planning and management documents.**

- ☐ *No apparent analysis or reuse of e–learning strategies and management documents.*
- ☐ *Informal and/or infrequent analysis and/or reuse of e–learning strategies and management documents.*
- ☐ *Analysis of e–learning strategies and management documents undertaken formally in response to failure of that project or initiative.*
- ☐ *Analysis and reuse of e–learning strategies and management documents undertaken formally in response to experience with successful and unsuccessful e-learning initiatives using related technologies or pedagogies.*

**Information on the outcomes of e-learning initiatives guides regular (re)assessment of the effectiveness of governance and management mechanisms.**

- ☐ *No assessment of the effectiveness of e-learning governance and management mechanisms apparent.*
- ☐ *Inconsistent, informal and variable use of available information on the outcomes of e-learning projects and initiatives when assessing the effectiveness of governance and management mechanisms.*
- ☐ *Assessment of the effectiveness of e-learning governance and management mechanisms undertaken using limited summaries of the outcomes of e-learning projects and initiatives prepared by involved staff.*
- ☐ *Assessment of the effectiveness of e-learning governance and management mechanisms undertaken using systematic and independent assessments of the outcomes of e-learning projects and initiatives.*

Institutional risk assessments and mitigation strategies are regularly updated to reflect changing e-learning strategies and plans.

- ☐ *No consideration of changes to e-learning strategies and plans in the institutional risk assessments and mitigation strategies.*
- ☐ *Informal or inconsistent consideration of changes to e-learning strategies and plans in the institutional risk assessments and mitigation strategies.*
- ☐ *Formal consideration of changes to e-learning strategies and plans in the institutional risk assessments and mitigation strategies but the information is outdated or incomplete, or not linked explicitly to elements of the risks assessments and mitigation plans.*
- ☐ *Formal and systematic consideration of changes to e-learning strategies and plans in the institutional risk assessments and mitigation strategies with changes linked explicitly to elements of the risks assessments and mitigation plans.*

**Table O9-1**: Descriptions of process practices by capability dimension

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