

Part C Massey Literature Review: Professional Development for E-Learning: Adoption, Implementation and Improvement

Professional development for e-learning: A framework for the New Zealand tertiary education sector

Table of Contents

PART C MASSEY LITERATURE REVIEW: PROFESSIONAL DEVELOPMENT FOR E-LEARNING: ADOPTION, IMPLEMENTATION AND IMPROVEMENT	2
1. FOCUS OF THIS LITERATURE REVIEW	2
2. DEFINING PROFESSIONAL DEVELOPMENT AND E-LEARNING	2
3. PROFESSIONAL DEVELOPMENT AND E-LEARNING IN THE NEW ZEALAND CONTEXT.....	4
4. EVALUATIONS OF CAPABILITY AND BENCHMARKS FOR PROFESSIONAL DEVELOPMENT IN TEOS.....	7
5. FACTORS INFLUENCING UPTAKE AND ENABLING OF PROFESSIONAL DEVELOPMENT FOR E-LEARNING AT INSTITUTIONAL LEVEL	11
6. FACTORS INFLUENCING PROFESSIONAL DEVELOPMENT FOR INDIVIDUALS	17
7. PROFESSIONAL DEVELOPMENT PROGRAMMES AND OPPORTUNITIES.....	20
8. SUMMARY COMMENTS	26
REFERENCES:.....	30

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1. Focus of this literature review

This literature review examines the factors which are likely to influence the professional development of individuals located in tertiary institutions. This includes an examination of capability and skills, beliefs and experiences, embedding processes in institutional contexts, and key influences on professional development outcomes. The review examines structural dimensions of professional development (such as institutional mechanisms and strategies) but also social dimensions (including the impact of institutional cultures and individual beliefs). Though this review reflects briefly on the wider New Zealand context for professional development in tertiary organisations, it primarily discusses factors likely to be significant with regard to the professional development of teachers. The broader political economic context for professional development (PD) in New Zealand, and how this is situated with regard to international changes and structures is discussed more fully in the Otago Literature Review, which forms Part B of this report.

2. Defining professional development and e-learning

While numerous definitions of e-learning exist, the definition of e-learning from the *Ministry of Education Interim Tertiary e-Learning Framework* (2004, pg 1) is used in this research, providing consistency and clarity for both survey and interview participants:

learning that is enabled or supported by the use of digital tools and content. It typically involves some form of interactivity, which may include online interaction between the learner and their teacher or peers. E-learning opportunities are usually accessed via the internet, though other technologies such as CD-ROM are also used in e-learning.

Most definitions of professional development tend to revolve around the enhancement of skills, knowledge and an increase in the ability to practices one's job with the application of, or involvement in learning and training in order to achieve this:

- Increase of knowledge or skill through study, travel, research, workshops or courses, sabbaticals, internships, apprenticeships, residencies or work with a mentor or master. See mentor or master.

www.canadacouncil.ca/help/lj127228791697343750.htm

- a process of learning and keeping up-to-date in one's area of expertise. www.sociologycommission.org/docs/GLOSSARY.htm
- formal or informal training to enhance skills, knowledge, and ability to practise. www.apegm.mb.ca/register/geninfo/defs.html
- A personally initiated obligation and right to build discipline expertise, to enhance personal growth, to improve teaching abilities and to contribute to organisational development. www.iib.qld.gov.au/itcareers/talk.asp
- Professional development refers to vocational training. en.wikipedia.org/wiki/Professional_development

For the purposes of this research **professional development** is defined as:

Engagement in formal or informal training and/or learning in order to enhance skills, knowledge, and ability to practise (one's occupation).

Formal professional development is defined as:

Programmes or courses that either have an assessment or attendance requirement in order to obtain credit.

The obtaining of credit is broadly interpreted here as relating to the recognition of the professional development within a particular institutional context. This may occur through recording attendance or involvement, crediting participation to a learning programme or qualification, or through forms of assessment. Engagement in formal professional development can be an expectation of the institution, but also of the discipline or profession in which staff are positioned. Hegarty *et al.* (2005a) states this type of development is usually formally recognised, part of an individual's workload, and may or may not be remunerated and driven by institutional actors such as staff developers and Heads of Schools. Examples include attendance at training courses, study toward a formal qualification and formal mentoring arrangements.

Informal professional development includes:

All activities that undertaken to increase your knowledge and skills in a particular area but which are not formally acknowledged.

Examples include discussions with colleagues, reading articles, practising skills, searching on the internet etc. This type of professional development is not formally recognised, may not be an acknowledged part of staff workload, is not paid and may or may not be driven by Head of School/Department, Dean or Staff Developers (Hegarty *et al.*, 2005a). It can also be seen as "unorganized, unsystematic and even unintentional at times, yet it accounts for the great bulk of any person's total lifetime learning – including that of even a highly 'schooled' person" (Bhola, 1983, p. 24).

While recognising that in some Tertiary Education Organisations (TEOs) there may be clear obligations to undertake professional development, this research acknowledges that

professional development is a reflexive construct, understood and interpreted differently by people and groups in institutional settings, and engaged in for many reasons with potentially varied outcomes in terms of learning and employee practice.

3. Professional development and e-learning in the New Zealand Context.

Since the early 2000s New Zealand's e-learning capabilities have been the subject of considerable discussion. The E-learning Advisory Group (ELAG) for New Zealand was established in 2001 to inform strategic and investment decision making and to explore issues related to the development of e-learning in the tertiary education sector. Part of ELAG's remit is integrating learning and teaching involving Information and Communication Technologies (ICT) across the education sector. In 2003 the Tertiary Education Commission (TEC) established an e-learning Collaborative Development fund (eCDF) to enhance the ability of the tertiary education to use e-learning to improve the quality of education and to give learners improved access to education (Milne and Suddaby, 2005). Through this fund, a number of projects and initiatives have been directed towards documenting, exploring and envisioning e-learning in terms of current practice and future possibilities. The e-Learning Collaborative Development Fund and the funding provided by the Ministry of Education produced some substantive studies into the adoption, development and delivery of e-learning in TEOs.

A 2002 discussion document from the E-learning Advisory Group for New Zealand *Highways and Pathways: Exploring New Zealand's e-learning opportunities* (Butterfield *et al.*, 2002) provided a vision for e-learning in New Zealand. It recommended the establishment of the e-learning collaborative development fund (the eCDF) and the launch of two electronic portals for tertiary education in New Zealand. The importance of sound pedagogical foundations were highlighted as were funding and infrastructural requirements to ensure good access and quality learning opportunities. The report argued it was imperative that professional development was given priority in the tertiary sector with a need for investment in the development of human resource capability. Professional development was identified as a priority so that teachers could support and encourage their students' learning effectively.

The *Tertiary Education Strategy (2007-2012)* (Ministry of Education, 2006) describes the structure and focus of the tertiary education system, and focuses on goals and aspirations for teaching and learning. It recognises the broader political, economic and social contexts in which teaching and learning are created and suggests factors which should be addressed in order to achieve quality in provision and delivery of education, effective learning and teaching, and engagement of stakeholders. With regard to professional development it states that TEOs should have in place systems and structures that ensure educators "continually update their knowledge of their subject and of effective learning"

and that they “foster professional learning communities, and offer the resources and support needed for teaching and learning” (Ministry of Education, 2006, p18).

The *Interim Tertiary e-learning Framework* (Ministry of Education, 2004) sets out a vision for “a networked, flexible education system offering accessible, relevant, high quality learning opportunities for all New Zealanders” (pg 15). Produced in discussion with New Zealand tertiary organisations it outlines five guiding principles: learner-centredness, good practice, collaboration, innovation and sustainability/affordability. These principles are intended to underpin improvements in capability in learning and teaching, research and administration and support, and are to be implemented in partnership with key stakeholders and in alignment with the New Zealand Government’s Tertiary Education Strategy. The *Interim Tertiary e-learning Framework* also identified seven action areas essential to the development of sector capability designed to provide direction for the development of e-learning across the New Zealand tertiary system. Of the seven action areas one was devoted to professional development for staff in tertiary institutions. It suggests that supporting tertiary organisations and their staff could include centralised staff development resources, incentive schemes for staff achievement and the development of postgraduate teaching qualifications specific to e-learning. The other areas: the development of communities of practice, research, adoption of standards for the design and technical aspects of e-learning developments, legal and policy issues related to electronic rights management, qualifications and credentialing of flexible learning pathways and addressing the needs of marginalised learners to varying extents also have the potential to influence the form, delivery and outcomes of professional development in Tertiary Education Organisations (TEOs).

The New Zealand e-learning guidelines, *Guidelines for the Support of E-learning in New Zealand Tertiary Institutions* (Milne and Dimmock, 2005; <http://elg.massey.ac.nz>) drew on the five guiding principles of the Interim e-learning Framework as well as international literature to provide a series of questions related to audience (teaching staff, managers and students) and teaching activity (learning design, teaching relationships and support) to encourage reflective practice and quality in e-learning in TEOs. A number of these questions related to the need for professional development, including the opportunity for staff involvement in collaborative network and learning communities, the provision of subject and instructional design expertise, ICT support including the need for staff development and institutional factors such as teaching quality expectations and recognition, assessment and evaluation systems, monitoring and review of staff development processes and outcomes.

The e-learning guidelines also provide a framework for the identification of appropriate questions in relation to institutional and managerial commitment to professional development, and the mechanisms by which this might be supported (sections 2.1, 2.2, 2.3) and the monitoring of the effectiveness of staff development outcomes (M014). The following guidelines address staff development issues:

Teaching staff/Other support/Learner centred

- TO1 – Are staff development programmes for e-learning developed in consultation with teaching staff, in order to identify and meet staff needs? (p17)
- TO2 – Are staff provided with opportunities to learn online so they experience e-learning from a student's perspective? (p17)

Teaching staff/Other support/Good practice

- TO8 – Is subject and instructional design expertise available to staff to develop and support quality e-learning courses? (p17)

Teaching staff/Other support/Collaboration

- TO9 – Are staff encouraged to participate in networks and learning communities involved in reviewing, developing or sharing good practice in the use of e-learning? (p17)
- T10 – Is good e-learning practice available to staff in a way they can adopt and adapt in their own work? (p17)

Managers/Learning Design/Good practice

- MD2 – What guidance is available to staff for the design of student assessment? (p19)

Managers/Learning Design/Innovation

- MD6 – Does the institution fund and support champions in their work and to what extent does the work of champions inform the work of their colleagues? (p19)

Managers/Other support/Innovation

- MO14– Does the institution monitor staff development outcomes to ensure effectiveness? (p22)

4. Evaluations of capability and benchmarks for professional development in TEOS

While government practice and policy influence the direction and focus of e-learning in Tertiary education organisations, there are many factors connected with institutional structures and cultures which impact on e-learning and professional development capabilities.

Marshall's (2005) research on e-learning capability provided a model against which institutions' capability for e-learning in five categories (learning, development, co-ordination, evaluation, and organisation) could be assessed, and used as a basis for continuous improvement. His study of six universities and three polytechnics revealed that though there was variation between individual institutions, for the most part e-learning capabilities were found to be at a relatively low level. Marshall's survey of e-learning maturity across New Zealand tertiary institutions demonstrated that teaching staff capability 'was easily the worst for the sector of any process assessed' (2005, p96) with staff development in relation to e-learning being largely informal and ad hoc. The indicators of capability most relevant to capability in professional development are:

Development Capabilities

- D4 – Technical assistance in course development is available to teaching staff.*
- D5 – Teaching staff are encouraged to use technical assistance when (re)developing courses.*
- D6 – Teaching staff members are assisted in the transition from classroom teaching to online instruction.*

Co-ordination Capabilities

- C10 – Instructor training and assistance continues through the progression of the online course.*
- C11 – Teaching staff are provided with support resources to deal with issues arising from student use of electronically-accessed data.*

Evaluation Capabilities

- E7 – Teaching staff capability in making the transition from classroom to online teaching is formally assessed during training.*

With regard to development capabilities at the time of reporting, most institutions seemed to be providing, or planning to provide technical support for teachers putting their courses online as well as some support for their own development as teachers – with pedagogical support coming from dedicated units within each institution. Marshall's data indicates that pedagogical support to assist staff members in the transition from classroom teaching to online instruction is more widely available than technical support in the tertiary sector. Institutions with a formal design and development process have done better in considering the pedagogical issues arising from e-learning. Marshall suggests that the

C7

Professional development for e-learning: A framework for the New Zealand tertiary education sector

sector would benefit from evidence-based examples of how technology has positively influenced pedagogical approaches and how different pedagogical approaches result in more effective use of existing technologies.

The e-learning maturity model development by Marshall (2005) identified the importance of planned intentionality in relation to e-learning and reinforcing the need for an institution-wide approach, involving availability of support as well as assessment and recognition of developing skills in e-learning. Those TEOs that had some kind of centralised policy and planning seemed to fare better than those that did not. One polytechnic for example used a check list for quality assurance processes which could be applied by teachers and then checked centrally to determine whether course had used e-learning technology and pedagogy effectively. Identifying differences in expectations of baseline skills and implementation requirements between those engaged in administering and/or delivering professional development programmes and those engaged in e-teaching was also demonstrated to be important for improvement in professional capability, and is also necessary for successfully embedding e-learning PD in institutions (Marshall, 2005).

Coordination was another area with potential impacts for e-learning professional development. Teaching staff on e-learning projects are usually supported with different levels of formality, with organisations varying with regard to the extent that skills and responsibility for e-learning were given to teaching staff. Again, Marshall argues that tertiary education organisations would benefit from evidence-based examples of how technology has positively influenced pedagogical approaches and how different pedagogical approaches result in more effective use of existing technologies. Capability with regard to whether teaching staff were provided with the support and resources necessary to deal with issues arising from student use of electronically-accessed data also varied. Evidence for this capability was seen in the form of provision of support during development of courses through both documentation and staff training and in support for students through libraries and other information management resources. Professional development related to this appeared to be limited.

As well as highlighting the desirability of appropriate pedagogical and technological assistance for teaching staff embarking on e-learning, Marshall revealed there was little or no evidence of any evaluation of teachers' capabilities with regard to skills obtained in making the transition from classroom to online teaching. He highlighted the need for assessments of staff capability to inform strategies and programmes for continuing staff development.

The Australasian Council on Open, Distance and E-learning (ACODE) produced a capability document *Benchmarks for the use of technology in learning and teaching in universities* (2006) to allow universities to self-assess their provision of technology-based learning and teaching with a view to supporting quality improvement. Benchmarks cover eight topic areas and performance indicators for each one are measured on a five-point scale (where level 5 indicates good practice).

The eight benchmarks are:

- 1) Institution policy and governance for technology supported learning and teaching
- 2) Planning for, and quality improvement of the integration of technologies for learning and teaching
- 3) Information technology infrastructure to support learning and teaching
- 4) Pedagogical application of information and communication technology
- 5) Staff support for the use of technologies for learning and teaching
- 6) Student training for the use of technologies for the effective use of technologies for learning
- 7) Student support for the use of technologies for learning.

Benchmark 5 involves professional/staff development for the effective use of technologies for learning and teaching and is one of the eight key benchmarks that provides a good practice statement and performance indicators for teaching staff to make effective use of technologies for learning and teaching. The performance indicators for this benchmark indicate areas likely to have a significant impact on continuous improvement professional capability:

- Clearly communicated strategies, policies and practices
- Identification of staff development needs (at the individual and strategic development level)
- Availability of educational and technological support to meet identified needs
- Coordination of staff development across an institution
- Resourcing for staff development
- Flexible and focused delivery of staff development to meet individual needs
- Continuous improvement through evaluation.

As with Marshall's maturity model, the other areas of capability identified are likely to both directly and indirectly influence the nature, form, practice and evaluation of professional development for e-learning.

The ALET Project (Hegarty *et al.*, 2005a, 2005b) funded by the Tertiary e-Learning Research Fund investigated staff development models in six tertiary institutions and prepared case studies of existing practice and capability. Hegarty *et al.* (2005a) found that there was a high degree of similarity of staff development offered across the sector. Different models of training and staff development strategies were reviewed with no one model found to be most effective although utilising a number of different strategies was generally supported. The benefits associated with using situated, project based or context oriented approaches were emphasised.

Staff development models for e-learning in the tertiary providers studied by the ALET team were either formal or informal. Formal methods included (in order of prevalence) technical training for using Learning Management Systems, general computing instruction and online teaching. The preferred methods were face-to-face, online and one-to-one training but some participants in the research had worked with a mentor. Formal learning was either undertaken as part of a graduate certificate or similar, or as part of

formal staff development within the institution. The researchers also found that the beliefs people have in their own abilities to perform in particular areas (self-efficacy) did not appear to be linked to formal staff development models but was more likely to be influenced by informal approaches to developing capability. Staff with a high degree of self-efficacy in e-learning tend to engage in a number of informal staff development activities (Hegarty et al. 2005a). Other factors influencing e-learning capability were the range of staff development avenues available to staff, situated learning opportunities, formal and informal learning strategies, resources and planning for staff development, and the fostering of self-efficacy through previous e-learning/teaching experience (see Hegarty *et al.* 2005a, <http://cms.steo.govt.nz/NR/rdonlyres/8C221A73-CF28-4CC9-83E8-B8FD7D9C1164/0/ALETfinalReport251006.pdf> for a detailed exposition of factors influencing self-efficacy). The ALET project noted there were considerable differences in motivation and training needs between early and late adopters of e-learning. Hegarty *et al.* (2005a) also stressed that existing formal staff development models in the six institutions sampled were not adequate to assist staff to fully develop their capability and potential for e-learning. Rather they were providing a beginning competency for e-learning. Barriers to building capability included a lack of shared vision and strategic planning, organisational resistance to change and a lack of familiarity with appropriate e-learning pedagogical opportunities for individual staff members.

The report recommended staff development should be specifically designed to meet an institution's needs and situated in the programmes and teaching methods used by staff. Flexible delivery of a range of strategies and opportunities for PD and utilising flexible delivery methods was likely to encourage greater involvement by staff. Hegarty *et al.* (2005a) suggested a project team approach comprising staff, support personnel and mentors and professional development that covers training and scholarly activity would be helpful as it would incorporate both pedagogical and technical aspects of e-learning and promote the development of communities of practice. The research also points to the role of institutional factors in influencing professional development of staff and building capability in e-learning, suggesting organisations should provide funding, time release and promotion for staff who engage in team projects, mentoring and community of practice approaches to staff development.

The report from the E-Learning Collaborative Development Fund (eCDF) (2006) 'Train the Trainers' project provides information on the e-learning capabilities of staff developers at 13 universities and polytechnics in New Zealand. The report highlighted the inequity in PD infrastructure across the tertiary sector and though it found the e-learning PD online was deemed to be the way forward by training staff, a number of institutions did not have a staff development infrastructure to take advantage of the project's outcomes. Such was the shortage of staff developers that the project's original format had to be modified to account for the number of staff involved that were not staff developers, or had little or no experience with e-learning either in teaching or student capacities.

5. Factors influencing uptake and enabling of professional development for e-learning at institutional level

Rapidly changing ICT, and new modes and mechanisms of e-learning present challenges for institutions wishing to engage with these, however the form and extent of institutional change required in order to support engagement with e-learning is uncertain:

“To date, many universities are using open, distance, and on-line learning to do what they were always doing, albeit more expansively and efficiently rather than fundamentally reforming their structures operations and curriculum and delivery processes” (Hanna and Latchuem, 2002, pg 122).

Hanna and Latchuem (2002) suggest institutional transformation rather than adaptation may be required to fully engage with e-learning and that the transition to e-learning may require systematically changing the nature, orientation and focus of the organisation. With regard to professional development, this implies an organisation should be open to and willing to engage with different ways of working and thinking if it wishes to engage extensively with e-learning. It implies a TEO should examine the structures and mechanisms underpinning the delivery of professional development, opportunities provided for staff to engage in professional development and the way this is supported, recognised and valued. This involves giving attention to numerous areas and factors which research has indicated may significantly impact the implementation professional development programmes and their outcomes.

PD programmes are informed by, and should take account of and capitalise on wider political and economic contexts in which they located (Duin and Starke-Meyerring, 2003). Though created by institutions, policy and strategy related e-learning and professional development will be informed by broader political, cultural technological and economic change. Changes in these areas will impact on the scope and direction of the tertiary sector and educational policy, the nature of student and employer demand, staff and student learning and capability, forms of information technology and e-learning, and the emphasis on teaching and research in tertiary organisations. It is essential that tertiary institutions develop long-term policies and strategies that take account of contextual factors particularly in relation to changes in technology and attendant pedagogy (Mitchell *et al.*, 2005).

A strategy, or at least a strategic vision, is often regarded as critical in determining the success of innovations such as e-learning (Guri-Rosenblit 2005; Ismail 2002; Blass and Davis 2003; Greenagel 2002; de Freitas and Oliver 2005; Bates 1999). The dynamic nature of technology creates challenges for producing e-learning strategies which allow for change over time. Consequently institutional change in relation to ICT is often gradual and unsystematic (Collis & van de Wende 2002). Organisational barriers inhibiting the accelerated adoption of technology include inadequate infrastructure access, support and training, as well as staff not being taught how to apply the technology to their teaching (Newton, 2001). The impact of technology on education may be restricted merely to the periphery with teaching practices remaining largely unchanged (Zemsky and Massy, 2004). It is unsurprising then, that technology is often regarded as a

C11

Professional development for e-learning: A framework for the New Zealand tertiary education sector

solution without a problem. Romiszowski (2004) provides a partial explanation for the uncertainty surrounding the potential impact of technology. He argues that for many theorists and institutions the emphasis is too much on the 'e' rather than on the learning, or even the 'need'.

McGraw (2001) in an attempt to move away from what Romiszowski would classify as an 'e' dominated approach, highlights the importance of infrastructure in the planning and implementation of e-learning initiatives. McGraw argues that critical to the success of e-learning initiatives are infrastructure elements such as an organisation's overall business strategy and learning strategies. Whilst McGraw's writing centres on a business-case approach, which it could be argued is better suited to a corporate environment, the concept of planning and seeking answers to key questions such as how the organisation will integrate and manage e-learning, is sound regardless of whether it is a corporate organisation or a tertiary institute.

Unfortunately, e-learning strategies in the tertiary sector are often overlooked or ill-conceived. Greenagel (2002) believes one of the reasons for the flawed strategic approach to e-learning comes from not understanding the role that technology can play in education. He emphasises this point by noting that an institution's "available platform often drives the instructional strategy, which may not be appropriate to the learning style of trainees or to the learning objectives" (p 5). Even with careful consideration of elements such as institutional objectives and infrastructure in the creation of e-learning strategies there needs to be equal consideration to what Beckett and Brine (2002) describe as the time intensive yet hidden nature of e-learning. Alexander and McKenzie (1998), in characterising educationally-effective educational technology projects, highlight that the e-learning success of these projects depends on a number of factors, not least of which is that it must be embedded into the department's normal teaching, and that there should be access to technology and educational support structures. Yet the 'cost' of such integration has rarely been quantified or factored into staff workload calculations. Doughty, Spector and Yonai (2003) in their two year study of time spent on tasks associated with e-learning identified the time intensive nature of fully online courses. They found that students spent only slightly longer studying in such courses, with teaching and support staff spending about twice as many hours teaching online versions of courses as they did when teaching regular campus versions of the same course (Romiszowski, 2004).

Consequently a comprehensive institutional approach and commitment to e-learning as part of learning and teaching is necessary to improve e-learning capabilities in TEO. This should involve the integration of pedagogical and technical support, an institutional commitment to staff development (Milne and White, 2005) and financial commitment to resourcing infrastructure and staff (Mitchell *et al.*, 2005). Achieving an institutional approach may be difficult if there are competing agendas of politicians, managers, administrators, teachers, support staff, student and trainers. Resources and effort is also required to configure people, objects, machines, texts and money (Hannon, 2008, p 16-17).

Campbell (2001) in focussing on the context of New Zealand schools and the use of ICT argues for e-learning strategies which sustain change and build a learning culture, encouraging leadership, support and a 'nurturing' business model. Institutional leadership is one factor influencing the uptake of professional development for e-learning. Hegarty *et al.* (2005b) suggest the uptake of e-learning by academics requires a multifaceted strategy which could include such things as the:

- Development of a vision which takes into account the needs of teachers and students and which does not rely purely on the work of early adopters;
- Financial resources and strong leadership to enable that vision which is distributed across the organisation to create and maintain momentum;
- Strong strategic investment and planning.

Factors that Hegarty *et al.* (2005b) identify as being associated with the success of introducing and using e-learning methods in educational institutions are likely to be relevant to PD outcomes too. These factors include institutional culture, effective leadership and strategic vision, staff support and buy-in, staff development, curriculum change and financial support. They suggest there may be insufficient financial support available for professional development for e-learning in New Zealand TEOs, particularly as much professional development appears to be informal in nature. According to an American review of the literature the majority of professional development is also engaged in on a voluntary basis, thus it is important for e-learning and policy to acknowledge that the needs, motivations and 'buy-in' of non-volunteers may be substantively different to those who are keen to participate in e-learning PD (Lawless and Pellegrino, 2007). In addition some staff may not choose to engage regardless of incentive.

In their *Guidelines for the support of E-learning in New Zealand tertiary institutions* for e-learning, Milne and Dimock (2005) also note the importance of linking strategic planning to practice and suggest certain features of good institutional practice in relation to staff development for e-learning. These include:

- Development of staff development in consultation with teaching staff
- Availability of online learning experience for staff
- Support available to assist in development of online courses
- Encouragement to participate in networks or learning communities
- Availability of examples of good practice for adoption or adaptation
- Guidance for designing appropriate online assessment
- Funding and support for champions who can inform the work of others
- Monitoring of staff development outcomes to ensure effectiveness.

Institutional goals may not just be aligned to securing changes in skills, teaching practice or outcome but also to altering attitudes, confidence and understanding (Lawless and Pellegrino, 2007).

Policy and strategy in relation to e-learning and professional development should be informed by ongoing evaluations of competency and capability (Aragon and Johnson,

2002, Marshall, 2005). This is particularly important given the diverse range of TEOs, their staff, learners and rapidly changing technologies. Marshall's (2005) evaluation of TEOs capabilities gave a comprehensive list of relevant factors for institutions to consider. It is also important to think about staff competencies when developing policies. Competencies are knowledge or skill areas that are essential for producing key outputs whether these be technical, related to teaching and learner outcomes, or about networking and interpersonal skills (Aragon and Johnson, 2002, p. 430). Competencies are likely to be different for staff, managers, and those involved in PD and e-learning training and support, and these will be oriented toward different tasks. For example staff competencies may range from a requirement to use a Learning Management System, to facilitating student learning, or producing specific learning outcomes for cohorts of students. Managers' competencies might relate to setting agendas and priorities of e-learning PD, developing procedural rules, providing staff encouragement and support. Having assessed initial capabilities and competencies, it is important to connect these to institutional visions for e-learning (and PD) and to develop strategies around how these capabilities and competencies might be enhanced across and through institutional levels and networks, and to consider what this means for professional development conceptualisation and practice.

Changing policies, strategies and structures do not necessarily immediately change the cultures of institutions or the motivations and beliefs of individuals. Staff may resist change and conceptions of and assumptions around e-learning can be powerful inhibitors or initiators of involvement in e-learning professional development. For example, in research active universities, incentives that emphasise the scholarly aspects of engaging in e-learning are more likely to be effective than external rewards (Shannon and Doube, 2004, cited in Hegarty *et al.* 2005b). Even where institutional policy is stated, there may be considerable differences in staff interpretations and application (Hannon, 2008).

Consequently, institutional philosophy, politics, learning culture and social support within the organisation are all likely to be factors influencing uptake and implementation of PD for e-learning (Wang and Wang, 2004, Cheong, Wettasinghe *et al.* 2006). Staff need to be informed and be given accurate expectations of how their teaching roles might change (Kidney, 2004). They also need to be continually exposed to research demonstrating the pedagogical contribution of e-learning environments and technologies in e-learning environments across a range of disciplines (Mitchell *et al.*, 2005). Demonstrating the practical usefulness of the professional development offered and the usefulness of PD for supporting students' learning may assist in encouraging uptake (Kanaya, Light and Culp, 2005).

Leadership and involvement in e-learning appears to be more than simply creating informed, policy supported by appropriate mechanisms and structures. It is about developing an institutional vision which is shared by its members (Butterfield *et al.* 2002). Effective leadership with positive outcomes for students also involves leadership of others, establishing priorities, reducing competing demands, engaging reluctant participants, ensuring focused and productive opportunities to learn, engaging expertise

where needed, promoting participation in professional communities and a challenging learning culture (Timperley *et al.*, 2007). Cheong *et al.* (2006) proposed a four step professional development implementation framework for institutions which brings together the views of institutional stakeholders to evaluate and share outcomes:

- 1) Design and development - in which stakeholders are identified and needs analyses undertaken
- 2) Implementation – in which programmes are established and formative evaluation undertaken;
- 3) Impact evaluation – where any outcomes are identified and measured and improvement planned; and
- 4) Sharing learning – in which outcomes are documented and disseminated

As the concept of institutional ‘stakeholders suggests’ - the implementation of any framework should involve staff in a variety of capacities, embracing e-learning professional development across organisational structures and offering a diversity of professional development activities. Ham’s (2005) study of New Zealand schools’ ICT professional development clusters, found the active involvement of school principals and middle management was essential for professional development to have an effect. The study also discovered that the facilitators’ expertise as professional developers of other staff was more influential in encouraging staff to engage in e-learning, than the facilitators’ role as technical experts or even exemplary teachers. This demonstrates that professional development is not simply an instrumental undertaking, but is actually influenced by and produced in accordance with staff members’ self efficacy, desires, personal beliefs and goals, which are turned influenced by situational and disciplinary context.

Tomlinson (2001) notes the need for managers to understand the role of ICT for improving teaching and learning, in identifying good practices and for improving effectiveness. Research with university managers at the Australian Douglas Mawson Institute (Simpson, 2001) found that some managers were not keen to participate in online courses and were not confident in taking part in team-based professional development activity. Reasons for their trepidation included: inexperience or lack of confidence in using computers; concerns about the relevance, desirability or accessibility of online courses to all types of learners; apprehension about the loss of face-to-face learning and the threat posed by computer-based learning to human interaction, as well as the cost-effectiveness of changing to online learning and a pre-occupation with other priorities. Conceptions of e-learning, a lack of belief and commitment by managers in the merits of e-learning as part of teaching and learning, and of the merits of professional development related to e-learning, are therefore likely to influence both engagement by staff in PD and also e-learning capability. Awareness of available opportunities for PD and of the potential and possibilities of e-learning may also facilitate engagement. Leicester University for example has created a campus ‘zoo’ to help staff understand and use more technology in their teaching. The zoo included exhibits of safe and familiar technologies as well as species ‘new to captivity’ in or to allow staff “to explore the relationship

between technological creatures and the online educational world” (Times Higher education Supplement, 2007, p13).

Managers of teaching staff may also have a role in implementing and developing practices and strategies related to e-learning, including incentives, performance appraisal and allocation of time and funding. Berridge *et al.* (2007) argues that engaging in professional development should be linked to support, encouragement and incentive structures, not only in order to involve staff but also to assist in evaluating capabilities and determining future needs. Managers’ role in recognising the costs of engagement in e-learning professional development incurred by the staff member (rather than just the institution) are also suggested as a significant factor in promoting involvement in professional development for e-learning (CEDEFOP 2001).

Institutional incentives for staff to engage in e-learning may also be necessary and may include time-release or financial allocations to staff, new hardware and software, disciplinary based resource internet sites and involvement in e-learning seminars and online activities run by experts (Ellis and Phelps, 2006). Maor and Volet (2007) highlighted the importance of institutions’ recognising professional study as an integral part of work. A lack of recognition of work within departments has been found to inhibit continuing professional development (Whitelaw, Sears and Campbell, 2004). Workload recognition also implies recognition that time may be used differently, as learning about and applying e-learning technologies may require intense and concentrated time plus additional time spent in experimentation, processing and evaluation (Maor & Volet, 2007).

Given the complexities of introducing and adequately supporting e-learning within institutions it is no surprise that there are implications for effective e-learning PD. Of particular concern is the need to not only train staff that often lack the technology skills and experience required to engage meaningfully in online endeavours, but also to ensure that these same staff have strong pedagogical foundations from which they can launch and support online courses. Yet, all too often the latter suffers in what Donnelly and O’Rourke (2007) term the technological-pedagogical division of e-learning whereby “academic staff tend initially to regard an introduction to e-learning as a course in ICTs rather than an effort to change or improve their teaching abilities” (p.33). Govindasamy (2001) also highlights this dichotomy, arguing that pedagogy is the most neglected aspect of attempts to implement e-learning. A partial solution to this issue can be found in what Segrave, Holt and Farmer (2005) term a strategic, systems-based approach to e-learning PD. They argue that this approach takes into account issues such as the changing role of the academic and the role and the best use of technology (including its accompanying PD) within institutes.

6. Factors influencing professional development for individuals

The previous discussion has highlighted that changes in institutional structures alone will not be sufficient to bring about the engagement of individuals. Institutions should address staff motivations, requirements for continued engagement, the resources necessary to sustain this (Rosenberg, 2007). For individuals, a multitude of factors are likely to influence whether teachers adopt e-learning, whether they engage in professional development and what forms this might take. These factors may include such things as personal aspirations, learning styles and preferences, views about professionalism and peer and student pressure (Rosenberg, 2007). Factors found to influence the uptake of e-learning may also inhibit or facilitate teachers' decisions to engage in professional development related to e-learning. Conceptions of and about e-learning (explored more fully by the Otago team in Part D of this report) as a result are likely to influence whether and how staff engage in professional development.

Attitudes toward e-learning have been found to be significant in assessments of individual capability (Wang and Wang, 2004). For example Kanaya, Light and Culp's, (2005) survey of teachers, found that as perceived pedagogical usefulness of e-technology increased, the probability of using new software also increased, noting that "A perception of relevance is important to support the integration of new tools into current practice." (p324). Relevance may be conceptualised in different ways. Hegarty (2005b) talk about the need for academic staff development to be context oriented and tailored towards staff needs. Garet *et al.* (2001) discuss the issue of relevance in terms of coherence and the importance of sharing development with other teachers from common backgrounds or disciplines.

In Timperley's *et al.* (2007) iterative synthesis of the literature on professional development of teachers in schools reiterates the importance of recognising the theories and beliefs staff bring to the teaching process in providing opportunities for PD. They state that for teachers to access the content of professional development and engage in new practice, they needed to share the beliefs, understandings, values and goals of the professional development providers. This process may take some time and often requires opportunities for staff to revisit or refine the PD messages they have been hearing (Timperley, 2007). Attack and Rankin (2002) point to the importance of experience and expectations as significant factors in professional development outcomes. Their study of nurses participating in a web-based postgraduate course found that inadequate preparation for web learning, lack of computer competency, and erroneous perceptions of course workload meant many never embarked on the course or withdrew. Yet conceptions of e-learning and PD may change over time. More research is needed into how teachers' attitudes about PD change with experience in e-learning, training and with growing expertise. It is also useful to understand how attitudes and actions change as a result of particular PD interventions (Torff, Sessions and Byrnes, 2005).

Staffs' sense of self-efficacy or confidence in learning coupled with outcomes of using e-learning tools as well as appropriate teaching methods are important for both initial and continued involvement in professional development (Ham, 2005). However, it is important that educators also have the requisite computer skills and appropriate beliefs about the technology that they use, as this helps to build self-efficacy (Hegarty *et al.*, 2005b; Kanaya, Light and Culp, 2005). Motivation is another determinant in the interest and rate of participation in learning programmes (Wang and Wang, 2004, Simpson, 2001). A belief in the perceived benefits of e-learning can consequently increase both participation and completion of learning programs (Ham, 2005).

Related to self-efficacy is the extent to which individuals may possess fear or anxiety around e-learning PD. This can involve factors ranging from apprehension around incompetence with technologies, social roles (such as a fear of incompetence in the student-teaching relationships), time and workload commitment as well as issues connected to forms of professional development on offer (such as self directed or collaborative learning) or not even knowing where to start (Boyer *et al.*, 2006, Campbell, 2001). Fears may be based on both perception (based on assumptions of e-learning and/or PD) and experience (for example having tried unsuccessfully to implement e-learning technology) which may change over time with experiences of engagement. Support and encouragement may also assist in overcoming such fears. Campbell (2001) focussing on the context of New Zealand schools and their use of ICT reinforced the need not only to have appropriate learning and teaching tools but to construct communities who understand how they can be used. Campbell argues sustainable e-learning growth and development is reliant on the capabilities of e-teachers to see the promise offered by the online opportunities and to understand the landscape of the new environment, thereby indicating a role for professional development activity.

A diversity of attitude, conceptions and motivations of staff suggests singular approaches or models of professional development may be inappropriate. There may also be significant differences between early and late adopters of e-learning, implying different types of professional development and support are required (Hegarty *et al.*, 2005, Wilson and Stacey, 2004, Weaver, 2006). Early adopters can be more motivated and be stimulated by solving problems in relation to e-learning. Late adopters tended to be more sceptical and less motivated. Wilson and Stacey (2004) suggest that individualised staff development should be replaced by institution-wide approaches when trying to motivate late adopters. Late adopters for example may need to be convinced of the benefits of e-learning and may require additional support in learning to use technologies. For non or hesitant users of e-learning technologies different strategies for encouraging professional development may be needed including; demonstrating the benefits of innovations, peer support and competency frameworks as well as input which draws on the expertise of early adopters (Wilson and Stacey, 2004). Staff will also vary greatly in the extent and nature of their use of e-learning technology. It is also not necessarily the case that those who have high levels of technological competency might be the only ones capable of being involved in developing and improving e-learning delivery and outcomes (Ellis and Phelps, 2000).

For those undertaking web-based PD technological challenges (including reliable internet access) can create barriers to the learning experience. Technical problems in learning are often a source of frustration and disillusionment (Maor and Volet, 2007). Hegarty *et al.* (2005) identified a strong association between computing self-efficacy and computer use and suggest better awareness of computing skills coupled with an understanding of beliefs and effective responses in relation to technology could be a suitable basis from which to make improvements in self-efficacy.

Gender, ethnicity and cultural factors may also be relevant. Hond (2001) for example, identifies a number of factors related specifically to Maori participation in e-learning, which may also influence the extent to which individuals and groups participate in forms of professional development. These factors include: a fear of technology and reluctance to see any relevance between new digital technologies and e-learning, a lack of Maori providers and expertise in delivering quality programmes, pressure on Maori providers reducing the ability to develop e-learning programmes, lack of Maori digital material and incentives for community participation, and varying quality of and access to e-learning technologies.

Numerous studies have identified time pressures as an inhibitor to engaging in continuing professional development (CEDEFOP, 2001; Simpson, 2001, Hegarty *et al.*, 2005b; Pegler, 2005; Cheong *et al.*, 2006; Maor & Volet, 2007). Trying to make time for professional development in institutional environments may be an additional pressure to coping with the time demands of one's daily tasks (Maor and Volet, 2007). Competing demands on time can be amplified by personal responsibilities outside of work and pose an additional challenge to involvement in continuing professional development (Wang and Wang, 2004).

Learning styles may not directly influence initial decisions to participate in professional development but may play a critical role in whether a learner continues with professional development programmes (Wang and Wang, 2004). Jeffrey *et al.*'s (2005) study of the learning related orientations of students may also be relevant to those involved in the delivery of e-learning. The research not only noted different orientations toward modes of learning but also highlighted differences in a person's motivation to achieve, and whether involvement was driven by intrinsic or extrinsic motivations. From their analysis they were able to derive three key learner profiles: cognitive voyagers, strategic competitors and multimedia collaborators. They also found variance in these profiles with age, ethnicity, gender and by academic discipline.

Jeffrey *et al.*'s (2005) study commented on the role of attitudes in creating learning. They suggested students dislike online learning because of their own inexperience, an inability to cope with self-directed learning, and having a learning orientation that does not easily adjust to the use of e-learning technologies. Preferences for working alone or collaboratively, or for self-directed or programmed learning will also influence PD forms and outcomes. It is widely argued that teachers need to experience e-learning from the

student's point of view in order to gain the insight they need for their own teaching (Simpson, 2001; Kidney 2004; Massachusetts DoE, 2005); Milne and Dimock, 2005, Pegler, 2005). Boyer *et al.* (2006) argues self directed learning is not for everyone, nor is the online environment. They suggest there will always be resistance to e-learning PD with some staff never moving beyond and initial frustration or reluctance despite intensive assistance and support.

7. Professional development programmes and opportunities

Policies or strategies for e-learning should address professional development for staff. The challenge for institutions in creating PD programmes and in facilitating informal forms of professional development is to accommodate and reflect a wide range of e-learning-related skills and attitudes of faculty and managers (Mitchell *et al.*, 2005). It is also imperative that PD programmes are cognisant of contextual factors – institutional, disciplinary, and pedagogic - which may impact on content, delivery and outcome of professional development.

Timperley *et al.*'s (2007) *Teacher Professional Learning and Development Best Evidence Synthesis Iteration* reviewed a comprehensive range of studies that examine specifically the PD practices and contexts that have positive impacts on student outcomes. Though based primarily around formal professional development of school teachers (and oriented toward student rather than staff outcome based measures of effectiveness), the report has much to say about the characteristics of effective professional development, many of which may have relevance for PD in tertiary contexts, and for PD related to e-learning. With regard to formal professional development Timperley's (2007, p. xxvii suggests the following seven contextual factors have positive impacts:

1. Extended time for opportunities to learn was necessary but not sufficient
These often occurred over an extended period and involved frequent contact with a provider, though how time was used was more important than how it was provided.
2. External expertise was typically necessary but not sufficient.
3. Teacher engagement was more important than initial volunteering
Who initiated the PD opportunities and whether they were compulsory bore no particular association to student outcomes.
4. Prevailing discourses were challenged.
Learning gains were made as a result of thinking about alternatives and changing teaching approaches.
5. Opportunities to participate in a professional community of practice were more important than the place PD occurred.

Effective communities provided opportunities for new understandings to emerge, challenged beliefs and focussed on analysing the impact of teaching on student learning.

6. Consistency with wider trends in policy and research.
Approaches considered research findings, recommendations of professional bodies and/or current policy.
7. Active school leadership, whereby leaders did one or more of the following: actively organising a supportive environment to promote PD opportunities and implementing them in classrooms; focussing on developing a learning culture where learners along with researchers provided alternative visions and targets for student outcomes and monitored these; and/or creating the conditions for distributing leadership by developing the leadership of others.

A review by Lawless and Pellegrino (2007) reiterates many of Timperley *et al.*'s (2007) key points. They suggest effective PD which makes a connection to student achievement is generally longer in duration, provides access to new technologies for teaching and learning, engages teachers in meaningful and relevant activities, promotes peer collaboration and community building and has a common vision for student achievement. However, there is limited research on what constitutes effective methods of e-learning professional development with respect to teaching and learning outcomes (Lawless and Pellegrino, 2007). As much professional development appears to be informal in nature (CEDEFOP, 2001; Hegarty *et al.*, 2005b; Rothwell and Arnold, 2005) considering how contextual factors might facilitate and support informal ways of learning would seem to be appropriate, as well as assessing how these are seen to be effective other than assessments based on teacher's opinions or experiences. Evaluations of the effectiveness of e-learning are complex, with delivery, duration and content being key dimensions which might be appraised, with changes in teacher knowledge, behaviour, confidence and student learning being possible outcomes (Lawless and Pellegrino, 2007).

Where formal professional development programmes are offered, sufficient expertise and instructional support as well as communication should be made available to staff. This would also include provision for staff trainers to enhance their own technological and pedagogical skills (Maor and Volet, 2007). Mitchell *et al.*'s report of e-learning in ITPs noted the urgent need for professional development to provide staff with the skills they needed to fully utilise e-learning and to exploit the range of pedagogical possibilities e-learning can offer. The provision of opportunities for professional development should consequently involve understanding employees' needs and consider their learning styles, particularly for those employees who are unfamiliar with e-learning technologies (Schweizer, 2004).

As mentioned previously, professional development programmes should not focus solely on what e-technologies are available, or how to use them, but their relevance and application in terms of learning and teaching. A University of Houston study of a

CampusNet Online Workshop (COW) programme (Kidney, 2004) identifies a number of factors which contributed to successful professional development for teaching staff. These are:

- Ensuring that as much of the workshop as possible is linked to working with participants' own projects;
- Provision of adequate time for questions allowing staff members to explore new ideas or techniques that could be useful in their courses;
- Opportunities to practise online in order to give staff insight into online study;
- Offering advanced workshops to support those who wish to learn more about e-learning;
- Running workshops in discipline-based groups in order to cater for discipline specific requirements.

The COW programme was successful for a number of reasons. It facilitated networking by staff across the whole university, it enabled staff to showcase work and ideas, it balanced theory and practice; it provided a non-threatening atmosphere, addressed the needs of learners with different e-learning competences and allowed staff to try new e-learning tools. Simpson (2001) also identifies some critical factors that promote work-based learning. These include using an experienced facilitator, having small groups staff for discussion and maintaining motivation, making the learning relevant to staff.

The need for integration of e-learning PD into professional development strategies and for it to accommodate a diversity of learners was also a finding of the T4T4T action research project which emerged from the E-Learning Advisory Group. It comprised a web-supported professional development community project run in 2004 involving groups of tertiary teachers working within four Canterbury tertiary institutions. The project was intended to promote collaboration and cross-institution interaction and to enable participants to engage with and reflect on effective practice. Trained mentors supported and guided small groups as they developed an action-based and reflective approach to professional development online.

The project concluded with the following findings:

1. Online professional development needs to be part of an overall professional development strategy for tertiary institutions.
2. Online professional communities must cater for a range individual differences and a range of groupings within the community.
3. Strong facilitation is essential.
4. Effective mentoring is required.
5. Incentives for participants to be involved should be linked with legitimate work-related reasons for participation.
6. A flexible and adaptive online environment is essential for success. The design and core features of the environment should be in place from project inception. (http://home.core-ed.net/projects/copy_of_T4T4T)

The creation of professional development opportunities and programmes that have relevance for staff needs and everyday practice is mentioned elsewhere in the literature. Pegler (2005) argues that a learner-centred approach to staff development is essential and a pick-n-mix approach may be the most effective where time is at a premium for staff. Ellis and Phelps (2006) advocate collaborative team based approaches to staff development and learning, whereby a small group of staff and an instructional designer are involved in action learning involving planning, acting, observing and reflecting.

Ham *et al.*'s (2002) study of the New Zealand ICTPD School Clusters Programme noted that programmes which focussed on personal skill development, practical classroom ideas and sound pedagogical or theoretical rationales for the use of ICTs had more wide-ranging and possibly longer term effects than more narrowly focussed courses. Finding the right emphasis on personal skills, practical ideas and pedagogical theory is important as is the need to emphasise both the technical and pedagogical aspects of e-learning in professional development (CEDEFOP, 2001; Marshall, 2005). Schroeder and Spannagel (2006) note that many e-learning materials lack pedagogical principles and theoretical foundations and are, as a consequence, failing to motivate learners or enrich the learning experience. It is vital for academics to develop more than just new technical skills in order to make the transition to online teachers or learning facilitators (Ellis and Phelps, 2006). In their view producing successful on-line teachers involves the development of new pedagogical approaches including assessment, group interaction and student/teacher dialogue, but also attention to academic work practices, including challenging notions of academics' working in isolation.

The New Zealand ICTPD School Clusters Programme study (Ham *et al.*, 2002) also found teachers most appreciated the professional development strategies which maximised the time available to them to come to grips with ICT skills and uses, and which combined substantial 'time out' with ongoing access to collegial support. Ham (2005) suggests good professional training should involve a focus on participant needs, careful preparation, orientation towards practice and action, as well as elements of coaching. It should also be comprehensive (broader than skills in IT) and authentic in so far as having relevance to teacher issues and problems. The human, social and interpersonal aspect of connecting with others should also be acknowledged as this was found to be significant in most teachers' descriptions of effective professional development (Ham, 2005). The role of trainers or facilitators is crucial not simply in terms of technological or pedagogical knowledge, but because enthusiasm, experience and the ability to motivate and empower is also important (Ham, 2007).

Whether the professional development is orientated towards one's disciplinary base may also influence professional development outcomes. Garet *et al.*'s (2001) study of school teaching staff who had participated in a national professional development programme in the USA found that professional development that focuses on academic subject matter gave teachers opportunities to learn actively, to integrate learning into everyday tasks and was more likely to enhance knowledge and skills. This also raises the issue of whether a separation of 'e-learning' PD from 'other' teaching related PD in policy should exist, and

whether this is conducive to building the professional capability and efficacy of teaching staff.

Timperley *et al.*'s (2007:xxxii) review of a range of studies that examined specifically what PD practices have positive impacts provides suggestions as to what it is about the content of formal professional programmes that makes for effective outcomes. These four key content based characteristics involve:

1. Different aspects integrated
Here the integration of theory and practice was important, with theory providing the basis for making curricular and pedagogical decisions, and assistance to translate this in practice.
2. Clear links between teaching and learning and/or student-teacher relationships established
PD was underpinned by assumption that teacher-student relationships were influenced by what teachers did in their classrooms and that identifying problems could provide new vision.
3. Assessment used to focus teaching and enhance self regulation
In 50% of the reviewed studies student assessment was used as a basis for identifying learning needs of student and staff and of reflecting on the effectiveness of teaching practice. It was also used as a tool to provide motivation for both initial and continued involvement in PD by providing feedback on the learning and the teaching-student relationship and in the identification of next steps to improve teaching practice.
4. Sustainability
This was dependent on teachers developing an in-depth understanding of theory to assist with instructional design and inquiry skills to judge impact of teaching and to formulate next steps.

Existing research not only characterises the qualities of 'good' professional development, but also outlines some forms of professional development which have been successfully implemented. The New Zealand ICT school cluster study found a variety of professional development activities were rated by teaching staff as effective: teacher release time, technology mentors, on-the-spot support, and to a lesser extent workshops/seminars (Ham, 2005).

Hegarty *et al.* (2005) reviewed different models of training and staff development strategies and concluded that it may be necessary for organisations to utilise a number of different strategic approaches. Their research advocated PD based on metacognitive approaches whereby programmes of professional development are formulated by staff who are encouraged to pursue goals that are personally relevant to them. This is in contrast to approaches where specific objectives or outcomes are 'imposed' on learners.

As well as programmes orientated towards individual needs and assessments most studies emphasise the benefits of collaborative learning, and of using situated, project based or context oriented approaches. A variety of forms were suggested as being effective for e-learning PD. These might include:

- advanced workshops for early adopters (Kidney 2004)
- active learning approaches (Garet, *et al.* 2001)
- meta-cognitive strategies to build self efficacy (Hegarty *et al.* 2005)
- learner-centred, question-based strategies (Pegler 2005), (Kidney 2004)
- context based learning (Simpson, 2001, Lawless and Pellegrino, 2007)
- mentoring (Garet *et al.* 2001, Lawless and Pellegrino, 2007).
- developing learning communities within groups of learners (Garet *et al.*, 2001, Milne and Dimock, 2005).
- project based learning (Hegarty *et al.*, 2005)
- allowing staff to become on-line learners (Weaver, 2006)
- presentations of good practice (Weaver, 2006)

While a variety of types of PD have been advocated each form will have its own strengths and weakness, content and outcomes. It is the characteristics of such forms in facilitating both professional learning, self efficacy and changed teaching practice which are critical. The understanding promoted through engagement in these activities is more important than the activities themselves. Timperley (2007, p. xxxvi) identified six core characteristics of activities which promoted professional learning:

1. Content and activities were aligned with a clear relationship between learning goals and activities.
2. A variety of activities was needed.
3. Content conveyed through the activity was more important than any particular activity.
4. Professional instruction was sequenced (typical sequences involved a rationale, instruction in key theoretical principles, and opportunities to translate theory into practice).
5. Understanding of concepts and theories were discussed and negotiated.
6. A student perspective was maintained.

The notion that the ‘best’ professional development activities occur over extended time periods with opportunities for follow-up and feedback is cited as the reason for a shift in professional development away from workshops and towards design-based opportunities which allow teachers to use technologies in contexts relevant to them (Lawless and Pellegrino, 2007). Situational or context based learning is also seen as assisting in the building of communities of collegial learning and practice which may help sustain knowledge and practice gains. Mentoring and coaching, and encouraging e-learning leaders to train others are believed to benefit both teachers and ‘trainers’ and also involve building relationships over time (*ibid.*). Learning directed toward changing practices often provides challenges for teachers (Timperley *et al.*, 2007). The acquisition of new beliefs, knowledge and skills may be both consistent with one’s current positioning, or

dissonant to it. Reflecting on, and reconciling managerial, teaching, and support staff's e-learning and professional development orientations and dispositions is critical if practices, cultures and institutions are to undergoing e-learning 'transformations'.

8. Summary comments

This literature review has explored the factors likely to influence the professional development of individuals located in tertiary institutions. A series of reports and studies have identified that professional development of staff is essential for building capability in e-learning in New Zealand Tertiary organisations. The professional development of staff is consequently imperative and pressing, but requires a substantial investment in human capital. The review presented in Part C of this report provides details of reports and material which can be used for capability assessments while identifying the key dimensions to be considered in relation to developing capability in e-learning. Through an examination of what is known about policy, strategy and implementation of professional development in institutional contexts, this review has discussed the sorts of processes and practices which might be undertaken in order to successfully embed e-learning professional development in tertiary organisations. It also highlights the need for further research on the relationship between professional development and e-learning with a view to exploring how sector, institutional and individual capability might be increased.

After reflecting on the broader New Zealand context for direction in e-learning in New Zealand, the literature review examined some of the factors influencing the content, delivery and provision of professional development. These included attention to policy, strategy and structures and mechanisms necessary for implementation and factors influencing individual uptake and involvement. The review reinforces the need for institutional change to address not only structures, but also the cultures and beliefs of organisations, groups and individuals. Achieving interconnectedness of people, things, and structures across institutions would seem to be imperative in developing and implementing e-learning PD as policy and practice. This review also suggests qualities of best practice. A summary of key points listed in the literature is given below:

Connecting institutional policy, infrastructure and people:

- A need for planned intentionality and shared vision with regard to e-learning and PD
- Policies should be orientated towards addressing attitudes and building confidence and understanding
- Achieving real transformation is about building a supportive learning culture which is self-sustaining and innovative
- Developing leadership is important and can be done by promoting institutional networks and learning communities

- Policies and strategies should take into account the needs of a diversity of staff and students and be clearly communicated
- Comprehensive institutional approaches should be employed which involve attention to co-ordination of staff, financial resources, technologies and forms of personal support
- In particular, pedagogical and technical support should be co-ordinated
- The involvement and engagement of (middle) management is helpful
- Engaging with staff in order to facilitate acceptance of e-learning PD programmes and strategies is important especially if e-learning PD is to be expected of non-volunteers
- Ongoing monitoring and evaluation of cross-institutional competency and capability is desirable to ensure effectiveness

Encouraging staff engagement through:

- Demonstrations of the merit of e-learning PD for staff teaching and student learning
- Incentives and motivations for engagement (PD time, recognition of learning)
- Embedding e-learning in staff's teaching and learning programmes
- Recognising and reconciling competing agendas of staff across institutions
- Ascertaining the needs of staff and formulating PD opportunities to meet individual needs
- Providing different types of and opportunities for PD which recognise staff have different capabilities and will learn and engage differently

Factors affecting uptake and involvement in e-learning PD for individuals:

- Conceptions of and attitudes toward e-learning and professional development (understanding what these constructs comprise, what they involves, what is required of individual staff, and the likely outcomes of engaging in it).
- Personal beliefs, aspirations, goals
- Fear, anxiety or belief in competency to engage in e-learning
- A sense of self-efficacy aids in initial and continued involvement
- Belief in perceived benefit
- Time and workload commitments
- Peer and student support
- Previous engagement with, and experience of, e-learning
- Technical capability
- Hardware and software access, availability and suitability
- Social factors, gender ethnicity, cultural beliefs
- Learning styles and orientations (preferences for modes of delivery and for learning e.g. working alone or in collaboration with others)
- Staff having insight and experience of e-learning from a student perspective

- Exposure to examples of good practice, demonstrations, and disciplinary application

Characteristics of effective professional development programmes and opportunities:

- Extended opportunities to learn (rather than one off sessions) including providing time for learning
- Employs the expertise of trainers and leaders
- Positive social and interpersonal dimension – enthusiasm, experience and empowering of individuals
- Links teaching and pedagogy in delivery
- Good collegial support, mentoring and coaching
- Cognisant of learning styles and provides a range of learning opportunities
- Should challenge prevailing discourses – enable discussion and negotiation of key concepts that staff and trainers bring to PD
- Gives good reasons why individuals might do things differently
- Evaluation of changes of teacher behaviour, self-efficacy and student learning
- Emphasis on contextualising e-learning – relevance and application (disciplinary orientated)
- Clear links to teaching and learning outcomes, student perspectives and building staff/student relationships
- Opportunities to actively participate in PD programmes/workshops – promotes peer collaboration and development in learning communities and/or communities of practice
- Allows for individualised learning based on staff member’s needs and context
- PD goals are formulated by staff and are personally relevant
- Recognises different e-learning competencies and enables staff to become online learners
- Involves presentations and exemplars demonstrating good practice
- Motivates staff learners to take their learning further
- Promotes sustainability – encourages self sufficiency and next steps

This review has outlined some of the implementation requirements for the adoption of e-learning professional development, and it has indicated some of the characteristics of formal PD programmes which are effective. Throughout it highlights the need for linking pedagogical and technical aspects of e-learning and the importance of connecting policy to practice. Part C has examined issues of implementation; delivery, form, content, uptake and ‘best’ practice and effectiveness.

Investment in human capital through staff development may be significant for institutions but engagement and uptake is not simply a reflection of the need for skills acquisition or improvements in technological capability. The knowledge, dispositions, attitudes and

prior experiences and support that teaching and managerial staff bring to professional development activities are critical to securing engagement in professional development. The review has been based primarily around research based on experiences of 'teaching' staff at school or tertiary level, yet involvement and professional development of technical, training and managerial staff is also important in achieving a co-ordinated and coherent approach to professional development and e-learning.

While there is an increasing volume of research on what constitutes good practice in professional development, there is much less with regard to how this might be embedded in institutions, how the effectiveness of PD policies and practices might be evaluated, and how PD related to e-learning is understood, experienced and undertaken by staff in institutions. Tertiary sector and institutional 'voices' identifying the merit and direction of e-learning are increasingly evident, yet there is a danger that e-learning PD will be driven by action rather than by a substantial knowledge base about what works and why (Lawless and Pellegrino, 2007). Consequently, it is important to consider the voices and perspectives of staff as they relate to the construction of e-learning PD in tertiary organisations. Part D examines the Otago team's research on conceptions and in Part E the preferences, assumptions and experiences of staff are explored by the Massey Team with a view to informing embedding processes and implementation requirements for building capability in relation to e-learning professional development.

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