e-Learning
IN TERTIARY
EDUCATION

*Highlights from
Ako Aotearoa
projects*
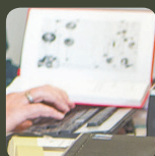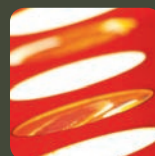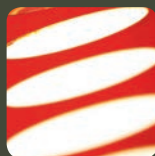
REPORT PREPARED BY
Stephen Marshall
and Deb Shepherd
FOR AKO AOTEAROA

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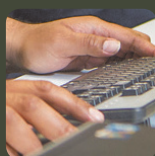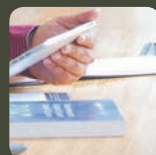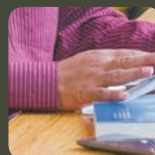NATIONAL CENTRE FOR
TERTIARY TEACHING
EXCELLENCE

contents

Purpose

This report provides a synthesis of the outcomes from thirty eight Ako Aotearoa projects engaging with the diverse implications of technology for New Zealand tertiary education. Funded from 2008 onwards, these projects cover seven years of thoughtful engagement with e-learning and tertiary education.

It sets the scene as we see it at present and offers a brief overview of findings and issues in each of six dimensions of e-learning before summarising each project.

Introduction

The e-learning projects described in this report are diverse, reflecting learning and teaching in the workplace, the community and in tertiary education organisations of all types. The diversity is apparent in the major themes that run through the projects:

- the organisational implications of e-learning;
- open education;
- learner support, engagement and retention;
- e-learning and Ako Māori;
- selecting from the range of e-learning technologies;
- the examples or case studies exploring e-learning in a range of courses.

Collectively, the findings of the projects suggest a number of important capabilities are needed for institutions to realise the potential of technology in tertiary education (Figure 1).

Figure 1: Capabilities needed for effective e-learning provision
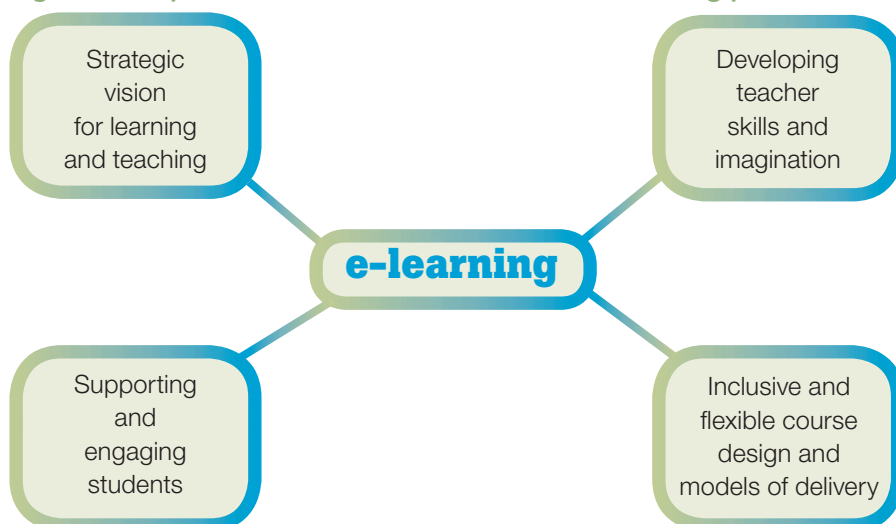
More explicitly, these skills are:
- creating and leading a strategic vision for learning and teaching enabled and sustained by e-learning
- supporting and developing teacher skills and imagination to select and implement effective pedagogical designs using technology
- supporting and engaging students with a modern learning environment that builds on the technologies and skills they bring from their personal lives, work experience and community
- providing course designs and delivery models that are flexible and responsive to the range of contexts that reflect the diversity of modern New Zealand society.

These findings are consistent with the broader literature on learner engagement and e-learning (Guiney, 2012) and the organisational implications (Guiney, 2013).

A particular strength of the Ako Aotearoa funded work reported here are the tools supporting leaders of tertiary institutions. They provide support in understanding the future potential of e-learning through scenarios, defining strategies and plans, measuring and leading the impact and supporting staff and students as they take advantage of the investment made in new technology.
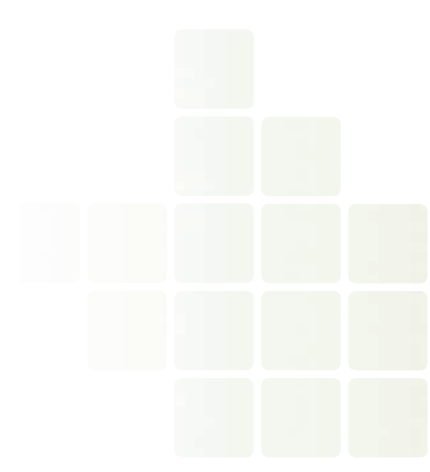
Context of e-learning

Figure 2: The context of e-learning
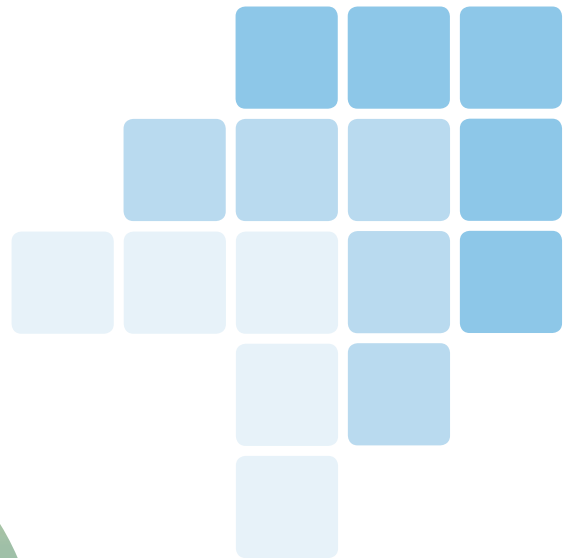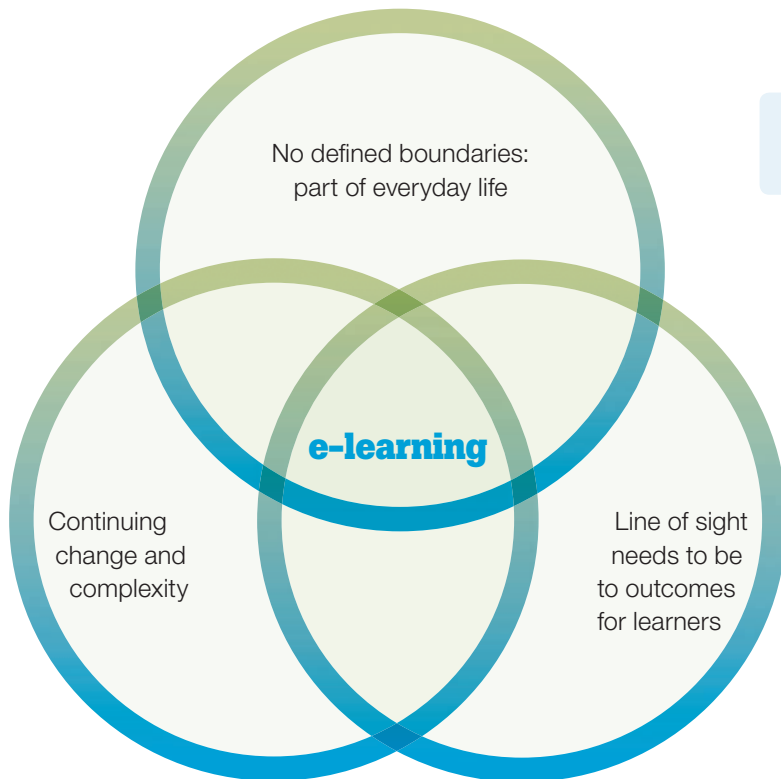
Defining sensible boundaries for e-learning is difficult as technology pervades everyday life and changes our expectations and sense of normality (Figure 2). The Ministry of Education defines e-learning as *"learning that is enabled or supported with the use of information and communication technologies (ICT) including the internet and mobile devices"* (Guiney, 2014, p. 15). Although this is a reasonable start, it is unclear that it would not apply to all education. Another way to consider e-learning is to focus on the way that technology stimulates a re-examination of tertiary education at multiple levels. The New Zealand e-learning Guidelines (Coolbear *et al.*, 2014) frame e-learning from five perspectives, those of the learner, the teacher, the manager (policy and process), the organisational leader (strategy and vision) and the external quality agency (regulation and funding). These illustrate the breadth of the impact of e-learning on tertiary education.

Technologically we are all experiencing a massive and ongoing series of inter-related changes. The cost, size, power, access and convenience of computing continues to improve exponentially. Portable computing devices connected continuously to the Internet are now essentially ubiquitous and affordable to all but a very small (and rapidly shrinking) minority of society. The development of Web 2.0, social media, cloud services and the 'app' are seeing individual learners enter tertiary education with a personal technology infrastructure that is far beyond what most institutions had in place even five years ago. Such change raises fundamental questions about the purpose of education.

Part of the complexity of engaging with e-learning results from the need to respond to the intersection of rapidly changing technologies with individual and social responses to those changes. Narratives such as disruption, innovation and transformation drive ideas of education that are not always helpful. The concept of the Digital Native in its many incarnations builds unnecessary barriers between learners and teachers. Similarly, the Massive Online Open Course (MOOC) creates an implausible description of education as an industry no different to mass media.

An important tool for coping with the ever-accelerating pace of technological change is to maintain a clear focus on the educational outcomes that are desired and then to recognise the way various e-learning tools enable efficient responses. Learners are inevitably bringing the tools of their daily lives to their courses and expect to experience pedagogical activities that stimulate learning with those tools. Teachers need ongoing professional development aimed at supporting the use of a modern and evolving e-learning infrastructure. Managers need access to tools that support a dynamic understanding of the way that educational organisations are functioning so they can respond effectively to the changing outcomes experienced by learners. Leaders need to engage with the idea that technology offers new ways of achieving the wider goals of the organisation and stimulates new goals that strengthen its core values and mission. Finally, external agencies need to be able to ensure that the sector is benefiting from a high-quality system enabled by technology.

Somewhat surprisingly, New Zealand does not currently have a national strategic vision for e-learning in tertiary education that might help focus the engagement of people in these different perspectives. The *Tertiary Education Strategy 2014-19* (New Zealand Government, 2014) is virtually silent regarding the role that technology might play in building desirable capabilities within the system, noting only that it might enable new, more flexible, modes of delivery (p.4). The *Better Public Service Guidelines* advocating transparent and effective digital services explicitly exclude tertiary education institutions from their scope (Department of Internal Affairs, 2014). Previous strategic plans have focused on data integration issues (Ministry of Education, 2012; 2016) or reflect the position of the previous government (Ministry of Economic Development, 2008; Ministry of Education, 2004). A review of government tertiary e-learning initiatives conducted by the Ministry of Education (Guiney, 2014) described initiatives undertaken in the previous decade but nothing substantive has been undertaken since 2009.

This strategic gap in tertiary education is clearly apparent in the Ministry of Education website which lacks any evidence of tertiary e-learning. This is in stark contrast to the situation in the schooling sector, which has an extensive set of initiatives and resources promoting the pedagogically effective use of technology. There is clear evidence of attempts to articulate an educational vision for technology in the work of the *Future-focused learning in connected communities* report (21st Century Learning Reference Group, 2014). This is complemented by a substantial investment by the Ministry of Education and the Crown-owned company Network for Learning (N4L). The extent of engagement this has generated is clearly visible in resources such as the Virtual Learning Network (http://www.vln.school.nz/). Many of the priorities and actions defined by the Government for the school system have clear parallels in tertiary education, suggesting that a common vision is plausible, particularly as society moves past mass education to a universal lifelong learning model. (Trow, 2006).

Thematic summary

Two reasons that make defining a national vision or strategy for e-learning challenging are the diversity and scope of the tertiary system. The sector encompasses large, internationally ranked universities through to localised private tertiary enterprises supported by small communities: Tertiary learning in New Zealand is reacting to global trends with international and transnational delivery. It is also engaging with Kaupapa Māori to respond to the diverse needs of New Zealanders. The projects described in this synthesis reflect that diversity and include important steps towards the assertion of a uniquely New Zealand model of e-learning.

As noted in the introduction, the project descriptions have been structured into six sections to assist the reader, but thematic mapping (Table 1, Figure 3 and Table 2) illustrates that many projects speak to a range of pedagogical models, learning contexts and technologies. This diversity is one of the key findings that runs through this synthesis: that there is no homogenous and consistent thing that is e-learning, no single correct way to use e-learning tools, and no unifying pedagogy that can be implemented. E-learning tools provide powerful features that can support learning in many ways and to many ends. Imagination and ambition are the limiting factors preventing many teachers from realising this potential.
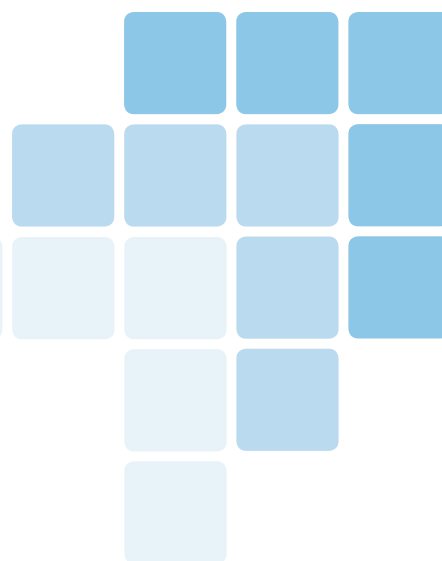
Table 1: Five perspectives for e-learning

L	T	M	Org	QA
Learner	Teacher	Manager	Organisation	Quality agency
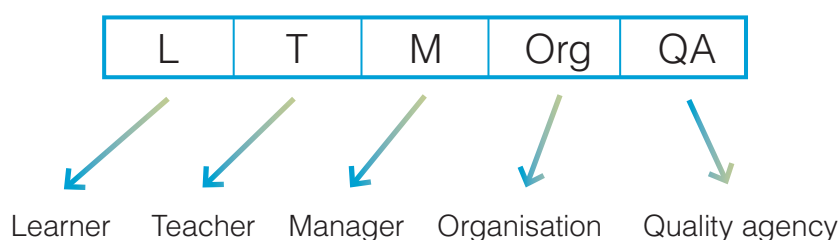
Each entry featured in this guide is annotated with a bar diagram highlighting which perspectives are used in that piece of work.

Figure 3: Projects by focus area

Ako Māori
- Bruce (2012), page 13
- Camp, Sunderland, Russell & Flack (2009), page 32
- Keiha, Moorfield, Ka'ai & Spooner (2008), page 32
- Rawlings & Wilson (2013), page 31

Engagement & retention
- Jeffrey, Milne, Suddaby & Higgins (2012), page 24
- Nichols (2011), page 22
- Parsons & Petrova (2011), page 36
- Rawlings & Wilson (2013), page 31

Organisational change
- Davis, Higgins & Zaka (2012), page 12
- Frielick et al. (2015), page 37
- Marshall (2012), page 12

Teacher professional development
- Bruce (2012), page 13
- Clayton (2009), page 13
- Coolbear et al. (2014), page 11
- Nichols, Anderson, Campbell & Thompson (2014), page 18
- Tyler-Smith et al. (2009), page 14

Authentic learning
- Camp, Sunderland, Russell & Flack (2009), page 32
- Fowler (2010), page 28
- Stewart (2008), page 28

e-portfolios
- Keys, Fraser & Abbott (2014), page 29
- Nichols (2009), page 35
- Stevens & Boladeras (2010), page 28

Strategic planning
- Coolbear et al. (2014), page 11
- Davis, Higgins & Zaka (2012), page 12
- Higgins, Prebble & Suddaby (2008), page 11
- Marshall (2012), page 12

Vocational learning
- Bruce (2012), page 13
- Clarke, Weller & Farquhar (2012), page 26
- Keys, Fraser & Abbott (2014), page 29
- Stevens & Boladeras (2010), page 28

Blended learning
- Dofs & Hobbs (2011), page 20
- Jeffrey, Milne, Suddaby & Higgins (2012), page 24
- Keiha, Moorfield, Ka'ai & Spooner (2008), page 32
- Keys, Fraser & Abbott (2014), page 29
- McDonald (2008), page 29
- Nichols, Anderson, Campbell & Thompson (2014), page 18

Institutional leadership
- Coolbear et al. (2014), page 11
- Davis, Higgins & Zaka (2012), page 12
- Higgins, Prebble & Suddaby (2008), page 11
- Marshall (2012), page 12
- Tyler-Smith et al. (2009), page 14

Student support
- Dofs & Hobbs (2011), page 20
- Jeffrey, Milne, Suddaby & Higgins (2012), page 24
- Rawlings & Wilson (2013), page 31
- Ross (2010), page 20

Web 2.0/Social media
- Blackall & Hegarty (2009), page 17
- Cochrane (2008), page 36
- McDonald (2008), page 29
- Nichols (2009), page 35

Collaborative learning
- Elgort & Wilson (2008), page 34
- McDonald (2008), page 29
- Nichols (2009), page 35
- November (2010), page 22
- Wing-Lai (2014), page 27

Māori learners
- Keys, Fraser & Abbott (2014), page 29
- Pukepuke & Nash (2009), page 21
- Rawlings & Wilson (2013), page 31

Open education
- Blackall (2010), page 17
- Blackall & Hegarty (2009), page 17
- Gordon, Peters & Besley (2014), page 17
- Nichols, Anderson, Campbell & Thompson (2014), page 18

Course design
- Alterio & Woodhouse (2011), page 26
- Clarke, Weller & Farquhar (2012), page 26
- Cochrane (2008), page #36
- Coolbear et al. (2014), page 11
- Fowler (2010), page 28
- Gunn, McDonald, Milne & Nichols (2015), page 21
- Keys, Fraser & Abbott (2014), page 29
- McDonald (2008), page 29
- Mentis (2011), page 27
- Nichols (2009), page 35
- November (2010), page 22
- Stevens & Boladeras (2010), page 28
- Stewart (2008), page 28
- Wing-Lai (2014), page 27

Scenario-based learning
- Parsons & Petrova (2011), page 36
- Stewart (2008), page 28
- Stewart & Symonds (2009), page 34

Distance learning
- Nichols (2011), page 22
- Nichols, Anderson, Campbell & Thompson (2014), page 18
- Pukepuke & Nash (2009), page 21
- Rawlings & Wilson (2013), page 31
- Ross (2010), page 20
- Wing-Lai (2014), page 27

Mobile learning
- Cochrane (2008), page 36
- Frielick et al. (2015), page 37
- Parsons & Petrova (2011), page 36
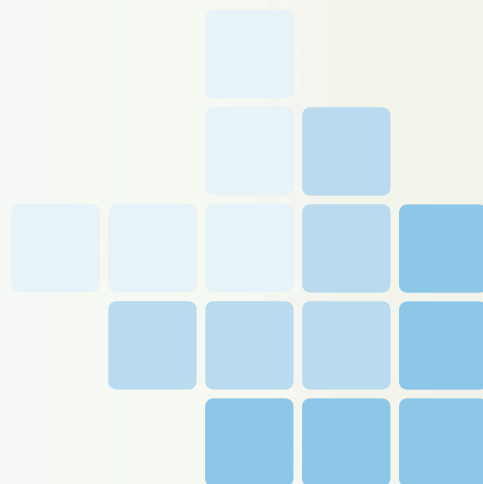
Table 2: Focus areas featured in just one or two projects

TOPIC	PROJECT
Augmented reality	Parsons & Petrova (2011) page 36
Benchmarking	Marshall (2012) page 12
Blogs	Bitchener, East & Cartner (2010) page 23 Nicols (2009) page 35
Feedback	Bitchener, East & Cartner (2010) page 23 Mentis (2011) page 27
Learning analytics	Gunn, McDonald, Milne & Nichols (2015) page 21
MOOCs	Gordon, Peters & Besley (2014) page 17
Peer mentoring	Pukepuke & Nash (2009) page 21 Rawlings & Wilson (2013) page 31
Virtual reality	Camp, Sunderland Russell & Flack (2009) page 32
Wikis	Nichols (2009) page 35

Organisational implications of e-learning

Projects that focus on the implications of e-learning for educational providers including future directions, professional development and infrastructure.

New Zealand tertiary education has the benefit of a number of world-class research projects exploring the organisational implications of e-learning. These different projects provide a set of tools that support organisational leaders and managers. They cover developing effective operational and strategic plans, engaging with staff and students to implement changes to the organisation and its learning and teaching activities, and contributing to the growth of the tertiary sector as a whole.

The *Taking the Lead* resource (Higgins, Prebble and Suddaby, 2008) is aimed at senior leaders of educational organizations and is intended to support non-technical leaders in their engagement with and ownership of the strategic implications of e-learning. This project responds to the challenge leaders face when engaging with a highly complex issue and their need to be able to balance the advice of technical experts with organisational vision and pragmatism.

The *e-learning guidelines* (Coolbear *et al.,* 2014) illustrate the extensive impact technology is having on education and the way changing pedagogies and technologies impact upon individual learners, teachers, managers, organisations and sector agencies. They provide prompts for reflection and planning aimed at improving individual courses, entire programmes and qualifications and the very structure and direction of institutions and the sector as a whole. For leaders and managers, these guidelines complement the *Taking the Lead* questions, providing a more detailed set of factors to be used to frame an institutional strategic or operational analysis.

The strong operational and strategic focus of the *Taking the Lead* and eLG resources are complemented by the DEANZ Scenarios 2016 project (Davis, Higgins and Zaka, 2012), which provides a resource designed to stimulate strategic and operational planning for an uncertain future. History has taught us that predictions of the future of tertiary education are problematic at best and more often a reaction to a passing issue or concern than a thoughtful engagement with the future. Scenario planning is recognised as providing a method for exploring the implications of change, including that stimulated by technology, while respecting the ambiguity and limitations of predictions.

Once a set of strategic and operational goals and plans have been created, the key challenge facing all institutions engaging in e-learning is sustaining the level of change needed. Marshall (2010) uses the e-learning Maturity Model to assess institutional capability in four different educational organisations and to explore the changes over a three-year period as these institutions engage with e-learning. The resulting analysis shows how an organisation's leadership can monitor and engage with the changes achieved, and systematically and strategically focus on those aspects that are most significant.

Engagement with the staff and students of an institution is an important tool supporting the adoption and effective use of e-learning. Clayton (2009) provides a template for organisations interested in critically analysing their
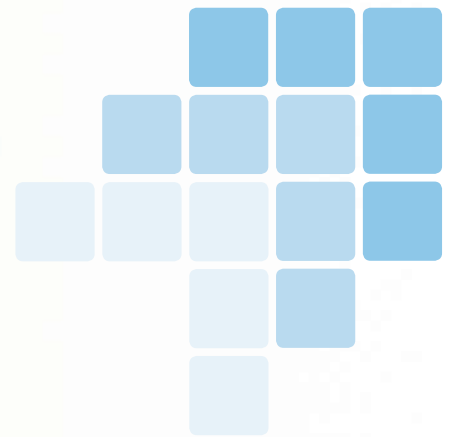
e-learning activities and initiatives. The project draws on a variety of other research projects and symposia to create a template for a workshop. It explores e-learning capability and how to build a stronger organisational awareness of the ways e-learning initiatives and activities can be enabled and monitored.

The need to engage actively with the development of tutors as e-learning practitioners is the focus of Bruce (2012). The project presents a comprehensive analysis of the implications of e-learning in the trades, including an extensive review of the pedagogical opportunities offered by technology. This includes a very useful discussion of Māori pedagogical concepts that have particular resonance in the workplace learning space, and a discussion of the intersection between Ako Māori and e-learning. The project illustrates the level of planning and support needed to ensure that teachers are well supported with a professional development model that ensures they can effectively design and support e-learning experiences for their students.

E-learning offers opportunities for the sector to look beyond the boundaries of traditional institution learning and teaching. Collaboration is an important feature of modern e-learning and recognising the way that technology offers opportunities for collaboration between institutions is the focus of Tyler-Smith *et al*. (2009). They present an extensive evaluation of a six institution collaborative provision project and provide a detailed set of recommendations on how to successfully engage in such projects.

These implications for organisational decision-making are summarised in Figure 4.

Further research on the organisational implications of e-learning in tertiary education drawn from the published literature can be found in the Ministry of Education annotated bibliography (Guiney, 2013).

Figure 4: The dimensions of organisational activity in implementing successful e-learning
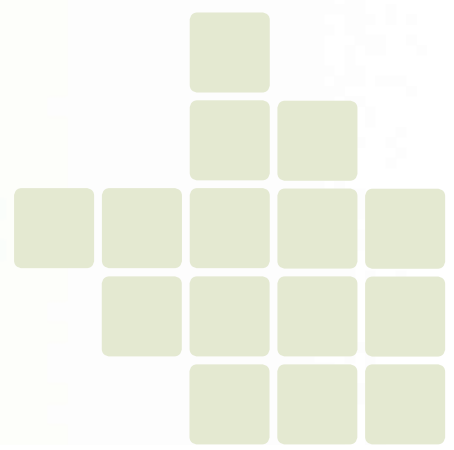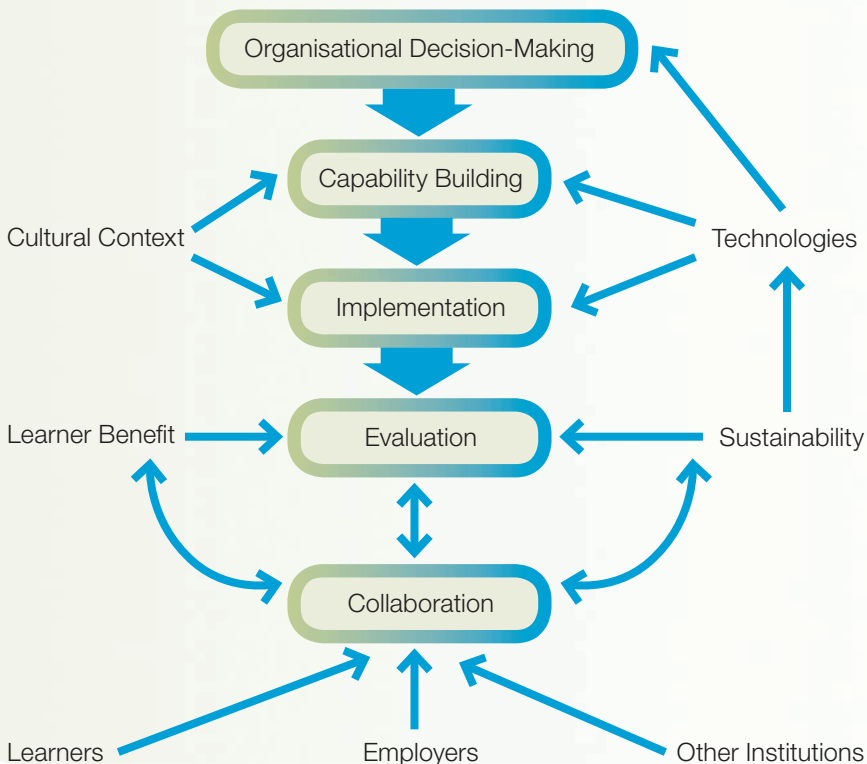
Higgins, A., Prebble, T. and Suddaby, G. (2008). Taking the lead: strategic management for e-learning.

An initiative that moves away from technical and pedagogical aspects of e-learning towards institutional strategy and institutional leadership. Issues were chosen via a series of interviews with the heads of peak education bodies and quality assurance bodies in the tertiary sector. The research draws heavily on the professional experience of the project team and interviewees.

Research data are derived from five areas of analysis:

- institutional strategies, planning and policies
- IT staff and student support systems needs
- quality assurance and professional development policies and operations
- Curriculum and pedagogies models
- assessment and financial assurance models.

It is then considered within a series of themes:

- planning and administration
- organisational structure
- staff development and effectiveness
- instructional design and development
- teaching and learning
- student support
- collaborative and international arrangements
- assessment and moderation
- and technological infrastructure.

These themes provide a framework of comprehensive strategic questions. The significance of each question is discussed, as are potential answers and solutions. Where appropriate, advice is given.

Each case study institution is carefully chosen to reflect a theme that emerged from the research interviews. The case studies themselves are sharply focused on the strategic issue each one was chosen to represent.

| L | T | **M** | **Org** | QA |

Coolbear, P., *et al.* (2014). The eLearning guidelines.

The eLearning Guidelines are an extensive online collection of guidelines for good practice in the design, implementation and enhancement of e-learning in the tertiary sector. The guidelines have been recently revised and updated. The guidelines are available as a searchable online resource, or a complete list can be downloaded, as can workbooks for each of the five perspectives.

Guideline searching is a two-step function. First, select the perspective required, then select the area of interest. Perspectives cover learners, teachers, managers, organisation leaders and quality assurance bodies. Areas of interest within each perspective are design, implementation and enhancement. A resource section is provided for each perspective.

The guidelines are prompts, providing questions to provoke consideration of what is needed to achieve the required outcome in practice and an opportunity to critically analyse and reflect on implications. An important feature of the guidelines is that they do not give answers but provide an impetus to evaluate existing practice and changing technology from the specific perspective of the user. A short video introduces the initiative and clear instructions are provided on how to use the site.

| **L** | **T** | **M** | **Org** | **QA** |

Davis, N., Higgins, A., and Zaka, P. (2012). 2016 scenario guide to effective tertiary education in New Zealand.

| L | T | M | **Org** | QA |

The DEANZ scenarios explore what the tertiary education landscape might look like in 2016 from a 2010 to 2012 viewpoint. The project includes two detailed handbooks designed for programme leaders and senior managers to use as a guide when planning for the future. These guides provide a structure for using the scenarios to assess the impact e-learning is having now and could have in the future.

Figure 5: The DEANZ scenario set for New Zealand tertiary education in 2016
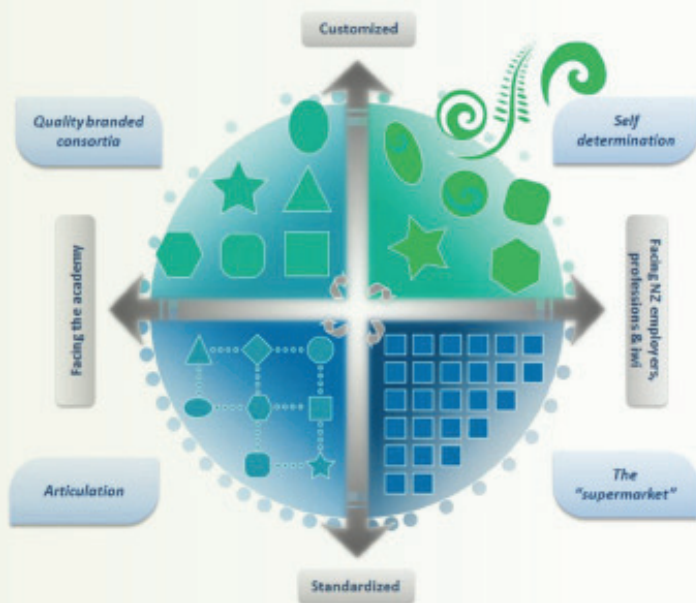
Four scenarios are developed, ranging from the conservative to the radical, and each is detailed from both perspectives (Figure 5). Each scenario is described, an imaginary context provided, an example given, and a discussion of the issues presented. Suggestions for further action in practice are offered. The model illustrates how scenarios can be used as a tool for organisational planning and strategy development. Although framed within a contemporary time frame, the underlying trends remain important influences on the future direction of tertiary education. These scenarios are not meant to provide a complete and accurate description of the future. By acting as archetypes illustrating the implications of important trends, they provide a lens for analysing and planning future organisational and programme development.

Marshall, S. (2012). E-learning and higher education: understanding and supporting organisational change.

| L | T | **M** | **Org** | **QA** |

The project engages in a comparative benchmarking study of four different tertiary institutions: a university, a private training institute, a wānanga and a polytechnic. The benchmarking methodology used is the well-established e-learning Maturity Model (eMM) (Marshall, 2006). The aims are to provide data on capability, inform change and improvement, and provide case studies illustrating this change in the four different types of organisation.

The report provides context for the study in the wider education sector and introduces the concept of technology and organisational change, including the key factors driving this change, firmly supported by current theory and research. The eMM and its capability as a benchmarking tool is fully examined and assessed.

The project methodology is discussed in context of the eMM capability assessments for each of the four sample institutions and the results that form each of the four case studies examined. The completed version of each case study is also provided as a separate document.

A final analysis looks at the changes made in participating institutions and notes the factors influencing organisational change. These include:

- The need to respect the time it takes for change to occur within institutions. In some cases, this may be extensive and require ongoing leadership and commitment. In others, the changes can be rapid and require a responsive and agile organisation to realise the benefits.
- The essential role that effective leadership plays in sustaining change within institutions. This includes the ability to clearly identify the operational and strategic objectives for technology use and the clear articulation of these to the whole organisation.
- The influence that external factors can have on the nature and extent of change that can be sustained.
- The need to cope with the unexpected.
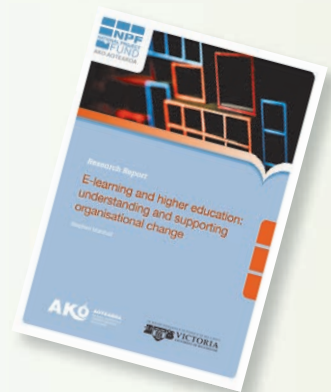
Clayton, J. (2009). A developmental framework reviewing e-learning capability: interactive workshop manual.

This project provides a detailed template for organisations interested in critically analysing their e-learning activities and initiatives. The report is structured around a series of potential activities and these are supported by hand-outs and questions to frame discussions and work by participants. An extensive outline is provided, covering the key frameworks, tools and theories that can be used to facilitate a workshop and develop the capability to monitor future e-learning initiatives and activities.

Bruce, J. (2012). Discipline specific e-training for trades tutors: integrating theory with practice using e-technology.

A comprehensive report on a project designed to develop blended training models for teaching specific trades, providing tutors with the skills to integrate theory with practice in an e-learning environment. The model encourages the use of technology to improve teaching and increase engagement in predominantly practical trade students by providing a broader range of learning media. A key factor of the model is couching the training firmly in the community of trades tutors and practitioners, thus also facilitating heightened engagement amongst the tutors.

A particular strength of the report is the discussion on the value of drawing on Māori conceptions of pedagogy and the way these can be integrated with the thoughtful use of technology to produce effective learning designs.

The report documents a pilot tutor training programme designed to provide tutors with a comprehensive understanding of e-learning initiatives within their trade and how to integrate these into their current practice. The emphasis is on relating theory to practice through the use of problem-based case studies, discussions and quizzes in an online environment.

Survey feedback from participating tutors and their students indicated a number of issues to be considered and addressed, some at management or organisational level, if this model is to be successfully used by tutors to develop e-learning programmes. A successful parallel project discussed in the report encouraged colleagues in similar disciplines to help tutors develop blended programmes through the creation of an active community of practice.

The report provides useful frameworks for exploring the implications of e-learning for tutors, organisations and students. These are summarised in Table 3, which identifies the key considerations from a developmental and community of practice perspective.

Table 3: A framework for developing organisational and student e-learning capability

	Discipline-Specific Development	Organisational Commitment	Technical Resourcing and Support	Student Capability
Development	Introductory training programme	Staff capability and ongoing development	Reliable, well-supported technologies with just-in-time support	'Scaffold' training and ongoing support for students
Communities	Communities of practice established and actively maintained	Organisational support for community involvement	Technical support for maintaining communities across organisations	Peer-support groups (communities of inquiry)
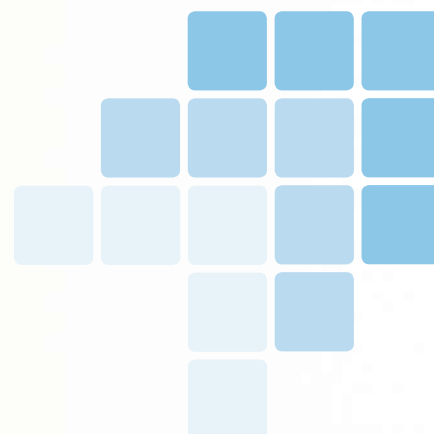
Tyler-Smith, K., *et al.* (2009). Participatory action research for myLearn network of provision pilot completion of cycle 2 & 3.

A look at the second and third phases of a proof-of-concept pilot project. It is creating a shared platform for delivering a single learning management system to multiple institutions, allowing for direct collaboration and sharing of courses and programmes.

The project uses a 'Three Spiral Action Research' approach. Cycle one, reconnaissance, covered the start up phase and is discussed in an earlier report (Tyler-Smith and Kent, 2008). Cycles two (re-design) and three (re-evaluation) are detailed in this report.

Six institutions are involved using the open source *Moodle* LMS. *MyLearn* was designed and developed to network the six *Moodle* environments and so enable sharing courses, tutors and students between the institutions. Each of the institutions then delivered one online course in a shared programme via *MyLearn*.

| L | T | M | Org | QA |

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REGIONAL HUB PROJECT
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Project rationale, design and methodology are documented. The research generated by the pilot is organised by themes and evaluation data is collected from stakeholder interviews. Each theme is introduced, discussed and evaluated in turn, and recommendations and guidelines are provided for each. Key themes and relevant actions are presented in Table 4.

Table 4: Key themes and required actions to support multi-institutional collaboration for the MyLearn project

Key themes	Required actions
The need to recognise that multi-institutional collaborations are complex and present many challenges	High levels of technical, administrative and organisational support
The need for sustained championing of the collaboration by the senior leadership of each institution	Ongoing management by senior leaders of issues as they arise
The critical importance of professional development for tutors	The provision, in particular, for tutors to experience personally as learners the e-learning pedagogy and toolset being implemented
Recognition of the workload implications of a collaborative project and the transitional workload implications for tutors	Provision of appropriate resources

In addition the authors note the need to recognise that even externally similar TEOs have significant internal differences in their institutional, academic, administrative and technical structures and processes that complicate inter-institutional collaboration.

Nevertheless, such complexities create a significant driver of success through the mutual experience and support provided.

Open education

Projects engaging with the implications of open licensing models and alternatives to formal copyright ownership and control.

The open education movement has developed in parallel with the utilisation of technology in education through much of the twentieth century. Use of television by the UK Open University as a means of widening access to education has been followed by a vast array of other initiatives employing technology to minimise or remove the barriers preventing many people from accessing tertiary education.

The movement is inherently political, advocating free access to education as a tool for improving the quality of people's lives and of society in general. Digital technologies, with the massive reduction in the costs of distribution they support, have enabled an explosion in interest about open education. Legal tools such as the Creative Commons (http://creativecommons.org.nz/) have facilitated open sharing of content and helped publicise the value of openness for society. The vast complexity of open education is reflected in the range of material provided by Blackall and Hegarty (2009) that traverses the concept, its application and ongoing development.

New Zealand is an active participant in this space with local institutions leading initiatives such as the Open Educational Resources University (OERu; Taylor and Mackintosh, 2011). Otago Polytechnic is a leader in this exploration and their project (Blackall, 2010) presents an overview of the rationale and the experience they have in implementing an actively open approach to their educational activities.

The Massive Online Open Course (MOOC; Shrivastava and Guiney, 2014) has stimulated an international engagement with the role that the Internet might play in educating the world using open courses. Over the last two or three years, it has become impossible to discuss e-learning without addressing the implications of the MOOC for institutions and sectors of education. The Internet has disrupted businesses focused on the distribution of content, such as music and television, and the expectation is that similar disruption is possible in education. Gordon, Peters and Besley (2014), in their detailed report of a series of interviews undertaken throughout New Zealand tertiary education, explore the extent to which MOOCs are in reality influencing institutions and whether such disruption will follow.

Although MOOCs have a high profile, there is a vast and often unacknowledged body of research and experience of Online Flexible and Distance Learning (OFDL) that can be used to inform the work of teachers engaging in e-learning. Nichols, Anderson, Campbell and Thompson (2014) have created an online professional development course that helps teachers draw on this body of theory and apply it in their e-learning practice.
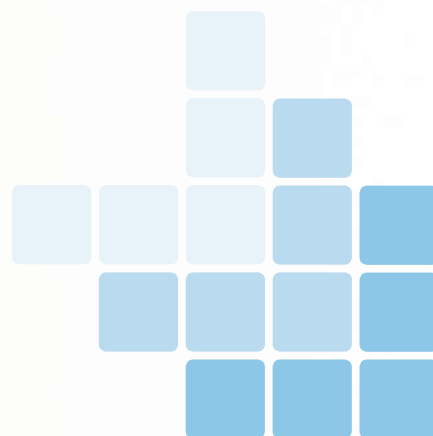
Blackall, L. & Hegarty, B. (2009, ongoing). Defining a new model and developing a user guide for open education.

L	**T**	**M**	**Org**	QA

An online resource in the form of a wiki based on research analysing the use of social media in polytechnic courses. The resource extensively details the background and rationale for open education, exploring the implementation, benefits, problems and solutions. It covers the principles of open education practices and resources, and of open courseware, considering copyright, intellectual property and other related issues. Social media and Web 2.0 tools are examined, as is the participatory culture encouraged by their use.

An extensive selection of complementary and supporting material is provided. Continuing contributions are *"invited from anyone with documented experiences developing open education, so that this book can continue to maintain its usefulness as both a guide, but also a record of people's work"* but there is little evidence of this being the case.

Blackall, L. (2010). The benefits of open educational resources.

L	**T**	**M**	**Org**	QA

Otago Polytechnic has embraced the Capetown Declaration for Open Educational Resources combined with the Creative Commons Attribution Copyright License as their default position and have adopted this as a basis for openness in intellectual property and copyright policy. The Polytechnic's philosophy is based on a concept of the important being not knowledge itself but the understanding of it, the use of it, and the expansion of it, leading to a further contribution to the communal pool.

In this video, teaching staff share interesting views, thoughts and insights on the uses and benefits of these open access policies and how they enhance collaboration in teaching and learning and bring knowledge to a wider audience. They talk about what they want to get out of increased freedom and tie this back into their online teaching programme, discussing what they did, how it worked, and how it succeeded.

Gordon, L., Peters, M. & Besley, T. (2014). The development of massive open online courses (MOOCs) in New Zealand.

L	**T**	**M**	**Org**	QA

A wide ranging research study providing a baseline account MOOCs in a New Zealand setting, covering a variety of institutional types and staff. It gives a snapshot of the development and use of MOOCs in 2014, and provides insight into the decisions being made and their potential implications for organisations and individuals.

The report introduces the concept of MOOCs, their purpose and place in education, and their current status in the New Zealand education sector. Drawing from the relevant literature and from extensive interviews with a range of New Zealand stakeholders and practitioners, the study makes a detailed examination of key ideas surrounding the MOOC concept. The resulting discussion asks a number of pertinent questions as it investigates disruption, open learning, technology and learning, political economy, and learners and learning.

A final section reflects on how MOOCs are already changing and evolving. It uses observations and critiques from the international scene to predict the future of the MOOC, and similar platforms, in New Zealand. It is noted that there are many unresolved issues and thus New Zealand practitioners are still *"feeling their way"*.

Nichols, M., Anderson, B., Campbell, M. & Thompson, J. (2014) An orientation to open, flexible and distance learning.

| L | **T** | M | Org | QA |

A free online course designed to introduce open, flexible and distance learning as a central facet of contemporary education practice and online learning. The course is self paced and takes approximately fifteen hours to complete. This is a professional development course with a focus on the application of theory in professional practice.

The course was developed by *"some of New Zealand's leading OFDL practitioners and experts"* and expert advice and support is provided by DEANZ via email and phone. A particular strength of the model is the ability to participate collaboratively as a programme team activity within an institution, stimulating a collective engagement with e-learning.

It is necessary to enrol before accessing the material which is presented in six modules:

- laying open, flexible and distance learning foundations
- key aspects of distance education
- the effective OFDL educator
- successful OFDL learners
- the OFDL community
- and ODFL futures.

A DEANZ Certificate of Completion is issued upon completion.

Ako Aotearoa supports an introductory PD workshop to this material www.akoaotearoa.ac.nz/pd-prgramme.OFDL

Learner support, engagement and retention

Projects that explore the implications of technology from the perspective of learner support, assist providers to establish and sustain student engagement, or increase retention in study.

E-learning is not merely a tool for accessing content and learning experiences focused on particular subjects. It provides a variety of tools to help students become more effective in their learning. As the diversity of the learner population grows, and more flexible and inclusive opportunities are provided, it is essential that the systems used to support learners also evolve.

The projects in this section address a variety of ways technology can be used to provide support and how existing support mechanisms can respond to e-learning approaches. *Studywise* (Ross, 2010) shows how an institution can ensure students are well prepared for their courses before formal study commences, using technology to build confidence and start a productive support relationship with the learner. Dofs and Hobbs (2011) explore the complex range of services and challenges addressed by learning centres. They suggest these need to be seen as tools for supporting blended e-learning models through their provision of peer and expert support of learners outside a formally scheduled class. A particularly effective form of support is direct mentoring of students. Pukepuke and Nash (2009) give a detailed template of an effective model of peer mentoring designed to support distance students but clearly applicable to a range of e-learning contexts.

Learning analytics (Picciano, 2012; Siemens, 2013) is a highly significant development in e-learning, reflecting the use of data analysis techniques to improve the processes and outcomes of learning. Gunn, McDonald, Milne and Nichols (2015) are creating a taxonomy of learning analytics data supported by case studies. Their analysis is aimed at helping teachers use learning analytics effectively to improve learning designs and learner success. The project complements an Office of Learning and Teaching-funded project underway in Australia titled *Student retention and learning analytics: a snapshot of current Australian practices and a framework for advancement* (http://he-analytics.com). Nicols (2011) demonstrates that while student disengagement is complex and hard to generalise, effective institutional responses are possible and result in significant improvements to student retention.

Learning analytics are an important tool. To be effective, however, e-learning tools must be used actively through the learning process, so that targeted feedback can guide students and develop their learning skills. November (2010) shows how a thoughtful blend of online collaborative tasks can generate improvements in student skills and outcomes in a writing context. Similarly, Bitchener, East and Cartner (2010) demonstrate that common word-processing tools can provide an effective feedback mechanism for very detailed tasks. In their extensive report, Jeffrey, Milne, Suddaby and Higgins (2012) provide guidance on how to build engagement and retention tools throughout courses using e-learning technologies, both pro-actively and reactively to ensure students are retained in study.

Further research on learner participation, retention and success in e-learning in tertiary education drawn from the published literature can be found in the Ministry of Education annotated bibliography (Guiney, 2012).

Ross, C. (2010). Facilitated online study skills workshops for first-year students.

L	T	M	Org	QA

A video presentation on an initiative called *Studywise*, a series of facilitated, asynchronous, online workshops designed for first-year students to engage with in the week before their course officially begins. The workshops provide an introduction to online learning, allow the student to develop the skills they need for successful study, and let them gain confidence in the online learning environment. They provide a venue for students to connect with peers and staff, and a vehicle for support from those same two groups.

The workshops are designed to address student concerns about their preparation for study and to encourage them to use the various support services available. A key feature of the system is a team of facilitators, including a dedicated Māori staff member, who monitor the *Studywise* forums and contact students proactively if they appear to be having issues.

The video explains the process for making students aware of the workshops, including issuing personal invitations to all first-year students, and the various follow up methods used with different groups. The workshops are designed to be flexible but with a suggested pathway to follow.

The *Studywise* system runs on a *Moodle* installation as part of the Open Polytechnic's Online Campus. The video details specifics of the problems the workshops were designed to solve and their pedagogical base. It covers student comments and feedback, and the collected statistics on retention and completion. It briefly discusses organisational support, development and review.

Dofs, K. & Hobbs, M. (2011). Guidelines for maximising student use of independent learning centres: support for ESOL learners.

L	T	M	Org	QA

A comprehensive set of good practice guidelines developed for Self-Access Centres and Independent Learning Centres. The guidelines are designed to be used when establishing a new centre or improving service in an existing one.

Data was collected from current literature, questionnaires, centre visits, interviews and personal observation. A variety of tertiary institutions from around the country were involved. The results present a snapshot of current practice in 2011.

The guidelines are organised using a learner centred approach. First the learner, their activities and resources needed to support them. Next the managers and staff the learner will interact with, the centre itself, and institutional support. Then finally, a consideration of the national and international perspectives. Each of the eight sections discusses the data collected and the corresponding results before making recommendations. The research notes that such centres potentially serve as a mechanism for supporting online and blended delivery, providing students with the ability to receive support and meet with peers.

Pukepuke, T. & Nash, S. (2009). Peer mentoring of at-distance students: a resource for tertiary institutions.

This project is a highly practical report detailing the realities of setting up a peer mentoring scheme for first-year distance students, who typically study part time and have significant levels of competing commitments. Often these students have little support, limited access to technology and other services, and minimal opportunity to engage with academic peers in a group environment.

The initiative extends a pilot *Extramural Student Peer Mentoring* project from Massey University using peer mentoring to enhance retention and completion rates. Accepting that mentoring is expensive in time and resources, the report works logically through each step taken with a 'what we did, how we did it, how it worked' approach which results in an easily followed template. It covers setting up the project, setting up the mentoring team, and working with the students. It also looks at the many different tools used to enable and enhance the mentoring process. There is also a brief section on working with Māori students.

Each section ends in a helpful summary. Conclusions and recommendations are clearly itemised. A number of the project documents and templates are appended providing a practical starting point for adoption of the approach being used.

The recommendations from this project convey the need to treat the mentoring and support of students as a comprehensive programme operating throughout the teaching year and requiring considerable organisation to be effective. In particular they note the need for *"Proactive mentoring that focuses on the strengths each student brings to their study, and supports students to build resiliency and complete under the weight of other commitments."*

Gunn, C., McDonald, J., Milne, J. 7 Nichols, M. (completion 2017). Building an evidence-base for teaching and learning design using learning analytics data.

Learning analytics are a means of using data from e-learning activities to support the learning process. This project is aimed at developing resources that support the use of this data by teachers and learning designers. Particularly those resources that provide feedback on the learning process and support the improvement of teaching practice.

This project, which started in 2015, is still in progress and due for completion in 2017. It is currently identifying teaching and learning design questions that can be answered by the learning analytics data available through common e-learning systems. A range of outputs, including a selection of case studies and a taxonomy of learning analytics data will be posted on the web page.

Nichols, M. (2011). Intervention for retention through distance education: a comparison study.

L | **T** | **M** | Org | QA

Analysis and discussion of a comparison study into improving student retention in distance education courses at Laidlaw College. It explores the reasons for student dropout and examines retention across two semesters after concerns at high rates of student withdrawal and non-completion. The retention intervention strategies used acknowledge that proactive support is significant in retention and include pre-enrolment surveying, an orientation course, general messages of support, and personal contact. The study examines the gains these strategies provide to a small/medium tertiary institution.

Survey data for the first semester, before retention intervention strategies are put in place, looks at students who have withdrawn from or not completed at least one of their courses in that semester. For comparison, data for the second semester, a year later, comes from surveying at-risk students for whom intervention strategies are in place and who successfully complete their courses.

The report contains a literature review, methodology, a look at the difficulties encountered and a discussion on findings. The work concludes with an acknowledgement that the reasons for student disengagement are complex and depend very much on individual circumstances. Significant improvements in retention are possible if the institution actively monitors learners and proactively responds to potential issues.

November, N. (2010). Loops of literacy: promoting writing skills in large undergraduate classes through online group work.

L | **T** | M | Org | QA

A study using the often very high level of digital literacy displayed by twenty-first century students to see whether using a loop of carefully designed online, collaborative, writing assignments can enhance general literacy and help to develop writing skills.

Students participate in a sequence of collaborative steps: compiling annotated bibliographies, online discussions where students are asked to think about language, analysis, and reflective posts; before completing an individual written assignment which is peer reviewed.

Students were surveyed over several iterations of the course and a section discussing results from the student perspective is included. This is followed by an analysis of the benefits from the teacher's point of view. Problems are identified. Solutions and other ongoing initiatives are trialled in subsequent runs of the course.

The report suggests that online group work can improve student writing if attention is paid to four guidelines (Table 5).

Table 5: Four guidelines for online group work to improve student writing

Guidelines	Action
Modularise	and think beyond the online module; use the best available modality for the desired outcomes and link explicitly between online and offline activities
Motivate	from a student perspective; create a safe environment to build confidence.
Model the process	and permit the teacher perspective; teachers need to provide concrete examples and enable students to practice assessing their own and others' work
Moderate	and also guide; balance student participation with the need to focus student work and provide validation

Although these guidelines are based on experience in writing education, they provide a helpful starting point for considering collaborative learning in many contexts.

Bitchener, J., East, M. & Cartner, H. (2010). The effectiveness of providing second language (L2) writers with on-line written corrective feedback.

| L | **T** | M | Org | QA |

A highly specialist study within a narrow field taking an accepted feedback technique and applying it online. It explores the concept of written corrective feedback when used with students for whom English is not their native language. The specific range of mistakes focused on is errors of grammar that present distinct challenges to non-native English speakers. The study uses modern 'track changes' features in software to adapt the feedback system to online use, particularly in the writing of blog posts.

The report provides an in-depth analysis of written corrective feedback, its uses as a tool, its effectiveness, and its coverage in the relevant literature. Methodology, findings and conclusions are discussed. The study demonstrates that it is possible to provide effective and detailed feedback to students engaged in online study using the simple tools available within modern writing environments.

Jeffrey, L., Milne, J., Suddaby, G. & Higgins, A. (2012). Help or hindrance: blended approaches and student engagement.

This project identifies effective strategies for teachers to use within a blended learning environment to enhance learner engagement and achievement. It aims to move beyond the typical case-study approach by providing strategy frameworks for capturing and maintaining engagement in this context, and for re-engaging the disengaged. The extensive literature review discusses blended learning and e-learning to provide context before exploring the three areas of interest.

Ten effective engagement strategies are identified, framed by the stage of the course (Table 6).

Table 6: Ten effective strategies for student engagement

Start	Maintain Engagement	Recapture
At the start of the course, maintain engagement using: • primers for getting their attention • social presence and belonging	During the course, maintain engagement using: • clear structure • unambiguous instructions and guidelines • challenging tasks • authentic tasks • timely feedback • elaborated feedback	During the course, recapture the disengaged by: • monitoring for early identification • maintaining personal contact with students and appropriate support

The report provides a discussion around two questions of student attitudes towards blended learning and what influences student engagement in a blended environment. An extensive set of findings and recommendations is provided based on an extensive data set including a combination of questionnaires, interviews, focus groups and data from learning management systems and student databases. The following recommendations for teachers are made.

- Teachers should redesign their courses for blended learning, not just add an online component to their regular teaching.
- All 10 of the engagement strategies should be used systematically for maximum impact.
- Teacher monitoring for early identification of disengagement is essential to improving retention.
- Students should be enabled to choose a blend of learning components to foster diverse ways of learning, with guidance provided to ensure this is effective.

The project is supported by a wiki based toolkit (available online at http://www.teachertoolbox.ac.nz) which promotes sharing of tools and examples among the community of teachers. This currently has a selection of downloadable checklists available to help teachers considering different blended learning approaches.

This project forms the basis of an Ako Aotearoa professional development workshop offered from early 2016.

E-learning case studies and examples

Projects that illustrate ways that technology can support student learning and which engage with the implications for learning design.

A key message in the modern e-learning literature is the need to engage with the pedagogical opportunities of new technologies at a fundamental level. Each of the projects reported in this section illustrate a different approach to learning design informed to a varying extent by the affordances of e-learning technology. This is most clearly apparent in Clarke, Weller and Farquhar (2012) who show how even a basic engagement with e-learning can be challenging and therefore requires considerable reflection on pedagogical design and substantial technical support.

A potentially significant benefit of e-learning is the ability to use a range of media and presentation styles to engage learners in rich assessment approaches aligned to the objectives of the course. Learners can develop and use a range of literacies other than formal writing in ways that encourage them to be creative and collaborative in their learning. Alterio and Woodhouse (2011) illustrate the potential of mixed media in a small case study of digital storytelling as a pedagogical approach supporting the development of learner self-reflection and collaboration skills.

Instead of utilising just one tool, a variety can be used to support a coherent pedagogical strategy. Mentis (2011) shows how e-learning tools can be used to incorporate a range of feedback modalities into a course design. This strategy provides a rich mixture of formative and summative feedback integrated directly into course activities and enabled by the careful choice of appropriate e-learning technologies. Wing-Lai (2014) shows how the collaborative and social features of a range of e-learning tools can be used in a distance doctoral programme to provide students with a collegial community of practice supporting the development of their research skills and their thesis proposal.

Fowler (2010) discusses the design of a virtual workplace environment used to teach web writing, illustrating the use of coherent learning experience as a tool to guide the selection and use of e-learning technologies. This illustrates how technology enables authentic and scenario-based pedagogies that provide an effective context for learning. Scenarios are also the focus of Stewart (2008) who provides examples of interactive scenarios and a process for developing pedagogically effective scenarios.

Stevens and Boladeras (2010) show how an e-learning course can develop cognitive skills, in this case self-reflection, in a workplace context. Their report provides a useful illustration of the pedagogical structure needed to effectively use a single e-learning technology such as e-portfolios, providing learners with an explicit framework designed to build on the capabilities of the tool rather than passively applying it to an unchanged course design. Keys, Fraser and Abbott (2014) also adopt an e-portfolio approach. Drawing on photographs and social media content generated by the learners as they engage in an authentic building experience, they show how this generates

substantial improvements in engagement and motivation, especially among Māori learners. Finally, McDonald (2008) explores strategies for blending online and face-to-face learning and shows how Facebook can support both online collaboration and classroom debates.

These studies illustrate the importance of seeing e-learning as a question of pedagogical focus and emphasise the need to align the choice of technologies with the type of experience and outcome needed within a course. Further research on e-learning in workplace contexts drawn from the published literature can be found in the Ministry of Education annotated bibliography (Guiney, 2015).

Clarke, J., Weller, J. & Farquhar, C. (2012). Design and evaluation of a new web based educational tool for systematic review authoring skills.

| L | **T** | M | Org | QA |

Uses an existing training programme in the medical and health area to develop and evaluate an electronic programme. Students are trained to prepare and write systematic health information reviews in a specific format using specialist software, for inclusion in a research library. The research assesses the new electronic course alongside the existing programme.

The report introduces the review system and its specific requirements. It covers the methodology used to evaluate the current workshop-based training system and to develop, test and evaluate the new web based equivalent. The key findings are itemised followed by a brief list of lessons learnt and recommendations for the future. The report illustrates the challenges facing teachers attempting to transition from didactic course designs to e-learning delivery and emphasises the need to start from basic pedagogical principles with support from experienced teachers and e-learning specialists.

Alterio, M. & Woodhouse, A. (2011). Creating digital stories to enhance vocational learning.

| L | **T** | M | Org | QA |

A pilot study with a very small sample size designed to explore the potential of cooperative digital storytelling to encourage engagement, literacy development and reflective conversation in order to enhance learning.

Students were detailed to produce short, personal, media-rich stories using a variety of different techniques and software. At the end of the process, each student was interviewed. A discussion on the development process and the student experiences makes up the bulk of the report. An interesting section on assessment of the resulting student work is included, discussing the challenges of assessing self-reflection processes and skill as opposed to the personal content and life experience of learners.

A brief overview of the pedagogical framework used in digital storytelling is provided as a starting point for replication in other course designs.

Mentis, M. (2011). Feedback and feedforward: assessment for advanced learning in an online environment.

| L | T | M | Org | QA |

The video explores how a variety of e-learning tools can support a range of formative feedback strategies within a course. The analysis is framed by a model of assessment that is explicitly designed around feedback. It describes 'assessment *of* learning' and 'assessment *about* learning' as feedback methods providing a summative evaluation. This is then extended by adding 'assessment *for* learning' and 'assessment *as* learning', termed feedforward methodologies which provide a formative scaffolding to a student's learning.

The model specifies three continuums: learning, activity and teaching. Each strand progresses the student from a passive starting point to an active engagement with the knowledge they acquire. It is applied in practice in an online environment on a *Moodle* platform using a postgraduate course as the pilot study.

The feedback assessment tools consist of quizzes and assignments submitted online for teachers to assess, mark, and comment on. The feedforward tools are more student centred. These include a glossary which students add to by creating and uploading entries as a shared resource, and a forum discussion system. These activities are assessed using peer review, analysis and feedback. A wiki requires collaborative work and authoring of assignments, and reflective personal journals are self assessed.

Student interviews provide commentary on their experience and the video ends with a discussion on the success of the initiative with and a brief evaluation from the teaching staff.

Wing-Lai, K. (2014). Supporting collaborative knowledge building in a distance doctoral programme.

| L | T | M | Org | QA |

A look at a part time, distance, doctoral programme in education. A major design facet is to provide a strong link between research and professional practice. The challenges are how to provide social and intellectual support to the students, and how to remove any feeling of isolation, given the relationship between student and supervisor is at a distance.

Course design is based firmly on current pedagogical principles and theory to create an active learning environment with three key strengths:

- recognising distributed expertise
- peer review and collaborative supervision
- and linking research to practice.

Workload consists of a taught course, research to practice portfolio, and the main PhD thesis. The first third of the programme is comprised of two short residential sessions and online coursework. This takes place within the online community, as do thesis proposal development, presentations, feedback and review.

The learning outcomes of the programme are discussed and two students share their thoughts through a series of video capsules. Links are provided to the complete student interviews. The adaptability of the collaborative model to other disciplines is noted.

Fowler, P. (2010). Wonderwebbers: a virtual workplace to enhance web-writing skills.

| L | **T** | M | Org | QA |

A video presentation on the rationale and design decisions behind an online course that places student work at the backbone of the online presentation, instead of the course content, discussion forums, quizzes, video and chat, which all become tools supporting the learning experience.

Using the principles of sound instructional design for e-learning as espoused in the Open Polytechnic's Certificate in Designing and Facilitating e-Learning, the tutor creates a virtual workplace experience, a fictional web design company where the students work as web writers. Ideally, it will prepare students for the workplace as they apply their learning by testing their knowledge and problem solving while practicing real-world skills in context.

The course undergoes iterative improvement informed by theory, experimentation, and student feedback. It is run on a *Moodle* platform and the video discusses the just-in-time mixed media content, the barriers and problems encountered and the improvement noticed over numerous iterations of the course. It finishes with some ideas for using the concept in different disciplines, advocating authentic learning designs and scenario-based learning oriented to the real-world context relevant to the course.

Stewart, T. (2008). Crafting interactive case studies for tertiary training: ethics and distance education training scenario.

| L | **T** | M | Org | QA |

This project offers two scenarios designed to illustrate different approaches to the use of interactive case studies in different disciplines. The examples provide a starting point for developing scenarios to use with modern courses. The specific examples, based on the SBL-Interactive tool, are somewhat out of date and should not be depended on for delivery.

The process of scenario development is described in some detail in Stewart and Brown (2008) where the planning steps needed to efficiently create pedagogically effective interactive scenarios are described. The approach models the need to have very clear learning objectives for scenarios and an explicit formative feedback structure guiding the learner towards an appropriate outcome.

Stevens, A. & Boladeras, R. (2010). Developing the usefulness of reflective practice for professional development from within eLearning.

| **L** | **T** | M | Org | QA |

This report shares the design and evaluation of a course aimed at developing skills in self-reflection supported by the use of e-portfolios. Nurses are required by law to demonstrate continuing professional competency with the renewal of an annual practicing certificate. This project assesses the use of an e-learning initiative where nurses submit a portfolio which records professional development, learning from practice, analysis and critical reflection. The programme extends the traditional practice of nurses using reflective writing to *"describe, discuss, and critically analyse their practice to demonstrate evidence of continuing competency".* The ePortfolio version provides nurses with availability at a distance at any time, additional resources, a facilitated discussion forum and electronic portfolio submission.

The report covers the importance of professional competency monitoring and the other motivations behind the initiative, then documents supporting research from the literature. A useful feature is the framework of supporting resources used to help the nurses understand reflective practice and identify personally effective reflection strategies and techniques.

The report discusses the development of the system and the experiences of the pilot group of recent graduates. Evaluations were completed by the pilot group and an analysis is provided, concluding with an in-depth, and appropriately reflective discussion of the results in light of initial expectations and hoped for benefits. An important lesson is that the flexibility of the portfolio approach is valued by the nurses but they benefit from an explicit timeline helping them prioritise their time, rather than just deadlines.

Keys, D., Fraser, C. & Abbott, O. (2014). Nailing it with technology: using e-portfolios to evidence carpentry students' practical learning.

| L | **T** | M | Org | QA |

A video of interviews with the staff of a practical carpentry course where students need to prove competency in a series of industry level unit standards to pass. Until recently, this was achieved with a combination of creating practice pieces which were then dismantled and written work in a traditional classroom approach.

A significant change to the programme now sees each class building a house, which has a lifetime, so individual practical work becomes permanent and useful. This engenders a level of pride and satisfaction among the students who photograph their work and share it on social media.

The course now utilises eortfolios for assessment. Students take photographic verification of their work, then use a template to record evidence relevant to the photograph and document their knowledge and understanding of the unit standard. The assessment is uploaded to a *Moodle* system for marking against a known judgement statement. Staff comment that students easily mastered the system and the assessments show individual creativity. Students say that they don't feel like they are doing an assessment. The process is backed up with online surveys to track how students feel about the course.

Once e-portfolios where introduced, retention and completion statistics showed a noticeable improvement, particularly among Māori students. Students are clearly more engaged with the practical, less classroom based setting.

McDonald, A. (2008). Facebook in the classroom: integration of online and classroom debates into classes.

| L | **T** | M | Org | QA |

An evaluation of a teacher's experience of using the consumer Facebook environment to incorporate formal online discussion into a traditionally taught applied science course. The aim is to address the fast-paced and dynamic nature of the disipline where the most current research is only available online.

The report discusses the motivation for the project and presents evidence of the benefits after collecting course evaluations and survey results over several years. These include improvements in the areas of:

- student collaboration, active learning and engagement
- enhanced student-faculty contact
- the provision of a mechanism for timely assessment feedback.

Consideration is given to the most effective way of blending asynchronous online discussions with oral classroom debates. Assessment and the need for clear guidelines and grading schemes is also considered, along with the role of the instructor and their participation in the debate. Problems and pitfalls encountered are detailed, as are issues with implementation and use of the technology.

E-learning and Ako Māori

Projects that explore the ways technology can enhance education in Māori contexts and regarding Māori culture and language.

A unique aspect of New Zealand tertiary education is the role of Māori providers, culture and participants within the sector. Bruce (2012), in the exploration of the models of e-learning in the trades, provides a very useful discussion of Māori pedagogical concepts and approaches drawing on a review of the available literature. The framework they present is helpful for those operating in any teaching context and wanting to incorporate and support Māori models of learning and teaching. They draw particularly on Greenwood and Te Aika's (2010) five over-arching principles:

- Toko a-iwi, a-wānanga, Institutional and iwi support
- Tikanga, the integration of Māori and iwi values and protocols
- Pukenga, the involvement of suitably qualified leadership and staff
- Ako, development of effective teaching and learning strategies
- Huakina te tatau o te whare, opening up the doors to the house.

A key point they note is that Kaupapa Māori is often 'tacked' onto an established learning design, in much the same way e-learning tools are often added as an afterthought and without a full commitment to maximising the potential benefits. The other projects noted in this section are examples of how Kaupapa Māori and e-learning can be combined in ways that avoid this risk and potentially enhance outcomes not only for Māori students, but all learners.

Rawlings and Wilson (2013) show how a 'cyber whare' or 'virtual marae' can inform the development of an online mentoring and support community embodying Kaupapa Māori. Camp, Sunderland, Russell and Flack (2009) discuss how technology can provide a modern twist on the Māori oratory and storytelling pedagogies used to teach Māori history during hui and marae visits through the use of online immersive simulations. Te reo is fundamental to any engagement with Ako Māori. Keiha, Moorfield, Ka'ai and Spooner (2008) describe the digitisation of the Te Whanake language resources and their integration into a modern e-learning environment.

Rawlings, C. & Wilson, K. (2013). Tuakana-teina e-belonging report.

L	T	M	Org	QA

This project looks at peer mentoring in a Māori context using the concepts of Kaupapa Māori within an online mentoring space called *Tuakana-teina e-Belonging* (tuakana = mentor, teina = mentee). The programme is designed to foster traditional mentoring outcomes like engagement, retention and completion among first-year distance Māori students within a community of Māori culture and support. The online initiative enhances the mentoring experience for Māori students by providing a strong sense of connection, belonging and community; concepts important to Māori which can be used to foster confidence and competence in academic learning.

The space is described as a 'cyber whare' and a 'virtual marae', designed 'by Māori, for Māori'. The project explores the concepts of culturally relevant support and of tuakana/teina (mentor/mentee) support within an online environment. It looks at the issue of training tuakana (mentors) at a distance and evaluates the effect belonging to such an initiative has on student achievement.

The project methodology is provided in detail and data to determine project success was gathered via interviews with the two different groups of students (tuakana and teina). Discussion on the research themes and the corresponding student responses form the bulk of the report. Survey questionnaires and other documents are provided in the appendices.

Camp, J., Sunderland, J., Russell, K. & Flack, B. (2009). Simpā – a very useful toolkit.

L	**T**	M	Org	QA

A report on a toolkit designed to enrich traditional ways of learning, specifically in a Māori context. The Simpā Toolkit is intended to be used as a complementary teaching tool, blending traditional oratory and storytelling with modern technology to enhance the teaching of Māori history during hui and student visits to the marae.

The report introduces the project and details the rationale and history behind the development of the system. It covers the collaborative nature of the initiative and provides feedback on from those who have used the toolkit. The Simpā project incorporates a number of individual simulations or GamePā associated with specific Rūnaka or tribal councils. Intellectual property agreements mean that access to the resources is controlled by the Rūnaka in collaboration with Otago Polytechnic.

Keiha, P., Moorfield, J., Ka'ai, T. & Spooner, H. (2008). Advancing a digital strategy for learning and teaching te reo Māori.

L	**T**	M	Org	QA

A video presentation via interviews and a written report on an initiative that has taken material to facilitate the teaching of Te Reo Māori and transitioned from the old tape sets it was recorded on to a digitised format that combines the audio with video as podcasts. Whereas students once had to purchase copies of the tapes, the podcasts are now freely available for download on iTunes for playback on an iPod or iPad.

The scheme has produced a comprehensive set of Māori language teaching and learning resources from the basics to an advanced level. A complementary facet is that the collection furthers the preservation of Te Reo Māori. These resources are freely available on the Te Whanake Māori Language Online website (http://www.tewhanake.maori.nz/).

The material is used in a blended fashion with traditional interactive classroom activities still considered important. The podcasts are used to aid and enhance student engagement and learning with the advantage of being accessible anywhere, any time.

The accompanying written report describes the collection in considerably more detail and provides the particulars of podcast production. Interfacing with the *Blackboard* system and a discussion on desktop hardware and software is included.

Selecting e-learning technologies

Projects that support familiarisation with the vast array of available e- and m-learning tools and assist practitioners in the selection of tools relevant to specific pedagogical contexts.

One of the major challenges for individuals and institutions is coping with the scale and pace with which new e-learning tools develop and evolve. A number of projects focus on specific types of tools and illustrate new and changing pedagogical contexts influenced strongly by e-learning technologies.

Stewart and Symonds (2009) concentrate on the use of the Internet as a instrument supporting experiential learning, reviewing the ways that different tools support the creation of structured educational scenarios of different types. While many of those described have changed significantly or been discontinued, the analysis framework provided is still suitable for analysing newer content production tools. It also models the need to consider the different strengths of instruments and their pedagogical implications.

The World Wide Web has rapidly evolved from a static content distribution system to support a vast array of communication technologies that enable collaboration in a variety of ways. Elgort and Wilson (2008) and Nichols (2009) provide resources that explore the concept of collaboration, supporting the thoughtful selection of collaboration tools that will enable a pedagogically effective experience for learners.

Nichols' *e-Primer on Extending E-possibilities* addresses a wide selection of tools that support collaboration content generation (also known as Web 2.0) in particular.

Mobile computing devices are a ubiquitous feature of modern life. The cellular phone has evolved into a personal computer that almost only incidentally includes telephony features. Use of SMS text messages is rapidly declining as social media tools provide rich messaging with imagery. The tablet computer is now a normal means of accessing content and while e-books have not banished print, they are now a common tool used without comment by all ages. The mobile form of e-learning, also known as m-learning, is clearly a mainstream mode with vendors like *Blackboard* integrating their product with wearable devices like the Apple Watch, pushing alerts out with a tap on the wrist of participants.

Cochrane (2008) describes how a range of Web 2.0 tools accessed through smartphones can contribute to the pedagogical design of a range of different courses. These tools provide students with the ability to collect data in diverse contexts and to mix text, video and still images in real contexts free of the classroom.

Parsons and Petrova (2011) explore the intersection of mobile devices with the concept of serious games: engaging learning experiences that use game structures to motivate students and support an authentic pedagogical model. This project illustrates the challenges that such projects faced just a few years ago.

Frielick *et al.* (2015) are working to update our understanding of the implications of modern mobile device use. This reflects the rapid growth in availability and power of mobile devices. It also indicates their integration with the vast array of consumer Web 2.0 and social media tools, as well as the power of apps deployed on specific devices.

Stewart, T. & Symonds, S. (2009). Software environments for scenario-based learning: a "snapshot" comparison of some available tools.

L	**T**	M	Org	QA

A comparison study of scenario-based learning software beyond that of a simple webpage, with the aim of helping decide which software is the best fit to any specific scenario. Using one of the studied packages as a reference and a starting point, a number of comparison criteria are defined:

- availability
- authoring and delivery platforms
- ease of installation
- student interface
- functionality of constructed scenarios to support scenario-based learning
- ease of authoring
- scenario portability
- price and configurations
- maturity
- vendor and user community support
- assistance in scenario planning
- interoperability.

Each package is assessed against these criteria.

Four packages, *Adobe Captivate, Udutu, SBL Interactive,* and *Stochasmos,* are assessed in detail. A fifth, *Emergo,* is mentioned briefly. It is noted that software changes quickly so this report is a 2009 snapshot. It concludes that each piece of software handled scenario-based learning in a completely different manner, each with differing strengths and weaknesses, making the necessity of a good match between scenario and software crucial.

Elgort, I. & Wilson, T. (2008). eCollaboration in learning, teaching and research: literature review report.

L	**T**	M	Org	QA

A literature review providing insight into the capability to develop effective remote collaborations in academic teaching and research. It is accompanied by a technology tool selection guide.

The report introduces the practice of academic collaboration, its complexities and its benefits, and inspects the key literature in the field. It compares teaching and research collaborations and presents taxonomies for classifying collaboratory types. This is followed up with an in-depth look at the mechanics of collaboration and the tools used to enable and facilitate it. Factors that impact on the effectiveness and success of the collaboration are considered. The importance of addressing the purpose of collaboration – the field(s) of study, the participants, the location, the duration and the scale – are identified.

A consideration of e-collaboration examines various parameters, sorting them into four groups:

- coordination, administration, project management, leadership
- production
- content and data management
- communication and interaction.

Within the sphere of e-collaboration, it is noted that technology has increasingly become the core tool, rather than a merely enabling one. A rapid look is taken at the many and varied tools available, matching them, where appropriate, with the different collaborative styles. An appendix listing collaborative success factors is included.

Nichols, M. (2009). E-Primer: online discourse.
Nichols, M. (2009). E-Primer: extending e-possibilities

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These e-primers provide a guide to using formal online communication techniques in an educational setting. The focus is on discourse supported by technology.

Primer 4 (online discourse) covers collaboration and cooperation via synchronous and asynchronous communication using chat, audio/video conferencing, and online bulletin or discussion boards. The idea of educational discourse is placed in an online context. A discussion on the two extremes of student collaboration and teacher-guided cooperation offers insight into the considerations involved in making the decision on where to strike a balance between the two. The bulk of the Primer looks at the differences between synchronous and asynchronous communications and how these two styles affect student learning and engagement. Advice is offered on considering discourse in course design and in choosing appropriate technologies and systems to support design aims. It contains a discussion on developing a successful style for effective communication online in an education context.

Primer 5 (extending e-possibilities) looks at the more advanced online tools available for facilitating the educational concepts covered in Primer 4. It starts with an in-depth discussion of Web 2.0 and the use of its technologies in education, before evaluating a number of tools:

- blogs
- wikis
- e-portfolios
- MUVEs and Second Life
- M-learning.

Web 2.0 and its technologies are discussed in the context of the Conversational Framework, looking at both the promise these technologies hold and the need for caution.

Both Primers make mention of the previous three in the series: Primer 1: E-learning in Context; Primer 2: E-Education and Faculty; and Primer 3: Designing for Learning. While now out-of-date with regard to specific technologies, these primers provide a useful introduction to important concepts in e-learning for those new to the field.

Cochrane, T. (2008). Using mobile web 2.0 to transform pedagogy and engage learners.

L	T	M	Org	QA

This project deliberately moves from the traditional instructivist pedagogies typical of tertiary education, to a social constructivist pedagogy which favours the development of critical thinking and of creative and collaborative skills over a focus on course content. The system is constructed on a mobile platform using wireless and Web 2.0 technologies to build a teaching and learning environment.

The report provides a detailed analysis of the rationale, design pedagogy and methodology of the initiative. The specific technology chosen and used is comprehensively covered, as are the resulting Web 2.0 services. These are linked back into a discussion on integrating the m-learning based courses and an assessment of their success. Example project outlines are provided.

The key findings reported were that:

- successful implementation of mobile Web 2.0 projects require careful, planned integration into the course curriculum and assessment
- to support students in Web 2.0 teaching and learning, staff need to become proficient users of an appropriate range of Web 2.0 tools and technologies, the teaching of which must be incorporated into ongoing training and professional development programmes.

The complementary video features interviews with staff who provide their thoughts on and feelings about the process of integrating their courses into the new system. They show mobile devices, discuss the web services, and mention the roles of the different support staff helping to develop the system. Students share what they are doing in the course and how they are using the technology and services.

Parsons, D. & Petrova, K. (2011). Mobile learning with location aware augmented reality business games.

L	T	M	Org	QA

An exploration of using a serious game played on mobile platforms to engage and motivate students in a cooperative activity designed to encourage critical thought and problem solving within a business environment. The extensive research and reflection sitting behind the design and development is discussed and evaluated.

The report documents the experimental results, detailing the data collection techniques, survey responses and evaluation sessions. The in-depth evaluation of the project outcomes covers the value of the technology, of the student learning experience, and of the encouragement of critical thinking and cooperation. Results are rigorously analysed and, where appropriate, tied to existing research. Evidence suggests success in improving student engagement and learning outcomes. The open source game software suite has proved to be adaptable and reusable when coupled with sufficient technical support.

A series of appendices provide copies of evaluation questionnaires and software documentation.

Frielick, S., *et al*. (completion 2016). Learners and mobile devices: a framework for enhanced learning and institutional change.

L | T | M | Org | QA

This project is aimed at addressing the implications of mobile device use in modern e-learning practice. Reporting in 2016, the project attempts to answer the following research questions.

• Will learners' mobile devices deliver innovation, inclusion, and transformation—the main potential benefits for learners?
• If so, how?
• What is the 'framework for enhanced learning and institutional change' that will deliver these benefits?

The outcome of the project is a range of practical strategies for students, teachers and leaders. These aim to utilise the affordances of mobile devices for pedagogical transformation and empowering learners. They will be informed and supported by a range of case studies developed by the participating tertiary organisations.

Conclusions, recommendations for future work and advice to practitioners

E-learning in the popular media is currently dominated by the MOOC and the model of mass, even universal, delivery to an online global audience. The projects described in this synthesis illustrate the real state of e-learning in New Zealand over most of the last decade. Much of it speaks to the needs of a much more specific audience and reflects the challenges facing teachers and institutions as they attempt to make sense of a rapidly changing technological landscape.

Given the diversity of the projects, it is hard to speak of gaps but some areas suggest themselves as needing further, even ongoing, attention as opportunities for research and investment by the sector.

The projects in this synthesis include a number of examples of teachers grappling with how technology enables effective course designs. The best of these go beyond the specific technologies available at a given time to suggest a generalisable pedagogical framework. More of this type of in-depth analysis of rich case studies is needed. Many teachers struggle to select useful combinations of tools that balance features with complexity. Examples of how a pedagogical design is enhanced imaginatively with a carefully selected set of tools are very helpful for professional development and as models for replication in similar situations.

The development of collaborative communities of teachers in the school sector raises the question of why similar communities of practice have not been established in tertiary education. Societies such as DEANZ and ASCILITE and Ako Aotearoa itself, are excellent resources but an inclusive national forum supporting collaboration and sharing of pedagogical knowledge has not yet been achieved.

The absence of a national strategy for tertiary e-learning means that there is an ongoing need for projects that help the sector create such strategies for themselves. Particularly useful would be models that demonstrate organisationally and pedagogically successful ways institutions can collaborate and synergistically lift the outcomes achieved. The heart of the modern Web 2.0 concept is the principle that greater value is achieved through collaboration than through individual action but there are few examples showing this lesson has been learnt by tertiary education institutions.

Finally, it is worth reflecting once again on the five perspectives identified in the e-learning guidelines. Most of the projects speak strongly to the *Learner* and *Teacher* perspectives and the strength of New Zealand research speaking to the *Manager* and *Organisation* perspectives has been noted earlier. The notable absence is that of the *Quality Agency.* Most, if not all, of the projects included in this report have been implemented within an environment that provides minimal or non-existent guidance as to quality. This is likely a consequence of the strategic vacuum noted above and represents a significant risk to the sector and the country. In a globalised world dominated by multinational providers of virtually every service, it is inevitable New Zealand will be faced by definitions of quality in e-learning that reflect commercial and foreign priorities. We need to be able to assert our own identity and promote the excellence of our educational models in the face of these challenges.
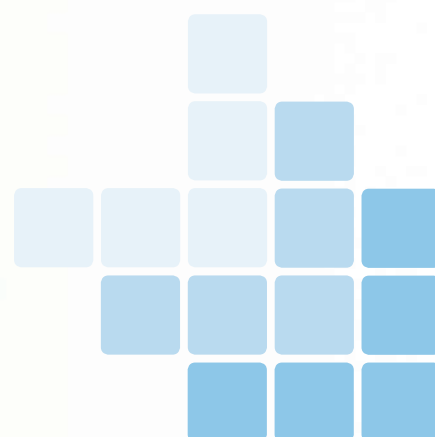
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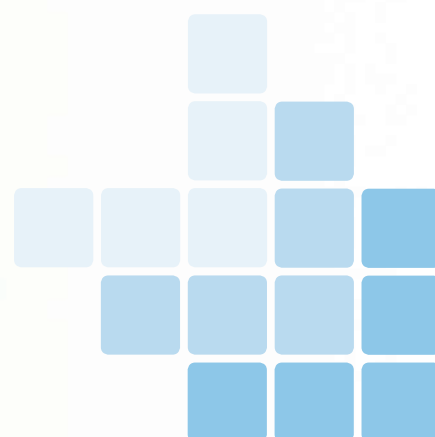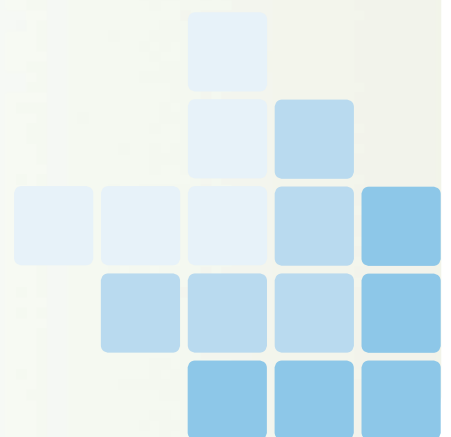
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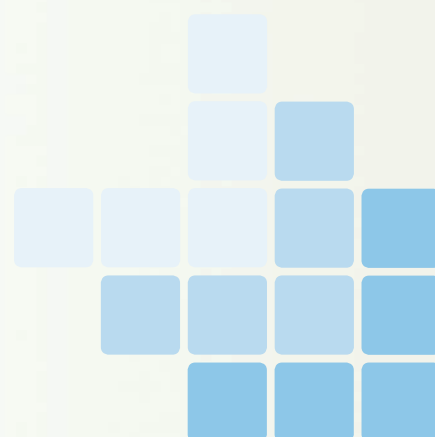
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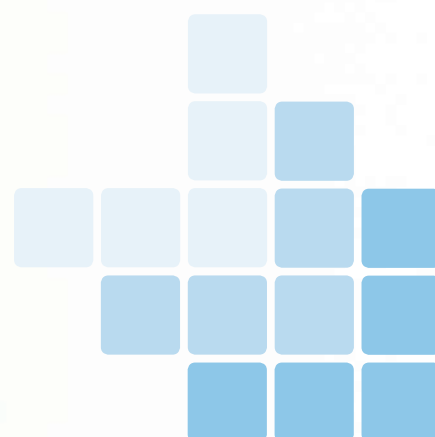
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