Evaluation of the E-Learning Collaborative Development Fund

Final Report

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Executive Summary

Introduction
In May 2003, Cabinet authorised the Tertiary Education Commission Te Amorangi Mātauranga Matua to administer a pool of funding for capability development initiatives in the tertiary education sector. One of these initiatives was the E-Learning Collaborative Development Fund (eCDF), which had the specific purpose of building the e-learning capability of the tertiary education system through a series of contestably funded collaborative projects.

Such capability building for e-learning was to be in the form of producing and/or disseminating information and communication technology “tools and knowledge” that would support tertiary education organisations’ (TEOs’) ability to deliver e-learning education programmes. In particular, the eCDF encouraged a consolidated approach to projects whereby TEOs would “share e-learning costs and systems rather than replicating each other’s investments” and would actively collaborate with each other on projects in order to provide “demonstrable benefits” to each other and, potentially, to the sector as a whole.

The primary purpose of this evaluation was to evaluate the impact of the eCDF to inform future investment decisions on e-learning in the tertiary education sector.

The evaluation’s objectives were to:
- investigate the identifiable outcomes of the round 1 eCDF projects to examine whether the eCDF is achieving its purpose of building the e-learning capability of the tertiary education system
- explore the factors that contributed to the success or failure of the round 1 eCDF-funded projects
- scope the state of e-learning capability in the tertiary sector as a whole
- assess, on the basis of all the above, the need for further funding to improve e-learning capability in the tertiary education sector.

Findings: Assessment of e-learning capability outcomes of round 1 projects
In assessing the e-learning capability outcomes of the round 1 eCDF projects, the evaluation found the following.

- All round 1 projects successfully delivered required outputs, although they varied considerably in the extent to which those outputs involved the effective sharing or dissemination of information to the wider sector.
- The most apparent and lasting capability outcomes of the round 1 projects have been the:
raised profile of e-learning as a significant issue for participating institutions’ strategic management and planning processes

fostering of an active community of practice among e-learning experts and leading practitioners across the university and polytechnic sectors.

The knowledge and use of specific eCDF projects and their outputs are significantly greater in eCDF institutions (i.e., the universities and larger polytechnics) than in non-participant institutions, and are greater in the polytechnics than in other institution types.

Neither the eCDF nor particular projects are widely known or applied in private training enterprises (PTEs), and neither the eCDF nor particular projects have any profile outside the population of providers already engaged in e-learning activity.

Capability building through the eCDF in tertiary institutions has been greatest with regard to development in strategic policy, operational systems and technical infrastructure (especially learning management systems), and least with regard to staff development. While teaching staff report relatively high levels of uptake of professional development in technical skills in e-learning, no eCDF institution rated its teaching staff’s e-learning capabilities as high overall. Staff and managers of e-learning programmes report that staff development, especially in relation to developing a better understanding of effective e-learning pedagogy, is the area of greatest need.

eCDF projects cemented some existing partnerships among several tertiary institutions and promoted efficient common practice in them, more than it created new collaborations. Most of the organisations involved in the round 1 projects defined ‘collaboration’ as information sharing and an agreement to share the benefits of the projects after they had been implemented, rather than as a method for developing projects from the beginning.

The eCDF projects have been a significant conduit for collaboration among, and building professional capability within, the specific community of e-learning managers and e-learning experts in eCDF institutions nationally. Professional development projects such as Flexible Learning Leaders in New Zealand, policy-focused projects such as the New Zealand E-Learning Quality Standards, Framework and Guidelines and the E-Learnz Collaborative Tool Box, and the three open source software platform projects (Open Source Courseware Initiative New Zealand, Open Source e-Learning Environment and Community Platform, and the E-Learning XML Editor) were the most widely reported examples of successful collaborations in this regard.

The sustainability of projects varied largely, depending on the nature of the capability-building goals set for a given project. The most ‘sustainable’ of the projects were those that had a product development focus or some security
of ongoing funding from other sources, such as equivalent full-time student–
based funding. The least sustainable projects tended to be those with a
professional development focus, where the time or financial resources for
achieving a critical mass was not in place, expected alternative sources of
funding were not forthcoming, or planning or resourcing for expanding the
scope of the project beyond a small group of immediate beneficiaries was
insufficient.

- The great majority of eCDF institutions had a well-established profile in e-
  learning before the projects. Consequently, the eCDF was more successful
  in assisting early-adopter institutions to extend their range of existing e-
  learning capabilities than in creating new or widespread capability in
  institutions with little or no e-learning experience.

**Findings: Factors contributing to the success or failure of round 1
projects**

The evaluation found the following were key factors contributing to the success
of round 1 eCDF projects.

- The extent to which senior management in the institutions showed a genuine
  interest in, and commitment to, the project and e-learning as a strategic goal
generally.

- The extent to which an e-learning ‘champion’ or small group of ‘champions’
  was present in participating institutions and had leadership abilities.

- The extent to which the collaborative nature and purposes of the project
  were supported by clear thinking, planning and formal procedures,
especially with regard to the parties having transparent, mutual
  understandings of the extent to which the project was to focus on
  ‘collaborative effort’ or ‘collective benefit’.

- The extent to which a known group of collaborators worked on the project
  and took a team approach with technical, teaching and management staff
  actively working together and given plenty of opportunity for knowledge
  sharing.

- The extent to which goals and time-frames were realistic. Projects were
  successful insofar as the project goals and deliverables were aligned and
  compatible with the existing strategic goals of the participating institutions
  and based on a sound and realistic knowledge of existing e-learning
  capability within participating institutions. Relatively few projects were
  achieved, or indeed achievable, in the one-year time-frame initially
  designated.
Findings: State of e-learning capability across the tertiary sector

In scoping the state of e-learning capability across the tertiary sector, the evaluation found the following.

- Strategic management capability in e-learning is being built in the sector, but more in the larger tertiary education institutions (TEIs) than in the smaller TEIs, wānanga, or PTEs. E-learning capability is particularly low among PTEs. Web-enhanced and web-based courses account for about a fifth of all courses offered nationwide. Universities and the larger polytechnics dominate the provision of such courses.

- Technical infrastructure capability is being built, especially in the TEIs, but not necessarily using interoperable platforms and more in relation to transmissive, mono-media technologies than in relation to multimedia, discursive technologies.

- The full range of students is starting to use all forms of online courses in tertiary institutions, but not in every field or in identical proportions. Enrolments in online courses are increasing at a faster rate in web-based courses than in other modes of course, but these still represent a small minority of enrolments and courses overall. Pacific students are represented in all types of online learning in the same proportion as their proportion of the total student group. Māori students are represented in web-based and web-supported courses, but are under-represented in web-enhanced courses in relation to their proportion of the total student group. Most other under-represented or disadvantaged student populations tend not to enrol in online courses, but when they do it tends to be in either web-supported or fully web-based courses.

- Content capability is starting to be built, but unequally among different disciplines and fields of study. Three fields of study account for three-quarters of the online courses available to students nationwide, and significantly more courses with online components are offered in traditional academic fields than in vocational, trade or general fields of study.

- Professional e-teaching capability is being built, but slowly, and it is not widespread among staff in most tertiary institutions. Professional and pedagogical capability among teaching staff is less widespread than technical capability.

- Students across the sector are experiencing higher pass rates in web-enhanced courses and lower completion rates in fully web-based courses than in other types of course.
1 Introduction

Capabilities are always conjectural. Capabilities are the least definable kinds of productive resources. They are in large measure a by-product of past activities, but what matters at any point of time is the range of future activities which they make possible. What gives this question its salience is the possibility of shaping capabilities, and especially of configuring clusters of capabilities, in an attempt to make some preparation for future events, which, though not predictable, may … be imagined.

(Loasby, 1998, p. 144)

1.1 Purpose and scope of the evaluation

The primary purpose of this evaluation was to evaluate the impact of the E-Learning Collaborative Development Fund (eCDF) to inform future investment decisions on e-learning in the tertiary education sector.

The evaluation’s objectives were as follows.

1 Investigate the identifiable outcomes of the round 1 eCDF projects to examine whether the eCDF is achieving its purpose of building the e-learning capability of the tertiary education system.

2 Explore the factors that contributed to the success or failure of the round 1 eCDF-funded projects.

3 Scope the state of e-learning capability in the tertiary sector as a whole.

4 Assess, on the basis of all of the above, the need for further funding to improve e-learning capability in the tertiary education sector.

In respect of objectives 1 and 2, the evaluation is ‘outcomes’ focused. In other words, the evaluation identifies the immediate, and, insofar as these were determinable, some of the longer term or more widespread effects of the collection of round 1 projects within and among tertiary education organisations (TEOs). It then explores the common and differing factors among the various projects that contributed to their apparent success or failure in achieving the intended outcomes of the eCDF. Findings and conclusions in relation to objectives 1 and 2 are reported in section 3 of this report.

In respect of objective 3, the evaluation focuses on providing a generalised profile of the state of e-learning capability in the whole of the tertiary sector as at mid 2006. This sector-wide profile is summarised in section 4 of this report within a framework of current policy priorities for e-learning, and forms the main basis for recommendations about the nature and targeting of future sector funding for e-learning in section 5.

The appendices contain supporting information and a glossary and list of references conclude the report.
1.2 E-Learning Collaborative Development Fund

In May 2003, Cabinet authorised the Tertiary Education Commission Te Amorangi Mātauranga Matua to administer a pool of funding for capability development initiatives in the sector. One of these initiatives was the eCDF, which had the specific purpose of building the e-learning capability of the tertiary education sector.

Over the four years from 1 July 2003 to 30 June 2007, the eCDF will have invested approximately $21 million for e-learning capability-building projects in the sector. These funds have been allocated through three rounds of contestable bidding, whereby ‘lead’ TEOs, in collaboration with a group of other tertiary institutions, submitted proposals for capability-building projects of about one year’s duration. In 2003, 16 projects (the round 1 projects) were selected for funding over the 2004/05 fiscal year. In 2004, 15 projects were selected for funding over the 2005/06 fiscal year. A third round of funding was completed in 2006 for projects due to end in mid 2007.¹

This evaluation focuses on the outcomes of the round 1 projects, because these were seen as the projects most likely to have had time to generate identifiable outcomes.

The general requirements for projects to be considered for eCDF funding were that they be:

- self-sustaining in the longer term
- beyond the general expectations of existing operational funding and not already funded from some other source
- fiscally responsible in their proposed management and consistent with general legal obligations.

More substantively, they needed to contribute to Tertiary Education Strategy goals such as:

- strengthening system capability and quality
- increasing the sector’s ‘portfolio of provision’
- contributing to the achievement of Māori development aspirations or educating for Pacific peoples’ development
- raising foundation, generic and/or specialist skills
- strengthening research, knowledge creation and uptake in the sector.

¹ Projects from the first funding round are described in Appendix A. Note that this evaluation analyses the collective outcomes of these first round projects only.
1.3 E-learning capability

In the case of the eCDF, capability building for e-learning was expected to be in the form of producing and/or disseminating information and communication technology (ICT) ‘tools and knowledge’ that would support TEOs’ ability to deliver e-learning education programmes. In particular, the eCDF encouraged a consolidated approach to projects, whereby TEOs would “share e-learning costs and systems rather than replicating each other’s investments”. It was, therefore, expected that TEO applicants to the eCDF would actively collaborate with each other on projects in order to provide “demonstrable benefits” to each other and, potentially, to the sector as a whole (TEC, 2003 p. 8).

‘Capability’ in the context of the eCDF evaluation is defined by the Tertiary Education Commission (TEC) as the “skills, systems, infrastructure and relationships” that allow the TEOs to effectively conduct their learning, research and financial activities and to link with other stakeholders. In the various eCDF projects, ‘capability’ thus takes the “form of ICT tools and knowledge that will support the TEO’s ability to deliver e-learning education opportunities” (TEC, 2003, p. 8). It is in this sense the primary or most overarching goal of the eCDF, so is the primary concern of the evaluation. This conception of capability as multifaceted (ie. consisting of all of the skills, systems, infrastructures, tools and knowledge bases that are the necessary conditions of the effective implementation of e-learning) is consistent with most definitions of sector capability in the literature, especially in service organisations (see, for example, AGIMO, 2006).

1.4 Policy framework

Since the primary purpose of this evaluation is to inform future investment decisions, it was deemed important to frame the analyses of the outcomes of the round 1 eCDF projects and the general assessment of current e-learning capability in the sector within current tertiary policy priorities.

The policy framework most relevant to the evaluation is encapsulated in the Statement of Tertiary Education Priorities (STEP) (Minister of Education, 2005). This document outlines the Government’s strategic goals for the sector. The STEP describes the key areas of policy focus and investment for 2002–07. For 2005–07 in particular, it describes these priority policy areas as (emphasis added):

- “enhancing capability” in the sector
- making tertiary education more accessible to students, especially to those who are not well represented in it
- “increasing the relevance of [the] skills and knowledge” taught by the sector to national goals
- ensuring “excellence in teaching learning and research”.

Evaluation of the E-Learning Collaborative Development Fund
These four areas have become known as the CARE (Capability, Accessibility, Relevance, Excellence) framework within the TEC. The STEP also formed the basis for the intervention logic outcomes hierarchy the TEC produced to guide the evaluation of eCDF project outcomes (see Appendix B).

In the STEP it is noted that building e-learning capability is perceived as a ‘cross-priority’ feature, rather than as something relevant to only one priority area. ‘Building capability’, in the policy discourse of the STEP, and in respect of e-learning especially, involves a number of areas. These involve building generic management capability through tertiary institutions taking a sector-wide, more collaborative approach in planning their educational provision, and through generic investment in efficient strategic planning and interoperable knowledge-sharing systems. It also involves targeted capability investment in relation to all of the other priority areas as well: capability for access, capability for relevance, and capability for excellence in tertiary provision (Minister of Education, 2007).

Thus, the CARE framework provides both the broad policy context within which the eCDF has operated and a convenient framework of four specific priority areas against which eCDF project outcomes might usefully be assessed. It is also the framework against which the state of sector-wide e-learning capability in the evaluation is mapped in this report.

It should also be noted that the eCDF was initiated in a policy context that has changed as a result of ‘tertiary reforms’. Accordingly, the report has been positioned to provide information that might guide future investment in e-learning capability more widely, and does not assume that the eCDF will continue as the funding mechanism for such investment.

This report makes recommendations specifically about the future funding options related to e-learning capability in the tertiary sector, based on a case-specific study of the impact of the eCDF and a time-specific scoping of the state of e-learning across the sector. As a contribution to the evidence base informing broader, more general, policy analysis and decision making around the development of e-learning in the tertiary sector, it should be read in conjunction with several other research reports, advisory documents and policy frameworks. These include:

- the study of e-learning in tertiary education funded by the Organisation for Economic Co-operation (OECD) (Centre for Education Research and Innovation, 2005) (New Zealand contributed data for this study)

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2 The intervention logic outcomes hierarchy shows the eCDF’s expected outcomes and links those outcomes to the overall policy priorities to which the eCDF was expected to contribute. The intervention logic outcomes hierarchy is closely based on the CARE framework and itemises some expected eCDF outcomes under the framework’s four headings. The CARE framework and intervention logic outcomes hierarchy comprise the main analytical framework for defining outcomes and sector-wide capability in the evaluation.
the related OECD policy brief (OECD, 2005)
the Tertiary E-learning Action Plan (Ministry of Education, no date)
the ICT Strategic Framework for Education (Career Services et al., 2006)
the Digital Strategy (Minister for Information Technology and Communication, 2005)
the E-Framework for Education and Research (JISC and DEST, 2007)
various Ministry of Education–funded tertiary e-learning research reports (listed in Appendix C).
2 Methodology

2.1 Purpose
The evaluation’s primary purpose is to evaluate the impact of the eCDF to inform future investment decisions on e-learning in the tertiary education sector.

2.1.1 Objectives
Within this overall purpose, the evaluation has four specific objectives.

1 Investigate the identifiable outcomes of the round 1 eCDF projects to examine whether the eCDF is achieving its purpose of building the e-learning capability of the tertiary education system.

2 Explore the factors that contributed to the success or failure of the round 1 eCDF-funded projects.

3 Scope the state of e-learning capability in the tertiary sector as a whole.

4 Assess, on the basis of all the above, the need for further funding to improve e-learning capability in the tertiary education sector.

2.1.2 Evaluation questions
In the evaluation plan, the four objectives were redefined as questions.

- To what extent and in what ways have the projects funded in round 1 of the eCDF achieved the eCDF’s purpose of building the e-learning capability of the tertiary education system?

- What have been the key factors that have contributed to the success or failure of the first round of eCDF-funded projects?

- What is the state of e-learning capability in the tertiary sector?

- In the light of the outcomes of the eCDF to date, the state of e-learning capability in the sector generally, and current policy directions, what is the need for further funding to improve the e-learning capability of the tertiary education system?

The main purpose of objectives 1 and 2 was to evaluate the collective impact of the round 1 eCDF projects. In emphasising the collective impact of the projects, it should be noted that no attempt was made to evaluate each project separately. Projects had very different specific objectives, but had broadly similar goals, so the focus was on isolating those operational and effect characteristics that the various projects had in common (or not) with regard to ‘what had impact and what did not’, in and across participating eCDF and other tertiary institutions. Since both objectives 1 and 2 focus specifically on the eCDF they are dealt with together in section 3 of the report.
The main purpose of objective 3 is to outline or ‘map’ e-learning capability in the sector as a whole, with a view to identifying points of need or possibility for future funding for e-learning in the sector. This objective is reported in section 4 of the report, with the resulting recommendations in section 5.

2.2 General methodology

The evaluation took the form of a post hoc, multi-method study, with data drawn from a range of sources including participant and stakeholder interviews, surveys of national samples of participants, teaching staff and institutions, and official statistics on e-learning provision and performance across the sector.

The surveys were ‘sandwiched’ between two rounds of qualitative enquiry and analysis. An initial analysis of the documents and a first round of participant and stakeholder interviews, in June and July 2006, helped to determine what the range of possible eCDF outcome indicators might be, and suggested question items on those indicators for the surveys. Similarly, the results of the surveys about what seemed to be typical, common or exceptional across the projects or across TEOs prompted further probing and ‘gap filling’ in the second round of stakeholder and participant interviews in September 2006.

The overall methodology, therefore, had all three strands of data collection occurring more or less at the same time for the first two phases of the evaluation (scoping and data gathering), but with each feeding into the next stage of the other thereafter (see Figure 1).

Figure 1 Outline of evaluation process

Some projects had a specifically bi-cultural or multi-cultural focus and context, so for the purposes of the evaluation, the evaluation contractor (CORE Education) partnered suitably qualified Māori researchers to assist with
methodological advice and fieldwork in these contexts. The interviews and analysis of the eCDF projects with such a focus were conducted by researchers from Te Tapuae o Rehua and their analysis has been incorporated into the body of this report. The ethical standards observed in the evaluation are outlined in Appendix D.

2.3 Data sources
Four main sources of data and forms of analysis contributed to the evaluation.

- A content analysis of various documents provided by the TEC, TEOs and other organisations. These documents included project proposals, contracts, milestones, reports and external evaluation reports commissioned by the projects; staffing profiles and contact information for all TEOs; official policy documents, including STEP, relevant strategic frameworks for ICT and e-learning in the education sector, and Cabinet and TEC papers related to the current tertiary reforms.

- A quantitative analysis of official statistics on student enrolment and performance in e-learning and other courses drawn from tertiary providers’ Single Data Returns (SDRs) for the academic years 2004 and 2005, provided by the TEC.

- A predominantly quantitative analysis of data from three surveys conducted as part of the evaluation. Two of these surveys (one sent to eCDF project participants and stakeholders and one sent to teaching staff in all institutions participating in round 1 eCDF projects) focused on outcomes of the eCDF for objectives 1 and 2. The third was an institutional survey sent to 232 TEOs nationwide, which focused on mapping system-wide capability for objective 3.\(^3\)

- A qualitative analysis of two rounds of interviews and focus groups held with key stakeholders and participants in all of the round 1 eCDF projects.

2.3.1 Data collection

*Interviews*

Two rounds of semi-structured interviews with project managers and managers in eCDF project institutions were conducted. The first round of interviews (from the end of June to early July 2006) covered all 16 eCDF projects funded for

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3 The full results of a small Ministry of Education survey of ICT and e-learning capability in 14 tertiary education institutions (TEIs) in 2003 and the summary of key results from a similar survey in 2002 were also made available by the Ministry of Education and TEC respectively. However, the low number of responses in the former and the unrepresentative nature of the responding group meant this survey was of limited use as a baseline for comparing the 2006 evaluation surveys. However, where direct comparisons between the responses to the ministry surveys and responses to our 2006 survey were possible and valid, these are reported in the appropriate sections of this report.
2004–05 and all the designated lead institutions for those projects. The round consisted of face-to-face interviews with project managers and managers from the lead institutions. For those projects with a Māori focus, first-round interviews were held with key personnel in all the participating institutions. A copy of the interview schedule used by the evaluation team is in Appendix E.

The second round of interviews, in September 2006, involved a smaller group of project participants and key stakeholders identified as being of particular interest as a result of the initial analysis of data from all sources during the middle phase of the evaluation. The second-round interviews were held face-to-face or by audio-conference. In all, 23 interviews were conducted with 34 project participants and e-learning managers in eCDF institutions, covering all round 1 projects. In addition, three stakeholder interviews were conducted with officials from the Ministry of Education and TEC.

**Surveys: Sampling and response rates**

Three separate populations were sampled and surveyed as part of the evaluation.

- The group of active participants (e-learning managers, project developers and so on) in the 16 round 1 eCDF projects (‘n’ estimated at 3–6 participants per project, so 70–80 people nationally), based on participant lists provided during interviews.

- A self-selecting sample of teaching staff in the 32 institutions participating in eCDF projects (‘n’ estimated at potentially several thousand), based on staff lists available to e-learning managers in those institutions.

- The e-learning managers in a whole population sample of the 232 ‘larger’ TEOs providing tertiary courses in New Zealand, based on contact lists provided by the TEC.

Several eCDF participants piloted the survey instruments before they were finalised and distributed, and respondents were invited by email to complete their questionnaire online or to complete a hard copy questionnaire attached to the email message. E-learning managers in the TEOs were contacted by personal email or telephone, while staff and participant invitations were distributed by institutional managers or eCDF project managers.

To gauge the ‘spread’ of knowledge and use of the eCDF projects among teaching staff in particular, it was deemed important to get data from both adopters and non-adopters of e-learning and/or eCDF project initiatives in participant institutions, so no pre-selection of staff on the basis of their engagement in e-learning was made. When distributing the invitation email messages, e-learning managers highlighted the need for both those engaged in e-learning and those not engaged in it to reply.
The demographics of the responses to the three surveys are tabulated and discussed in Appendix F. Thirty-nine responses were received to the ‘participant’ survey from participants in most of the round 1 eCDF projects, representing a response rate of 50%. Since response rates to self-selecting surveys of this kind are often as low as 25–30%, and since the respondent group represented nearly all of the 16 project managers and a range of content writers, technical staff and e-learning developers, there is a good likelihood the respondent group represents the wider group of operational participants in the projects. However, because of the relatively low number of respondents in absolute terms, we adopted a more rigorous significance level of $p < 0.01$ in the statistical analysis.

There were 417 responses to the teaching staff survey, most of them being from teaching staff in the polytechnic sector. Thus, the views expressed in the staff survey may be taken as a more reasonable representation of staff opinion in polytechnics, and possibly colleges of education, than staff opinion in either private training enterprises (PTEs) or universities. However, the respondent group was more or less equally divided between staff with experience of online teaching and staff with no such experience, so the staff responses do adequately cover the views of both staff who are engaged in e-learning and those who are not actively engaged in it in equal proportion. As was the case for all statistical analyses done as part of the evaluation, statistical significance in the analysis of the surveys was set at the $p < 0.01$ level.

There were 84 responses to the TEO survey, representing 38% of all TEOs in the population of course providers. This included three-quarters (6) of the 8 universities, over half (14) of the 23 polytechnics, including 2 wānanga, and about a quarter (55) of the PTEs in the sector. Because of their much smaller numbers, universities and polytechnics are over-represented in the respondent sample compared with PTEs, even though the highest number of respondent institutions (55) were PTEs.

Of the 84 institutions that responded to the TEO survey, 19 were eCDF partner or participant institutions, 24 were non-eCDF institutions that do provide courses with online components, and 40 were non-eCDF institutions that do not provide courses with online components. Two eCDF institutions, both PTEs, said they did not provide courses with online components.

**Single Data Returns**

The primary data source analysed for trends in course provision and student performance across the sector was an aggregated version of the SDRs from tertiary providers for the academic years 2004 and 2005, supplied by the TEC.

The SDR contains a breakdown of all enrolments and results for all tertiary courses offered by all providers nationwide. Providers submit the record of their student enrolments and course provision in this form to the TEC annually. However, the record is not necessarily definitive for any given provider, since,
for example, providers can resubmit SDR data through the following year (to update completions for students granted extensions and so on). Course completion rates were thus calculated only for ‘completed courses’ and exclude students who had gained extensions beyond course completion dates, and students such as doctoral students part-way through a course of more than one year’s duration. The SDR data make a comprehensive and detailed record, containing millions of records in their ‘raw’ state, which required several levels of statistical aggregation before they could be useful for the evaluation. The statistical effects of these data reliability issues at enrolment, course or provider level were partly ameliorated by the evaluation needing to report sector-wide trends rather than trends for individual courses or providers, and partly by the large numbers of courses and enrolments involved nationwide. For such reasons also, a relatively high level of statistical significance (p < 0.01) was applied in any inferential testing.

Since 2003, the SDRs from institutions have had a field labelled ‘internet’, which identifies the extent to which online or internet-based elements are included as part of the delivery mode of any given course. The four ‘modes’ of online provision reported in this field and their descriptors are described in Table 1.

Table 1 Four modes of course provision as reported in the internet field of the Single Data Return

<table>
<thead>
<tr>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offline</td>
<td>Mode 1: No online access</td>
</tr>
<tr>
<td></td>
<td>Mode 2: Web-supported</td>
</tr>
<tr>
<td>Online</td>
<td>Mode 3: Web-enhanced</td>
</tr>
<tr>
<td></td>
<td>Mode 4: Web-based</td>
</tr>
</tbody>
</table>

4 In the SDR these modes are referred to as ‘levels’ of internet use in courses. However, to avoid the implication of a hierarchy, which is implicit in the term ‘level’, and to avoid confusion with the ‘levels’ in the intervention logic outcomes hierarchy (Appendix B), we use the word ‘modes’ to differentiate the four categories of course provision in the internet field. Throughout this document the term ‘offline course’ is used to refer to a course offered in Mode 1, involving ‘no online access’. The terms ‘online courses’ and ‘courses with online elements’ refer collectively to courses offered in all three modes in which there is an element of internet provision (Modes 2–4).
The analysis of current course provision, student enrolment and student completion in relation to the internet field was the prime focus of the statistical analysis of SDR data in the evaluation.

Because of changes made in the classifications of the SDR internet field in 2004, internet field data for 2003 are incommensurate with internet field data from 2004 onwards. Consequently, internet field data for 2003 were not used in the evaluation. The data set used, therefore, comprises providers’ SDR submissions as at June 2006, on enrolments and courses conducted and completed in the 2004 and 2005 academic years.

Statistical analysis of the SDR data was conducted in collaboration with researchers at the New Zealand Council for Educational Research. This analysis required two levels of aggregation, first to individual course level (ie. a record consisted of a course or class with the number of students in that class totalled), and then to unique course level (ie. all the iterations and repetitions of a given course in an institution aggregated into a single course record). Thus, when the report refers to the number of ‘courses’ an institution offered in a given mode, it is counting that course only once, and not the repetitions of that course to different groups of students in the same institution and academic year.

All institutions that submitted an SDR were included in the analysis, including those that stated they did not have web access at the institution.

In calculating completion and pass rates, only totals for completed courses were used. Courses that were not due for completion during the year and students given extensions beyond course completion deadlines were not included in the calculations. Completion and pass rate data may, therefore, reflect the profile for undergraduate level courses and postgraduate level courses with strict time-frames more accurately than that of multi-year courses such as doctorates or courses in practical or vocational areas with flexible time-frames for completion. Such courses, however, represent a small minority of the total number of courses offered nationally and an even smaller minority of enrolments.

2.3.2 Analytical frameworks

**Objective 1: Outcomes of the eCDF**

The objectives of many of the round 1 projects differed from each other in several respects. Some, for example, focused on the design, development and production of specific tools or software, for which outcomes might first be defined in terms of the progress made in such production and then in terms of their usage in a range of institutions. Others, however, focused on the use of existing or experimental e-learning strategies to achieve institutional goals, such as enhancing the institution’s range of courses or improving access for certain student groups. These latter objectives were evaluated less in terms of provision of opportunity or resource than in terms of outcomes related to staff or institutional awareness of such opportunities and resources, and then ultimately
in terms of staff or student uptake of that opportunity and institutionalised use of that resource.

Thus, the extent of impact of the projects was assessed along one dimension according to the extent to which the projects had successfully met their output goals, were known about within eCDF or other institutions, had been adopted or found useful in eCDF or other institutions, or had become embedded in the culture and practice of institutions across the sector; and in the other dimension according to the CARE policy priority that the projects most closely related to. The four ‘levels’ of possible impact for which indicators were sought and analysed were:\footnote{We note that the first and third of these ‘levels’ are more or less analogous with the expected ‘immediate’ outcomes of the eCDF fund as stated in the TEC’s intervention logic outcomes hierarchy for the eCDF (see Appendix B), where they are described largely in terms of ‘production’ (1.1) and ‘utilisation’ (1.2). The inclusion of an intermediary level of ‘knowledge/awareness’ outcomes, in between production and utilisation outcomes, was seen as useful, since the first round of interviews indicated that for many projects outcomes had been manifest in terms of a growing awareness and understanding of the outputs of the project without necessarily having translated yet into active adoption or widespread use of those outputs.}

- availability/provision outcomes or indicators (ie. that the relevant tools, resources or programmes were created and available)
- knowledge/awareness outcomes or indicators (ie. that staff and students in or beyond the participant institutions were aware of the e-learning opportunities afforded by the eCDF projects, or that project managers had successfully ‘advertised’ or distributed their project outputs in their own or other institutions)
- adoption/usage outcomes or indicators (ie. that TEO staff in eCDF and other institutions were using the e-learning knowledge, strategies or tools resulting from the projects in their teaching, were collaborating in such use and so on)
- sustainability outcomes or indicators (ie. that the projects had contributed to growth beyond initial expectation, and that e-learning had become embedded in policy and systems or had reduced barriers to participation or fostered high-quality e-teaching in the longer term).

Throughout the report, ‘immediate’ outcomes are taken as the immediate and short- to medium-term effects of the successful ‘delivery’ of project outputs. This involves some assessment of the subsequent actions taken to share and disseminate the projects’ products, resources or findings, the extent of current ‘awareness’ about the products, resources or findings from the projects, and the extent of initial adoption or use of project outputs among the projects’ immediate beneficiaries.

‘Intermediate’ outcomes are taken as the longer-term effects of the funding on e-learning capability, both in the participating institutions and in the sector as a
whole. Indicators of intermediate outcomes of the eCDF are the extent to which the eCDF round 1 projects have contributed to sector capability within the CARE framework. Namely:

- adopting rationalised, sustainable and responsive institutional and organisational systems, through increased strategic collaboration among TEOs on e-learning and improved cost-effectiveness in e-learning provision
- reducing barriers to full and effective learner access to tertiary education through the sector-wide adoption of technical systems, tools and media designed to increase transferability and interoperability in tertiary course delivery
- providing educational opportunities relevant to community goals through the increased provision and uptake of courses in content and skill areas of identified social need
- improving the quality of teaching and learning in the sector by increasing teaching staff’s skills in, and understandings of, effective teaching and learning in e-learning contexts.

The specific indicators of impact at each of these ‘levels’ identified in interview visits to the eCDF institutions and incorporated in questions in the surveys are outlined in Table 2.

We note that the fourth set of outcomes, around what might broadly be called ‘sustainability’ issues (i.e. evidence of both spread and a longer term embedding of e-learning capability in and across institutions) can be inferred only tentatively from a simple statistical comparison between e-learning capabilities in eCDF institutions and e-learning capabilities in the sector as a whole. While one might expect that the projects would have had their most immediate and greatest impact on the participating institutions themselves, the existence of significantly different e-learning capability levels in those institutions compared with the rest of the sector does not establish this in itself. Such are proxy indicators at best. As is stated several times through the report, the round 1 eCDF projects may have contributed to a significant sector-wide growth in e-learning uptake since 2003, but by such comparisons they cannot be claimed, in and of themselves, as explaining it.
<table>
<thead>
<tr>
<th>Outcome level</th>
<th>Specific indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate outcomes: Provision</td>
<td><strong>Availability/successful provision indicators</strong>&lt;br&gt;Successful ‘delivery’ of projects. Numbers and types of outputs produced by projects mapped against the CARE framework (Capability, Accessibility, Relevance, Excellence).</td>
</tr>
<tr>
<td>Immediate outcomes: Knowledge/awareness and adoption/usage</td>
<td><strong>Knowledge/awareness outcome indicators</strong>&lt;br&gt;The extent of awareness of eCDF projects in eCDF institutions reported by e-learning managers, project participants and teaching staff in eCDF institutions. The extent of broader sector awareness of the projects and their outputs as reported by non-eCDF institutions in the survey of tertiary education organisations (TEOs).</td>
</tr>
<tr>
<td></td>
<td><strong>Adoption/usage outcome indicators</strong>&lt;br&gt;The extent of direct benefit from eCDF projects in eCDF and non-eCDF institutions reported in the interviews in participant institutions and surveys of e-learning managers in all TEOs, eCDF project participants and teaching staff in eCDF institutions. Changes in the numbers or proportions of courses with online components provided by eCDF institutions 2004 and 2005. The attitudes of academic staff in eCDF institutions towards e-learning. Evidence of the provision and uptake of professional development opportunities on e-learning in eCDF institutions in the year after the projects’ implementation. eCDF institutions’ ratings of their e-learning capability after the completion of the projects. The extent and types of collaboration involved in project delivery and dissemination. The extent and type of collaborations among tertiary institutions on e-learning related issues resulting from eCDF projects. The extent of reported sector-wide use of eCDF policy and planning project outputs. Participant ratings of the sustainability and cost-effectiveness of eCDF projects.</td>
</tr>
</tbody>
</table>
| Intermediate outcomes: Embeddedness and spread across the sector | **Indicators of the wider and longer term spread of eCDF project impact related to strategic management**<br>The extent of sector-wide collaboration and sharing of e-learning strategic resources.  
- Proportions of TEOs reporting sharing and collaboration in e-learning contexts.  
- Extent of formal strategy development and specialist staffing commitment for e-learning among TEOs. The extent of sector-wide provision of e-learning in the form of courses with online components in 2004 and 2005. The extent and nature of collaborative arrangements and resource sharing among eCDF institutions. The extent of provision of courses with online components among eCDF institutions. |
<table>
<thead>
<tr>
<th>Outcome level</th>
<th>Specific indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Indicators of the wider and longer term spread of eCDF project impact related to increased accessibility</em></td>
</tr>
<tr>
<td></td>
<td>The extent and commonality of interoperable e-learning software used across the sector.</td>
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<tr>
<td></td>
<td>The range of online services and facilities offered by tertiary institutions.</td>
</tr>
<tr>
<td></td>
<td>Transferability and cross-creditability in e-learning courses.</td>
</tr>
<tr>
<td></td>
<td>Tertiary teacher perspectives on benefits and barriers in e-learning.</td>
</tr>
<tr>
<td></td>
<td>Transferability and cross-creditability of online courses among eCDF institutions.</td>
</tr>
<tr>
<td></td>
<td>The perceived barriers to, and benefits of, e-learning in eCDF institutions.</td>
</tr>
<tr>
<td></td>
<td><em>Indicators of the wider and longer term spread of eCDF project impact related to relevance</em></td>
</tr>
<tr>
<td></td>
<td>The patterns of student enrolment in online courses sector-wide.</td>
</tr>
<tr>
<td></td>
<td>The range of content coverage in e-learning provision sector-wide.</td>
</tr>
<tr>
<td></td>
<td>The demographics of student enrolment in online courses in eCDF institutions.</td>
</tr>
<tr>
<td></td>
<td><em>Indicators of the wider and longer term spread of eCDF project impact related to excellence in teaching</em></td>
</tr>
<tr>
<td></td>
<td>The extent of e-learning expertise and staff skills and abilities sector-wide.</td>
</tr>
<tr>
<td></td>
<td>Completion and pass rates for offline courses and courses with online components sector-wide.</td>
</tr>
<tr>
<td></td>
<td>Reported staff skills and abilities in e-learning in eCDF institutions.</td>
</tr>
</tbody>
</table>

**Objective 2: Success/failure factors**

The initial analysis to determine the success/failure factors for the round 1 projects consisted of a grounded qualitative analysis (Strauss and Corbin, 1990) of interviewees’ responses to relevant questions in the interviews, the relevant project documents, especially the milestone reports, and, where they existed, formal evaluations of projects.

Since the projects were to be dealt with as a collection rather than as 16 individual projects, it was felt important to group the factors that emerged into generic groupings using qualitative ‘constant comparison’ techniques (Goetz and LeCompte, 1981; Patton, 1990) rather than to isolate particular projects’ individual successes and failures.

The main themes or categories that emerged were found to be remarkably consistent with those previously developed for the ongoing evaluation of New Zealand’s national programme of professional development in e-learning in the school sector (Information and Communication Technologies Professional Development). These previous studies have given rise to a model of effective project management for collaborative e-learning projects known as the ‘four ships’ (four categories of success factor) (Ham, 2005). Although the four factors were developed in respect of e-learning in the school sector and related to teacher professional development programmes specifically, rather than capability in general, the Information and Communication Technologies
Professional Development and eCDF programmes are systemically analogous. Both programmes are centrally funded, contestable, project-based initiatives in e-learning capability development, where institutions are encouraged to collaborate in the provision of e-learning.

These four success-factor categories became the framework for the further analysis of the second round of interview and other data, and the headings under which findings are reported in section 3.2.3.

In this model, effective collaboration projects on e-learning are those that take full and appropriate account of the following.

- **Leadership**
  Leadership is about having the appropriate management, expertise and authorities in place in the project. How involved and supportive are senior and middle management? Does the project fit comfortably with the institution’s strategic priorities and its ‘core business’? Does the project have the necessary expertise and leadership capability among its operational staff?

- **Ownership**
  Ownership is about commitment in and around the project among participants, and the institutions’ technical readiness to take part. What is done in the project to ensure participants have an ongoing say in the project, the way it is conducted and its methods of evaluation? Do participants genuinely share a common rationale for ‘why’ they should (or should not) build e-learning capability, beyond a common rationale for ‘how’? What are the participant organisations’ pre-existing modes of capability in the e-learning field, and are they well matched?

- **Fellowship**
  Fellowship is about the collaboration and community involved. Are the drivers for participation competitive or collaborative? How collaborative is the process and how collective is the anticipated benefit? Does the project process build, or build on, a genuine sense of community and common purpose?

- **Sponsorship**
  Sponsorship is about the project’s governance and financing. How, and how well, is the project resourced and coordinated externally? How well is it financially managed internally? How sustainable is the economic or fiscal model on which the project is based?

**Objective 3: Scoping e-learning capability sector-wide**

The analysis framework guiding the assessment of e-learning capability across the sector was originally to be the ICT Strategic Framework for Education.  

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6 This framework is interim. See the summary in Ministry of Education (2006).
However, after the results were collated and reported to the Evaluation Advisory Group, it was decided to frame the scoping of sector-wide e-learning capability against the CARE framework instead. This would maintain consistency with the reporting for eCDF outcomes and the TEC’s priorities in commissioning the evaluation. Some of the key indicators of current sector e-learning capability from the evaluation are mapped against the ICT Strategic Framework for Education in Table G1, Appendix G.

Applying the CARE framework involved analysing sector-wide capability in terms of the extent to which the following were evident in tertiary institutions.

- Consolidated and rationalised e-learning management capability through strategic collaborations and interoperable information systems.
- The use of e-learning technical tools and systems to reduce barriers and increase enablers to participation for all learners.
- The provision of e-learning opportunities for students in areas of particular social need.
- High levels of staff capability in e-learning contexts to ensure effective, high-quality teaching.

Table 3 outlines the indicators used in our scoping of e-learning capability sector-wide mapped against the key elements of the CARE framework.

<table>
<thead>
<tr>
<th>Priority area (CARE framework)</th>
<th>Indicator</th>
</tr>
</thead>
</table>
| Strategic management of e-learning (Capability) | The extent of sector-wide collaboration and sharing of e-learning strategic resources.  
Proportions of tertiary education organisations (TEOs) reporting sharing and collaboration in e-learning contexts.  
The extent of formal strategy development and specialist staffing commitment for e-learning among TEOs.  
The extent and demographics of sector-wide provision of e-learning in the form of courses with online components in 2004 and 2005. |
| Accessibility                  | The extent and commonality of interoperable e-learning software used across the sector.  
The range of online services and facilities offered by tertiary institutions.  
Transferability and cross-creditability in e-learning courses.  
Tertiary teacher perspectives on benefits and barriers in e-learning. |
| Relevance                      | Patterns of student enrolment in online courses sector-wide.  
The range of content coverage in e-learning provision sector-wide. |
| Excellence                     | The extent of e-learning expertise and staff skills and abilities sector-wide.  
Demographics of completion and pass rates for offline and online courses sector-wide. |
2.4 Note on the reporting of statistics

Given the categorical nature of most of the frequency data from the surveys and SDRs, the bulk of the reporting is in the form of descriptive statistics. However, whenever statistically significant difference is reported, appropriate inferential testing (mostly Chi squares) has been conducted to establish such significance. The level of significance applied was $p < 0.01$ for both survey and SDR data.

The small populations (eg. eight universities) or small respondent samples (eg. 39 responding participants from eCDF projects) involved in two of the surveys, make it sometimes more useful to report numbers rather than percentages. As a general rule, this applies when the population or respondent numbers in consideration were under 20. When this is the case, either the numbers alone or the numbers and percentages are reported.
3 Evaluation of the Capability Outcomes of the E-Learning Collaborative Development Fund

3.1 Introduction

This section comments on the empirical results of the study relevant to objectives 1 and 2 of the evaluation. It outlines whether, and in what respects, the round 1 eCDF projects have contributed to the eCDF’s objective of building e-learning capability in the tertiary sector and the major success or failure factors affecting the round 1 eCDF projects.

These empirical findings are reported in three parts in section 3.2. The first part (section 3.2.1) traces the direct (immediate) impact of the round 1 eCDF projects, especially the extent to which the eCDF and other institutions have become aware of the projects and report gaining direct benefit from them.

The second part (section 3.2.2) identifies proxy indicators for longer-term (intermediate) impacts of the eCDF in eCDF and other institutions. This part identifies and compares how eCDF and other tertiary institutions respectively, have collectively embedded the learning and product outputs of the round 1 projects in respect of each of the four elements of the CARE capability framework: Capability (strategic management), Accessibility, Relevance and Excellence (quality).

The third part (section 3.2.3) outlines the results of an analysis of the key factors militating for success or failure in the eCDF projects.

Our general conclusions about the overall impact of round 1 of the eCDF on sector capability are outlined in section 3.3.

3.2 Findings: Contribution of the eCDF to e-learning capability in the sector

3.2.1 Immediate capability outcomes

Successful ‘delivery’ of projects

The focus of the evaluation has been on the outcomes rather than the outputs of the projects. However, it is noted that all the round 1 projects could report, and provide evidence of, the successful delivery of most of their required outputs. Although not all projects seem to have achieved all of their goals, and many had difficulty meeting them in the time-frame provided, overall the projects were deemed as having been successfully implemented. Generally, when

“We finished the pilot and had momentum but didn’t launch. Little or no support for marketing and [felt there was] a lack of institutional support for this as a priority, changes in management staff etc. … We should have put more money into marketing and implementation.”

(Interview, eCDF project manager)
tools were required they were produced; when a qualification was to be set up, it was successfully accredited; when a conference was to be held, it was held; when a document or framework was to be written, it was published; when a piece of software was to be developed, it was built; when a course or form of course delivery was to be trialled, it was piloted; and when professional development programmes were to be developed, they were provided.

We note in this regard that the projects had rather differing ‘deliverables’ in terms of what types of ‘outcomes’ might realistically be expected to be in evidence. Most also had primary objectives that applied more to one or maybe two of the priority outcome areas identified in the CARE framework than to others. Some, for example those with a Māori and Pacific focus, were primarily about social equity (ie. relevance) in e-learning. Others were focused on high-quality staff professional development (ie. excellence). Still others focused on developing strategic planning documents (ie. strategic management capability).

Similarly, projects differed in the extent to which they had incorporated deliverables at the various levels of immediate outcome. Some, for example, had exclusively production-oriented targets, with little or no funding allowance made for dissemination (eg. E-Learning XML Editor (EXE)). Some were exclusively about dissemination and sharing with little or no expectation of production (eg. the Association of Staff in Tertiary Education (ASTE) facilitated conference, E-Learning Collaborative Teaching Initiative). Some contained inherent ‘use’ or application of the e-learning resources they designed or produced (eg. Delivering Applied E-Learning in the Workplace: Polytechnics and Industry Training Organisations Working Together (Applied E-Learning)), while others did not, and so on. The various project output priorities and particular areas of activity are mapped against the CARE framework categories in Table 4.

Generally, therefore, the level at which the majority of projects were able to provide their own direct evidence of outcomes was determined by the nature of the prescribed outputs and the specific activities that were considered to have been ‘paid for’ by the funding. Some projects had some built-in mechanism for the collection of outcome data, for example in the form of an external evaluator’s report, but most did not. Crudely put, if the contract did not require or fund the collection of outcome data, then little outcome data was collected.

“Budget for dissemination and transfer. There was no call for evaluation. This should be built into applications” (Interview, eCDF project manager)

“We didn’t build in research [on outcomes] because compliance costs were already too high and [it] would have to come off the money to do the project.” (Interview, eCDF project manager)
Table 4  Output level and CARE framework focus of round 1 eCDF projects

<table>
<thead>
<tr>
<th>CARE category</th>
<th>Capability (strategic management)</th>
<th>Accessibility</th>
<th>Relevance</th>
<th>Excellence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad scope (sector)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium scope (partner groups)</td>
<td>Applied E-Learning (course)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow scope (small trials, few institutions)</td>
<td>OSCI (pilot)</td>
<td>OSCI (pilot)</td>
<td>OSCI (pilot)</td>
<td>OSCI (pilot)</td>
</tr>
<tr>
<td></td>
<td>Graduate Diploma (pilot)</td>
<td>Graduate Diploma (pilot)</td>
<td>Graduate Diploma (pilot)</td>
<td>Graduate Diploma (pilot)</td>
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<tr>
<td></td>
<td>Applied E-Learning (course)</td>
<td>Applied E-Learning (course)</td>
<td>GetTT Mod (courses)</td>
<td>Applied E-Learning (residential)</td>
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<td></td>
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<td></td>
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<tr>
<td>Broad scope (sector)</td>
<td>OSCI (dissemination)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium scope (partners)</td>
<td>FLLiNZ (website)</td>
<td>OSCI (seminars)</td>
<td>Graduate Diploma (PD)</td>
<td>E-GROW (PD)</td>
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<td></td>
<td>Graduate Diploma (advertisement)</td>
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<tr>
<td></td>
<td>ELLs (teams)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow scope (experts)</td>
<td>ASTE (conference)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FLLiNZ (workshops)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FLLiNZ (website)</td>
<td>Graduate Diploma (pathways)</td>
<td>OSCI (Māori)</td>
<td>FLLiNZ (PD)</td>
</tr>
<tr>
<td></td>
<td>ELEARNZ (toolbox)</td>
<td>OSCP (software)</td>
<td>Graduate Diploma (content)</td>
<td>Graduate Diploma (qualification)</td>
</tr>
<tr>
<td></td>
<td>ASTE (resource)</td>
<td>Applied E-Learning (repository)</td>
<td>Applied E-Learning (repository)</td>
<td>ELG (standards)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EXE (editor)</td>
<td>ELLs (Māori focus)</td>
<td>EXE (editor)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: PD = professional development. For an explanation of the abbreviated project names, see the Glossary.

Summary: Provision of required project outputs
All projects were able to show the successful delivery of required outputs, although they varied considerably in the extent to which those outputs were shared or disseminated to the wider sector.

Knowledge/awareness outcomes
A key expected outcome of the eCDF was that outputs would be shared and disseminated and that participants in other projects, management in tertiary
institutions, and technical and teaching staff across institutions would all feel informed about the projects and their outputs.

Participants in the great majority of the eCDF projects were able to cite some evidence of activities to disseminate the findings or products of their project, either to other e-learning experts in fellow eCDF institutions or among the wider group of staff and management within their own institutions. Indeed, some projects, such as the eCDF Providers Forum, E-Learnz Collaborative Tool Box (ELEARNZ), and ASTE conference were entirely composed of this kind of activity. Others, such as Flexible Learning Leaders in New Zealand (FLLiNZ), the New Zealand E-Learning Quality Standards, Framework and Guidelines (ELG) and the three open source software projects (Open Source Courseware Initiative New Zealand (OSCI), Open Source e-Learning Environment and Community Platform (OSCP) and EXE) had cross-sector sharing and dissemination as significant elements within the project.

In interviews, project participants tended to state the most significant knowledge-spreading outcomes of their project as being sharing among the e-learning expert community, either within their own institutions or among fellow e-learning experts in partner institutions and beyond. Indeed, along with a general outcome of ‘raising awareness of e-learning’ within participating institutions, the establishment of a genuine and apparently sustained ‘community of practice’ among e-learning experts across the country, was identified in interviews as the most notable outcome of the initiative.

In the participant survey, 60% and 56% of responding project participants felt their project was ‘widely’ or ‘very widely’ known, respectively, among the e-learning experts community in their own institution and the eCDF partner institutions. They were evenly split over wider community awareness and over project awareness among staff in their own and partner institutions, implying that this was likely to vary significantly for different projects. About a third reported project awareness among academic staff nationally. The project where wide national knowledge among staff was most claimed was OSCI.

For their part, about a third of those teaching staff who taught courses with online components in eCDF institutions (ie. ‘users’; n = 197 out of 417 survey respondents) had heard of the fund, with the widest awareness being in colleges of education (54%; n = 13 out of 25 ‘users’).

"We’re now providing the programme to other [institutes of technology and polytechnics] outside TANZ [the Tertiary Accord of New Zealand], for example Wairiki [Polytechnic], and TEI [sic] has now joined TANZ. … The spread has been in tutors’ understanding of online pedagogy, over 200 tutors in [our institution] alone. And the part time tutors have taken it on. … [It is] sustainable and transferable because the whole programme [now] gets funded [through the equivalent full-time student allocation] … Cross crediting is not in place but TANZ is developing a policy across institutions to make this possible and desirable." (Interview, eCDF project manager)
Though most teaching staff responding to the survey had not engaged with all, or even many, of the individual round 1 projects, the reported levels of teacher awareness from specific projects were greatest with regard to the ELG, Graduate Diploma in Applied E-Teaching and Support (Graduate Diploma), ELEARNZ, OSCI, Applied E-Learning, and ASTE conference projects. (See Figure 2.)

**Figure 2**  
Extent of awareness of eCDF projects among teaching staff in eCDF institutions (n = 176–189)

<table>
<thead>
<tr>
<th>Project</th>
<th>Awareness Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-CBD</td>
<td>80%</td>
</tr>
<tr>
<td>KETE</td>
<td>85%</td>
</tr>
<tr>
<td>EXE</td>
<td>87%</td>
</tr>
<tr>
<td>ELE</td>
<td>90%</td>
</tr>
<tr>
<td>ACL</td>
<td>91%</td>
</tr>
<tr>
<td>OSCI</td>
<td>92%</td>
</tr>
<tr>
<td>FLLiNZ</td>
<td>93%</td>
</tr>
<tr>
<td>GetIT</td>
<td>94%</td>
</tr>
<tr>
<td>ELEARNZ</td>
<td>95%</td>
</tr>
<tr>
<td>Applied Grad Dip</td>
<td>96%</td>
</tr>
<tr>
<td>Critical Factors</td>
<td>97%</td>
</tr>
<tr>
<td>ELG</td>
<td>98%</td>
</tr>
<tr>
<td>Critical Factors</td>
<td>99%</td>
</tr>
<tr>
<td>ASTE</td>
<td>100%</td>
</tr>
<tr>
<td>Forum</td>
<td>100%</td>
</tr>
</tbody>
</table>

I am not aware of the project  ■ I have heard of the project but no direct benefit  ■ I have benefitted from the project

Note: For an explanation of the abbreviated project names, see the Glossary.

For their part, eCDF participants felt reasonably well informed about some of each other’s projects but not others. The highest profile project among eCDF participants was FLLiNZ, and to a lesser extent the EXE, ELG and Critical Success Factors for Effective Use of E-Learning with Māori Learners (Critical Factors) projects. (See Figure 3.) It was admittedly a small sample (n = 38), but participant awareness of the two projects specifically designed to inform the eCDF community about each other and collaborating did not have a high profile given their aims (the ASTE conference and the eCDF Providers Forum). Perhaps participants took these for granted.

“There has been more collaboration with other eCDF projects and other developers than with institutions. Especially xxx’s project. We’d like more sharing meetings with other developers and with instructional designers...The e-learning landscape in NZ has several conferences on technologies now, but they are dominated by pedagogists and teachers – not much chance of technologists to get together at their conf. E-Fest is close to that, but at the moment we’re very isolated.” (Interview, eCDF project instructional developer)

“[In the wānanga] there was a mix of anticipated and unanticipated outcomes [of the eCDF]. One of the unanticipated outcomes was [that] it started a pedagogical conversation … about the quality of learning. Questions they would not have thought of are now on the table. ... It’s started a conversation, but they have a very cautious approach” (Interview statement)
when responding to the survey question, because the respondents to the survey also tended to be the people who had attended these events. Certainly, the group of e-learning operational managers interviewed for the evaluation highlighted these events as significant in informing them about other eCDF projects, and as stimuli to significant ‘networking’ among the e-learning expert group country-wide.

**Figure 3** Extent to which eCDF participants felt informed about other eCDF projects (n = 38)

![Bar chart showing the extent of knowledge among different institutions about eCDF projects.]

Note: For an explanation of the abbreviated project names, see the Glossary.

In terms of the spread of knowledge about the projects among broader communities such as teaching staff in the eCDF institutions or the wider community of institutions not directly involved in the projects, eCDF lead and partner institutions were significantly more likely than the rest of the sector generally to report institutional awareness of a range of round 1 projects, whether they had been directly involved in a particular project or not. They were still likely to report more awareness of more projects, even when compared with only the 24 other institutions in the sector that provided online courses to students. However, there was also a noticeable subsector differentiation in reported awareness in that, taken across all projects, staff in polytechnics were the most likely to report ‘awareness’ of eCDF projects, while staff in PTEs were the least likely.
Perhaps reflecting that the institutional survey was completed by managers responsible for e-learning, the ELG project was reported as the project with the widest sector awareness. Three-quarters of respondents were aware of this project (Figure 4).

The proportions of non-eCDF institutions offering courses with online components (n = 24 out of 84) that reported awareness of specific eCDF projects varied up to about 70% (16 out of 23 for ELG). The same group of projects as above, along with the Graduate Diploma and Ngā Kiwai Kete: The E-Learning Toolbox (Kete), were identified as having achieved the highest awareness profile beyond the group of eCDF institutions themselves.

eCDF projects seem to have achieved little or no profile at all beyond the approximately 50% of responding tertiary institutions that currently offered some form of online course provision.

**Figure 4** Percentage of tertiary education organisations providing online elements in courses that reported institutional awareness of eCDF projects (n = 43 out of 84 total respondents)

Note: For an explanation of the abbreviated project names, see the Glossary.

**Summary: Knowledge/awareness outcomes of the eCDF projects**

The most apparent and lasting outcomes of the eCDF round 1 projects have been in raising the profile of e-learning; first, as a significant issue in tertiary institutions’ strategic planning; and second, by fostering an active community of practice among e-learning experts and leading practitioners across the university and polytechnic sectors.
The most apparent, and most often reported, knowledge outcome has been the fostering of collaboration and sharing of expertise among e-learning experts in the participating institutions. There now appears to be an active community of practice among such experts that is felt to be sustainable with relatively little further stimulus or input.

eCDF participants, managers and teaching staff all reported a ‘raising of awareness’ effect of the eCDF projects, especially in participating institutions. Such awareness and knowledge within these institutions, however, is largely confined to the e-learning expert community, management with an interest in, or responsibility for, e-learning, and the relatively small minority of teaching staff with an existing interest in, or engagement with, e-learning in some way. While many staff may have heard of the eCDF, or of particular projects, in the most generic terms, only a minority reported any functional knowledge or understanding of the eCDF or particular projects.

The projects most widely known about across the sector generally, were those that generated policy or strategic guidelines and the three open source software projects that were focused on building cost-effective, sharable learning management system (LMS) infrastructures.

Knowledge and awareness of specific eCDF projects are not widespread in eCDF institutions, but are significantly greater in eCDF participant institutions than in non-participant institutions, whether that institution was a participant in a specific project or not. Knowledge of projects is also greater in the polytechnics than other institution types. Neither the eCDF nor particular projects are widely known among PTEs, and neither the eCDF nor particular projects have any profile outside the population of providers already engaged in e-learning activity.

**Adoption/usage outcomes**

What evidence is there that the intended immediate beneficiaries of the projects (e-learning experts, institutional managers and teaching staff in eCDF institutions) have used, adopted or applied eCDF project outputs, and to what extent did the projects cement collaborative arrangements among participant institutions?

The indicators for the ‘adoption’ or ‘usage’ of round 1 projects comprised direct evidence of the extent of direct benefit and active collaboration reported by institutions and staff. Increases in the number or proportion of online courses run by eCDF institutions, more positive attitudes in eCDF institutions towards e-learning, institutions’ ratings of their e-learning capability after the completion of the projects, and participants’ perceptions of the projects’ sustainability were also taken as indicators of adoption and usage.

As can be seen in Figure 5, direct benefit from most individual eCDF projects was reported in the surveys by a minority of the 43 TEOs providing online
elements in their courses, though the ELG, EXE and FLLiNZ projects have been of direct benefit widely across the eCDF institutions themselves.

Both eCDF institutions and polytechnics were more likely than non-eCDF or other institution types to report ‘direct benefit’ from the projects, while PTEs were the least likely.

Figure 5  Percentage of tertiary education organisations providing online courses that reported direct benefit from eCDF projects (n = 43 out of 84 total respondents)

The projects reported as having had the most direct benefit among eCDF institutions, and indeed across the sector as a whole, were the ELG, three open source (ie. Moodle, an internet-based system for delivering e-learning for educational and training organisations) and Critical Factors projects. (See Table 5.)

Reported ‘direct application and benefit’ among non-eCDF institutions, insofar as this was reported at all, was greatest for the ELG and FLLiNZ projects. Ten or more non-eCDF institutions nationwide reported having gained direct benefit from each of these two projects.
Table 5  Summary of reported benefit from projects among e-learning managers in tertiary education organisations, eCDF participants and teachers in eCDF institutions

<table>
<thead>
<tr>
<th>Level of reported benefit by group</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects with highest profile and use among sector tertiary education organisations offering courses with online elements</td>
<td>EXE, ELG, OSCI, OSCP, FLLiNZ, Kete, Graduate Diploma, ELEARNZ</td>
</tr>
<tr>
<td>Projects with highest profile and use among teachers in eCDF institutions (note, mostly from polytechnics)</td>
<td>ELG, Graduate Diploma, OSCI</td>
</tr>
<tr>
<td>Projects with highest profile and use among participants in various eCDF projects</td>
<td>FLLiNZ, EXE, ELG, and to a lesser extent ELEARNZ</td>
</tr>
</tbody>
</table>

Note: For an explanation of the abbreviated project names, see the Glossary.

Among the 16 round 1 projects, several specifically had outputs and expected outcomes related to strategic planning for e-learning in tertiary institutions. Their primary aims were about defining guidelines or standards to inform strategic planning on e-learning issues, setting up inter-institutional collaborations in the e-learning field and so on. The ELG and ELEARNZ projects and, perhaps to a lesser extent, the Critical Factors and Kete projects are the most obvious examples of this.

We note that the first two of these projects were also among those identified by TEOs as having had the greatest impact and direct benefit, not just among the eCDF institutions, but in the broader sector. It is noted also, that the eCDF institutions were more likely to have strategic systems in place for e-learning than the rest of the sector as a whole or the other non-eCDF providers of online courses in the sector. Indeed, eCDF institutions were also more likely than others to:

- have a formal strategy to develop e-learning capability
- have a formal programme to develop course material for online delivery
- employ specialist e-learning staff such as webmasters, HTML (hypertext markup language) editors, instructional designers and professional development staff with e-learning capability
- employ a dedicated person responsible for driving the institution’s e-learning strategy
- have a formal programme to upgrade staff skills in the development of online learning objects and courseware.

“The] eCDF has allowed us to fund projects we wouldn’t have funded … and to find out what we wanted to learn … We created a team outside the infrastructure of the institution, trying something outside the culture of the institution [as] the level of comprehension was not there.”

(Interview, eCDF project manager)
In large measure this may well be a function of the relatively larger size of the eCDF institutions (being predominantly universities, colleges of education and urban polytechnics) and their established history in the e-learning field, which made them eligible for eCDF funding in the first place. However, there is some evidence that this is also at least in part a direct outcome of their participation in the eCDF projects. Those interviewed certainly felt this was the case, and 26 of the 38 respondents to the participant survey felt that the projects had directly “improved institutional systems such as policies and guidelines”.

Summary: Reported direct benefit from eCDF projects

Direct benefit from eCDF projects was reported in a minority of tertiary institutions, mostly, though not exclusively, those engaged in the projects themselves.

Reported direct benefit from eCDF projects varied significantly, both by project and institution type. The projects most widely reported as having been of direct benefit were the ELG, FLLiNZ and the three open source LMS projects. The first two of these have had an impact in several non-eCDF institutions as well. Overall, the adoption of project outputs has been greatest in the group of eCDF institutions, that is the universities and larger polytechnics. Direct benefit from the eCDF projects has been minimal among PTEs and limited among smaller, regional polytechnics.

The most widespread direct benefit of the round 1 eCDF projects seems to relate to the sharing of strategic planning and technical (software) resources for managing e-learning in institutions.

Proportions of online courses offered by eCDF institutions and staff engaged in e-learning

Two further indicators of the positive impact of the eCDF projects in the institutions participating in those projects, albeit more ‘proxy’ than direct in nature, could be an increase in the number and proportion of courses offered with online elements in those institutions in the period immediately after the implementation of the projects (see Table 6), and a relatively high proportion of teaching staff engaging in such e-teaching modes.

When course provision statistics for the eCDF institutions are separated out in the SDR data, it is evident that online courses in any mode represent only a small proportion of those institutions’ course offerings. However, insofar as the number of courses increased in eCDF institutions from 2004 to 2005, that increase was in courses in online rather than offline modes, and most of the increase in online modes is "We’ve had great feedback from the ones who were ‘dipping their toes’ [into e-learning]. Many teachers in [institutes of technology and polytechnics] and universities haven’t dipped into it. ‘I’ve already got a job; why is this useful? The impetus is shared but not always coming from the top. … smaller institutions have not got the capital for the investment.’” (Interview, eCDF project manager)
explained by the increase in the number of web-based courses. In eCDF institutions, the number of offline and web-supported courses slightly declined over the two years. This is in contrast to the trend among non-eCDF providers, which was for increases in online modes to be greatest for web-supported courses, and for the overall increase in online modes to be similar to increases in the number and proportion of offline courses. The numbers and proportions of web-enhanced and web-based courses are increasing more rapidly in eCDF institutions than in other institutions.

Table 6  Numbers and proportions of online and offline courses offered by eCDF institutions, 2004 and 2005

<table>
<thead>
<tr>
<th>Courses</th>
<th>Number of courses</th>
<th>Proportion of courses (%)</th>
<th>Percentage change (%)</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offline</td>
<td>27,164</td>
<td>25,920</td>
<td>-4.5</td>
<td>71.0</td>
<td>69.5</td>
</tr>
<tr>
<td>Web-supported</td>
<td>7,238</td>
<td>7,187</td>
<td>-0.7</td>
<td>18.9</td>
<td>19.3</td>
</tr>
<tr>
<td>Web-enhanced</td>
<td>3,236</td>
<td>3,374</td>
<td>4.3</td>
<td>8.5</td>
<td>9.0</td>
</tr>
<tr>
<td>Web-based</td>
<td>599</td>
<td>835</td>
<td>39.4</td>
<td>1.5</td>
<td>2.2</td>
</tr>
<tr>
<td>All online</td>
<td>11,073</td>
<td>11,396</td>
<td>2.9</td>
<td>29.0</td>
<td>30.5</td>
</tr>
</tbody>
</table>

Note: For an explanation of the types of course, see Table 1.

Summary: Increased online course provision among eCDF institutions

From 2004 to 2005, the number and proportion of courses offered in online modes rose more, and more rapidly, among eCDF institutions than among non-eCDF institutions. In contrast to non-eCDF institutions, most of this increase occurred in web-based, rather than web-supported or web-enhanced, courses.

Proportions of staff engaged in e-learning

Not only are the eCDF institutions in particular starting to increase the number and proportion of courses offered in online modes, but they are also expanding the catchment of staff engaged in such provision, although mostly at the web-supported rather than the web-based end of the spectrum. (For a description of the modes, see Table 1.)

Almost half (48%) the respondents to the survey of teachers in eCDF institutions, the great majority of whom were based in polytechnics, taught at least some courses with online elements. Those who taught online courses were likely to teach several of their courses in such modes. Just on half the teachers who taught courses with online elements taught all their online courses in the same mode, and half taught courses in a mixture of modes. Most teachers, however, taught online courses in a web-supported mode, rather than in a web-enhanced or web-based mode.
The same survey suggests that those teachers who do teach courses with online components spend quite varied amounts of time actively online, depending in large part on the mode of ‘online-ness’ involved. The average time spent varied from two hours to two days. The average time spent by the 196 teachers actively online preparing and placing resources online, contributing to online discussions, chatting online with students and so on, was six hours.

**Summary: Proportions of teachers incorporating online components in courses in eCDF institutions**

In eCDF institutions a significant proportion of teachers incorporate some online elements into their teaching, especially in the polytechnics. However, most of this consists of adding online elements to predominantly face-to-face teaching in a web-supported mode rather than in web-enhanced or web-based modes. Teaching in online modes seems to be more widespread in polytechnics than in universities.

**Teaching staff’s attitudes to e-learning**

The cumulative ‘awareness-raising’ effects of the eCDF reported so often in interviews may also be evident, in a proxy way, in the extent to which teaching staff in the eCDF institutions report a positive attitude to e-learning and have undertaken professional development in the area.

The great majority of staff in the teacher survey of eCDF institutions, whether teaching online (n = 202) or not (n = 212), felt e-learning (defined as the three modes of online learning in the internet field of the SDR (see Table 1)) was relevant and had the potential to enhance student access to their current courses. Very few (5%), by contrast, thought it was ‘over-rated’. About half felt that such modes were more useful as a supplement rather than central to their teaching.

Online teachers (ie. those who were actively engaged in providing courses with some online elements) were much more likely to feel online teaching would become an ‘essential’ part of their teaching than were those who had no experience of it. However, in all but this latter respect, the attitudes of most ‘users’ and ‘non-users’ towards online teaching were more remarkable for their similarities than their differences, with most of both groups being more favourably disposed than not.

The majority of staff, whether users or not, also felt comfortable about incorporating online activities into their teaching. Very few

"[We need] training opportunities for institutions to be able to enter this environment—especially PTEs for whom there is little funding for this development." (TEO survey response)

"To date [the eCDF] has involved setting up structures, or creating resources which can be used across the sector. The next step would be further collaborative work with the tutors etc. who will need to integrate these materials, systems into their programmes." (TEO survey response)
(7%) reported that they were 'not at all comfortable' with the prospect of incorporating online elements into their teaching, and only one in five said they were 'slightly uncomfortable' about this, even though most of them did not in fact do it. There were no notable differences in teachers’ comfort levels about e-learning among different institution types.

This generally positive attitude is also reflected in the reported extent of uptake of professional development opportunities on e-learning in eCDF institutions. Almost 80% of ‘online teachers’ and 60% of ‘offline teachers’ in the eCDF institutions had undertaken such professional development in e-learning in the year before the survey. Moreover, there were no clear institution-type differences in the amount of professional development that teachers had undertaken, with two-thirds of respondents from all institution types having done at least one day’s or two days’ professional development. About a quarter of staff had undertaken five or more days’ professional development in e-learning.

Most of the professional development seems to have focused on technical skills, and most staff had the acquisition of technical skills as a priority for future professional development. About 50% and 65% of ‘online teachers’ and 72% and 80% of ‘offline teachers’ highlighted technical skills and familiarisation with e-learning software respectively as the particular areas in which they needed professional development.

Summary: Teaching staff attitudes to e-learning

The great majority of staff in eCDF institutions have a cautiously positive attitude towards incorporating online elements into their courses, with those having had some experience in it being more positive than those who had not. The greatest perceived benefit of e-learning was felt to be in increasing the accessibility of existing (face-to-face) courses to a wider range of students.

Professional development opportunities continue to be offered by eCDF institutions and the level of uptake by teaching staff is high. The focus of such professional development tends to be technical skills and familiarisation with e-learning software rather than e-learning pedagogy or e-teaching techniques.

Institutional ratings of their e-learning capability

As part of the TEO survey, managers responsible for e-learning in eCDF institutions were asked to rate their institution’s level of current e-learning capability on a scale from ‘high’ to ‘nil’ with respect to six elements (see Figure 6):

- teaching staff ICT skills
- teaching staff understandings of online pedagogy

“We saw capability too broadly. … I thought ‘start at phase 1 and raise tutor competence’—many walked out because of fear and anxiety … There was no ‘buy in’ from other buyers [sic]. [We thought] capability equalled skills, and didn’t realise capability equals pedagogical understanding till the last two to three months.”

(Interview, eCDF lead institution director)
- institutional strategic priorities, policies and procedures
- hardware/network infrastructure
- student access to ICTs for coursework
- financial resourcing for e-learning.

The capability areas most often rated high related to strategic commitment and policy and the availability of ICT resources for students. The capability areas most often rated low were financial resourcing for e-learning and teaching staff capability. When these data are put together with the responses to the open-ended questions about perceived capability needs in all surveys, it is clear that, among the eCDF institutions as a group, capability building has been greatest with regard to strategic policy development, operational systems and technical infrastructure, and least with regard to staff development.

Figure 6  Tertiary education organisations' ratings of their institution’s e-learning capabilities

![Graph showing ratings of e-learning capabilities](image)

Note: ICT = information and communication technology.

The only capability element on which the eCDF institutions rated themselves significantly more favourably, or should we say ‘less unfavourably’, than other providers of online courses, was “teaching staff understandings of online pedagogy”. The high proportions of institutions rating their staff capability as ‘mixed’ would also tend to indicate that, despite the plentiful professional development opportunities offered and taken up in eCDF institutions, neither staff nor e-learning managers feel this has been enough. Evidence from responses to other survey questions and the interviews suggests increasing the ‘spread’ of staff knowledge and skill in e-learning remains the area of greatest perceived need, even in eCDF institutions. Financial resourcing for this, either
from external or internal sources, is perceived as a constraint in about half the eCDF institutions.

Summary: eCDF institutions’ ratings of their overall e-learning capability

While teaching staff reported relatively high levels of uptake of professional development for technical skills in e-learning, no institution rated its staff’s e-learning capability as high overall. The managers of e-learning programmes reported that staff development in relation to developing an understanding of the pedagogy of e-learning is the area of more significant need.

Capability building in eCDF institutions has been greatest with regard to strategic policy development, operational systems and technical infrastructure, and least with regard to staff development. Financial resourcing for this, either from external or internal sources, is perceived as a significant constraint in about half the eCDF institutions.

Collaboration and collaboration outcomes

The eCDF projects were all, in one way or another, expected to involve and foster cross-institutional collaboration, either as a operating model for the project or in the form of shared benefit from its outputs and findings.

In the interviews with eCDF project participants and stakeholders, it became clear that ‘collaboration’ in the eCDF was conceived of in two distinct but potentially complementary ways. The first was as an ‘operational’ or ‘functional’ collaboration, measurable by the extent to which and the ways in which the partner organisations and staff worked together in a team or teams to implement the project. The second involved a notion of ‘collective benefit’ whereby, irrespective of the extent of functional collaboration involved in project performance, partner institutions were seen as the project’s primary ‘beneficiaries’, the group on whose behalf the project was being done and to whom any products and services would first be made available. The first notion of collaboration involved an active sharing of the tasks among eCDF partner institutions; the second an active sharing of the project’s benefits.

Data on during-project collaboration came mainly from project plans and reports, interviews held with managers of each project, and a couple of questions in the participant survey.

It is clear from Table 7, that for most projects, one or two institutions took the lion’s share of the operational work, with the other participants taking various levels of active participation in the form of consultancy and information sharing. A minority of projects took an approach in

“How to identify genuine collaboration? Libraries cooperate because there is no EFTs [equivalent full-time student funding] benefit, no obvious advantage in the competitive model. [E-learning] funding needs to be non-EFTs driven so that you can cooperate at no loss to yourselves.” (Interview, eCDF project manager)

“eCDF was designed to foster collaboration. At an e-learning managerial level, the establishment of collaborative linkages has been significant.” (TEO survey response)
which all partners contributed more or less equally to membership of ‘operational teams’. For most, the decision to structure the collaboration in the form of one or perhaps two institutions taking the functional lead was made on the ground that it was the most efficient way of getting the project completed or that collaboration in some form was a key criterion for the project’s funding. Except in those few projects involving collective operational responsibility, the collaboration involved was less manifest in the project’s delivery than in the partners’ commitment to a ‘collective benefit’ they expected from the results of the project.

Table 7  During-project collaboration among round 1 eCDF projects, as reported in interviews and the participant survey

<table>
<thead>
<tr>
<th>Level of during-project collaboration</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partners active throughout, more or less equal contributions</td>
<td>3</td>
</tr>
<tr>
<td>One or two institutions took lead, others active throughout but mostly advisory</td>
<td>10</td>
</tr>
<tr>
<td>One or two institutions took the operational lead, others kept informed occasionally</td>
<td>3</td>
</tr>
</tbody>
</table>

Given the significance of ‘collaboration’ in the overall goals of the eCDF and in the discourse around it (the ‘E-Learning Collaborative Development Fund’ rather than the ‘E-Learning Capability Development Fund’), it is useful to distinguish between the effects of collaboration in projects (ie. collaboration viewed as an output) and the effects of the projects on collaboration among institutions (ie. collaboration viewed as an outcome). The first is indicated by the nature of the collaboration inherent in delivering outputs; the second by participant and TEO perceptions of consequential or resulting collaborative activities undertaken by the institutions. While it is possible to describe the nature of the output-level collaborations inherent in the projects (as above), it is much more difficult to isolate and identify their specific outcomes. We can at best infer that such collaborative effort, being one of the features of many projects’ operation, was a contributing factor in their overall effectiveness.

On the other hand, collaboration outcomes seen as additional (or supplementary) collaborative arrangements, emerging as a consequence of or being reinforced by the eCDF, are rather more accessible, especially through the surveys and other data collected.  

“Collaboration in the effects are more important than in the development and the implementation. Collaboration for its own sake can diffuse the focus. ... We want a horse, not a camel; but a horse more than one of us can ride. ... Bring people in at different times, [have a] collective steering group. [But] pace and efficiency is better with a small dedicated team.” (Interview, eCDF project manager)

On the other hand, collaboration outcomes seen as additional (or supplementary) collaborative arrangements, emerging as a consequence of or being reinforced by the eCDF, are rather more accessible, especially through the surveys and other data collected.  

7 Having said that, clearly one effect of collaboration during the projects was more, or at least continued, collaboration itself, especially among the community of e-learning experts involved in the programme, if not among all the institutions in any formal sense.
The participant survey and interviews with members of this group made it very clear that one of the more sustained effects of the eCDF projects on collaboration was to establish and consolidate a community of practice among the e-learning experts in the sector nationwide. Indeed, participants tended to report this kind of collaboration effect more often than most other effects from the projects, apart from raised sector awareness of e-learning. In the participant survey (n = 38), increased collaboration among e-learning specialists and increased collaboration among eCDF institutions, along with increased awareness of e-learning among management and staff, were the most frequently identified long-term effects of their projects. Thirty-four of the 38 project participants identified such effects. There was something of a caveat, however, in that such collaboration was most likely to be among e-learning specialists and managers with e-learning responsibilities across institutions rather than among teaching staff or even management across those same institutions.

This is consistent with an often-expressed participant view that the greatest benefit of the projects had been for individuals or small units within institutions rather than being institution-wide or at the institution level. Over half the respondents to the participant survey, and nearly all those interviewed, expressed this view. The comparatively narrow spread of awareness of most eCDF projects among teaching staff (shown in the teacher survey and the growing but comparatively confined spread of web-enhanced and web-based courses as a proportion of the courses offered by teaching staff in eCDF institutions) supports such a view. It seems the collaboration effects of the eCDF projects, like the awareness/knowledge effects, were significant for the specific ‘expert’ group but not widely spread within or among the general teaching staff of the institutions.

With regard to the forms that e-learning collaboration takes in institutions, many in the interviews noted that their institutions were already members of cooperative groups with other tertiary institutions (eg. the Institutes of Technology and Polytechnics of New Zealand, the Tertiary Accord of New Zealand (TANZ), the Canterbury Tertiary Alliance, and industry training organisations (ITOs)), and that some of the eCDF projects had in some way provided an additional context for cementing these commitments. Participants in the survey, though, tended to describe the ‘collaboration’ involved in or resulting from, the eCDF projects much more in terms of project information sharing than in terms of formal institutional alignments, joint teaching or other ongoing collaborative activity. About half the participants in the survey reported either ‘some’ or ‘significant’ sharing of e-learning policies and guidelines as a result of the projects. When asked to describe the collaborations resulting from their projects, most identified exchanges of information through seminars or websites about other eCDF projects or their own use of specific products and resources developed by projects as the predominant form of ‘collective benefit’ from their involvement.
Summary: Collaboration outcomes of round 1 projects

The eCDF projects provided a context for cementing existing collaborative partnerships among a number of tertiary institutions rather than creating new ones.

Most of the round 1 eCDF projects defined ‘collaboration’ as information sharing and as an agreement to share benefit, rather than as an operating approach for the projects themselves. In most projects, one or two institutions took the operational lead, keeping project partners informed of progress or seeking advice from partners during the project, and sharing outputs or findings with the other partners after the project.

The predominant forms of ongoing collaboration fostered by the projects were project information sharing rather than formal institutional alignments, joint teaching or other ongoing formal collaborative activity, although there were examples of the latter in a few particular projects. The outputs most shared have been those related to strategic management and e-learning policy, or software infrastructures (eg. open source LMSs).

The eCDF projects have been a significant conduit for collaboration among, and building professional capability within, the specific community of e-learning managers and e-learning experts in partner institutions. Professional development projects such as FLLiNZ, policy-focused projects such as ELG and ELEARNZ, and open source software platform projects such as OSCi and EXE were the most widely reported examples of successful collaborations in this regard.

Sustainability in round 1 projects

Several round 1 projects were inherently ‘sustainable’ in the sense that they were in essence one-off projects that resulted in a fairly final product that was more or less ‘usable’ in that form by the rest of the sector. Sustainability for such projects existed in the extent to which other institutions have used or adopted them. The guidelines projects, the Critical Factors project, and the various ‘toolbox’ projects were of this type, and it is noted that ELG and ELEARNZ, in particular, were among those identified in the participant and TEO surveys as having been of most direct benefit to other institutions. For these projects, the cost of sustaining uptake was relatively small, consisting largely of the cost of publishing and disseminating the resources through the sector. Some institutions budgeted for this as part of the project, but others did not.

The open source projects have also proven relatively sustainable, at least in the sense that some of the partner institutions (though not all) subsequently adopted the open source Moodle platform and are implementing it across their course offerings, or are considering moving to it. To the extent that the Graduate Diploma and Applied E-Learning projects have both led to courses funded using the equivalent full-time student (EFTS) allocation and qualifications being offered by the college of education and the Christchurch
Polytechnic Institute of Technology respectively, they too have proven ‘sustainable’ beyond the initial funding.

Arguably, the project that has proven the least ‘sustainable’, at least in the sense that it has remained dependent on continued TEC funding and is unlikely to be continued without central funding, is the FLLiNZ project. This project was widely regarded as a high-quality project that has been an important investment in building much needed leadership capability and professional community among e-learning experts nationwide. However, hopes initially expressed that institutions themselves would pick up the cost of the fellowships do not appear to have been realised, although at least one TEI has funded its own internal version of an e-learning teaching award.

In the participant survey, a majority (57%) of eCDF participants expressed the view that their project had potential for long-term sustainability. Others commented that the potential for long-term impact or uptake existed, but would still require ongoing strategic commitment (even more than financial commitment) to realise that potential. It is notable, perhaps, that a third of the teachers of online courses in the teacher survey identified a lack of financial resourcing, especially the resourcing of professional development around it, as one of the major barriers to the effective implementation of e-learning in the sector. Over 60% of responding TEOs rated their institutional capabilities as ‘low’ or ‘nil’ with regard to the level of financial resourcing available for e-learning.

Many of the eCDF project managers mentioned in the interviews when discussing the length of their particular projects, that delays in the negotiations of the contracts and the restriction of the time-frame to projects of only one year’s duration for the evaluation meant that even the delivery of the project itself was not sustainable within the time span given. Accordingly, several submitted bids for the second round in order to sustain the momentum established during the first. Participants in only 3 of the 16 projects said they knew of additional resourcing having been put in place by their own institution to support the continuous improvement of the product, service or findings of their project, most of this apparently being in the form of continuing staffing commitment or a commitment to supplementary publishing or dissemination activity. At least five of the projects put in a bid for additional funding through the second and/or third rounds of the eCDF funding to complete or extend the original project.
Participant comments on project sustainability

“It has certainly has a long-term effect on individuals, and also on my institution.”

“It has provided core foundation material suitable for supporting a wide audience, including ITO students, second chance learners and secondary school students. [There is a] lingering relevance.”

“For my institution the sustainability is long term as it created a full-time tenured job in flexible learning.”

“I don't think FLLiNZ would continue as such without eCDF—however my institution has committed significant resources to my own continued development/work in this area.”

“I'm not sure. I have put together course curriculum with the assistance of CLT people in my institute onto Moodle [an internet-based system for delivering e-learning for educational and training organisations]. I still don't know its full potential in the course I run though. I need more training in that area.”

“Moodle is currently the LMS of Wintec, Northland and BEST partners in the project it has good case studies and examples to improve capability that can be continued and cascaded to other parts of the organisation or other tertiary providers. Possibly as part of Round 3.”

“Sustainability depends on some ongoing maintenance and updating of the course material. The material is designed with open source software, so theoretically [it] can be [easily] updated and maintained by users.”

“The [OSCI] project contributed hugely to the uptake of Moodle as an open source option for New Zealand communities, resulting in many New Zealand institutions contributing to New Zealand's increasingly well-supported Moodle community.”

“Long-term sustainability is possible but will require commitment in terms of marketing to grow [a] significant participant base.”

“We are at a critical point. The first courses are under way and going well. However, our institution is working through a merger and a downsizing—support for the introduction and development of this initiative is minimal—even though the concept is seen as valuable.”

“Not [sustainable] under the original funding model. As industry training fund levels are so low compared with student component funding, the fees we have to charge employers to cover the polytechnic established course fees made the programme unreasonably expensive.”

“Potential exists for long-term sustainability but without resources to communicate the features and benefits the asset will diminish in value quickly.”

“The information gathered will provide a 'knowledge' resource that will 'inform' our thinking for a long time. The actual impact will be decided at least in part through by government reforms/buy in etc.”

Summary: Sustainability of round 1 projects

The sustainability of projects varied largely depending on the nature of the capability-building goals set for a given project. The most sustainable of the projects were those that had a product development focus (such as the
development of policy guidelines, protocols or a research report or the creation of software platforms) or had some security of ongoing funding from other sources (such as EFTS-based funding for courses or qualifications developed by a project). The least sustainable tended to be those with a professional development focus, where the time or financial resources for achieving a critical mass were not in place, where expected alternative sources of funding were not forthcoming, or where planning or resourcing for expanding the scope of the project beyond a small group of immediate beneficiaries was insufficient.

Many of the projects found it difficult to deliver their outputs in the time available. For some, this was, at least in part, because of administrative issues such as delays in negotiating and finalising contracts. For most, however, it reflected the inherent inadequacy of a one-year time-frame to achieve capability outcomes of any substance, especially if dissemination activity were to be included in the project plan and budget.

3.2.2 Indirect, longer-term capability outcomes

To this point the evaluation of whether the eCDF is achieving its objective of building e-learning capability in the tertiary sector has taken a ‘bottom-up’ approach, looking at eCDF and project outcomes more or less directly attributable to the round 1 projects, either individually or collectively. These direct-line effects have been characterised as the ‘immediate outcomes’ of round 1 of the eCDF, insofar as they can be reasonably linked to the first round of project outputs and insofar as they have been evident among the most likely group of immediate beneficiaries of the projects, namely groups of staff within the eCDF institutions.

From this point, however, the evaluation of the eCDF projects’ overall impact takes more of a ‘top-down’ approach. It analyses the possible longer term, less direct spread of eCDF project impact, for the most part by comparing capability among the eCDF participant institutions with capability among non-eCDF institutions across the four categories of the CARE–STEP framework.

*Strategic management for e-learning in eCDF institutions*

*Collaborative arrangements and resource sharing*

With the usual cavaets around whether involvement in the eCDF project was in itself the only factor in play, we note that the eCDF institutions as a group were significantly more likely to have collaborative arrangements with other institutions on e-learning than all other non-eCDF institutions. When compared with only those non-eCDF institutions that provided online learning in some way (as opposed to the wider group of all tertiary providers), the significance of such differences declines, but is still present.
Though none of the following collaborative activities was ‘the rule’ for either group of institutions, eCDF institutions did seem more likely than other providers of online courses to:

- share online content repositories with other institutions
- plan online course components collaboratively with staff from other institutions
- collaborate with other institutions on e-learning policy and strategic planning initiatives.

They were significantly more likely than other providers of online courses to:

- share online library resources and borrowing facilities with other institutions
- offer cross-creditability for courses with online components
- engage in joint teaching with staff from other institutions in web-based or web-enhanced courses.

**Provision of online courses by eCDF institutions**

eCDF institutions account for most of the new web-enhanced and web-based courses offered in 2004 and 2005. eCDF institutions are significantly more likely to be offering courses with online components than are non-eCDF institutions, and they are significantly more likely to be offering web-enhanced and web-based courses. However, because all but one of the universities, three of the then four colleges of education, and many of the larger polytechnics were involved in eCDF projects, it is difficult to isolate the extent to which their involvement in the eCDF has been a key factor in making them different from other institutions in these respects. They are, by self-definition, the institutions that were interested in e-learning and had already made a commitment to it as a matter of strategic priority. They are also all larger institutions with more substantial e-learning infrastructures. Consequently, significant differences found between eCDF and non-eCDF institutions often run parallel to differences based on institution type and institution size on the same variables. It is likely that all three factors have combined to focus e-learning innovation and engagement (and therefore indicators of greater e-learning adoption and activity) in those same institutions.

“There is a need to fund any/all Providers who are developing or who wish to explore the development of e-learning as an option for their organisation and their learners. [It should be] available for website development through the whole spectrum of e-learning options. Why? Because smaller institutions do not have the resources to do it alone.”

(TEO survey response)
E-learning capability for access in eCDF institutions

Interoperability
Improving technical interoperability and customisability and developing systemic common practices across institutions to enhance sector-wide access for students were themes in many eCDF projects. Most notable among the former were the three open source LMS projects, all of which promoted the use of open source technologies on accessibility grounds as much as on fiscal efficiency grounds. Open source technologies are not only seen as making LMSs less expensive, they are more easily customised to specific institutional or teaching staff needs. For similar reasons, there is strong interest in the EXE tool, especially among the e-learning specialists, although not yet among teaching staff. The EXE project also seems to be rapidly developing a profile among experts using open source e-learning applications internationally.

Transferability and cross-creditability of online courses
Several of the eCDF projects had e-learning course or qualification development as a primary focus, and in such cases cross-creditability was a strong feature of the project. We note, for example, the flexible ‘pathways’ in the Graduate Diploma project, which actively encourage students to combine courses delivered by all four of the participating institutions in the qualification, and the Applied E-Learning and OSCP projects, which involve the delivery of the same courses from two different institutional sites.

Transferability arrangements such as the joint teaching of online courses, the sharing of a content repository and the specified cross-crediting of online courses were much more likely to be reported by eCDF institutions than by non-eCDF institutions that provided online elements in their courses. Again, it is likely that this is because the eCDF projects were able to take advantage of, and contribute to, existing cross-crediting arrangements among the universities and polytechnics, rather than being a significant initiating stimulus to such arrangements.

Barriers and benefits in e-learning
Perhaps reflecting the varying goals or focuses of the different projects, eCDF project participants seemed ambivalent when it came to identifying outcomes of e-learning related to improved accessibility. Most (27 out of 39; 69%) felt that their project had directly helped make course delivery “more flexible”. Most (24 out of 39; 62%) also felt their project had “reduced barriers to learner access”.
Just over half (20 out of 38, 53%) felt their project had led to improvements in their institution’s technical infrastructure.

**E-learning capability for relevance in eCDF institutions**

Several eCDF projects focused on creating capability with regard to content relevant to groups with particular learning needs, or to increasing inclusiveness and social equity in e-learning provision.

Two round 1 projects with a focus on creating or improving sector capability to meet particular skill needs were the Graduate Diploma and Applied e-Learning projects. In the former project, the particular need was to build e-teaching capability. Acknowledging that the expertise base in the e-learning area is a scarce resource nationwide, the project developed, trialled and gained accreditation for, a specialist qualification in e-teaching and support. In the latter project, the focus was on writing unit standards and providing a ‘blended’ course for public sector employees that maximised opportunities for work-based learning. Both projects have resulted in sustained outcomes in that the Christchurch Polytechnic Institute of Technology has coordinated the running of its web-enhanced, front-line management courses for the past two years, and the Graduate Diploma (after delays in formalising the accreditation of the diploma) is enrolling its first full cohort of students and will run in 2007.

Other projects had a social equity focus in that they were targeted at:

- the educational or e-learning needs of Māori learners (the Critical Factors, Kete and Te Ako Hikohiko Wānanga E-Learning Research Capacity Building projects)
- e-learning resource development in courses with Māori content (the Developing E-Learning Leaders and Institutional Capability through Collaboration (ELLs) project)
- e-learning professional development needs of tutors in institutions with high Māori learner and tutor populations (the E-GROW Northland (E-GROW) project).

With regard to the aims and outcomes of this particular group of projects, it was clear that participants saw project funding as provided to help organisations to “get started” with e-learning. They were also aware that Māori organisations are often

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*“Our material is well accepted by Pacific Island and Maori trainees because of its oral story telling method and that our LMS allows trainees to self manage. We are committed to creating eLearning that embeds literacy into every module.”*  
(TEO survey response)

*“What is needed now is to use the [qualification] to offer to clusters of people with different discipline interests … there were also some technical problems for people in the country. Broadband etc.”*  
(Interview, eCDF project manager)

*“The vocational/trades environment has had little, if any, government acknowledgement to eLearning as a method of delivery. This has led to this TEO in being unable to adequately measure the uptake of*
resource poor with limited capability. E-learning within the Māori community is seen as a ‘leveller’ and, in particular, a way to enable learning to take place for Māori communities in remote areas.

Differences were apparent during the projects among educationalists who expected Māori pedagogy to drive the project, Māori development exponents who expected Māori worldviews to be the driver, and information technology (IT) technicians who wanted to get on with building IT tools and resources for Māori e-learning.

Project achievements included both intended and unintended results. Design and development took up most of the time and resource, while implementation (knowledge transfer to practitioners) and evaluation (ongoing self-improvement) were primarily reliant on end-users’ self-motivation.

Of the projects with a focus on e-learning for Māori, the Critical Factors project seems to have gained the greatest ongoing profile across the sector.

Overall, these projects were seen by participants as ‘a good start’, but were felt insufficient to permanently embed e-learning by expanding uptake among tutors or better learning opportunities for Māori users.

Demographics of student enrolment in online courses in eCDF institutions

Enrolments in online courses in eCDF institutions account for the great majority of enrolments in online courses nationally, especially those in web-enhanced and web-based courses. Web-supported courses tend to predominate in the online offerings of non-eCDF institutions (ie. non-university and non-large polytechnic institutions), because relatively few web-enhanced or web-supported courses are offered outside the universities and larger polytechnics. It is perhaps significant to note, too, that according to the SDR data submitted, the wānanga did not provide any courses in web-enhanced or web-based modes in 2004 or 2005, although they did provide a significant and increasing number of courses in the web-supported mode.

E-learning capability for excellence in eCDF projects and institutions

Staff skills and abilities in e-learning in eCDF institutions

Several eCDF projects were aimed at providing e-learning capability in the form of professional development for teaching staff. This was a primary feature, for example, in the Graduate Diploma, ELLs, E-GROW and OSCP projects. The impact on staff skills of those projects was reportedly varied, and for the most part confined to the particular teachers that took part in the programmes that were part of the project deliverables. In terms of longer-term effects, it is clear from the surveys and interviews that improving staff capability, in terms of ICT skills, but more especially in terms of improving the spread of staff knowledge about effective online pedagogies, is still a significant need for the sector.
As noted earlier, teaching staff in eCDF institutions tended to have positive attitudes to e-learning and reported high levels of uptake of professional development opportunities, especially for improving their technical skills. E-learning managers and teachers in the eCDF institutions both tended to rate teachers’ e-learning capabilities as ‘mixed’ or ‘low’, especially their knowledge of sound e-learning pedagogy. Managers responding to the TEO survey from both eCDF and non-eCDF institutions rated their teaching staff’s technical capabilities in similar proportions, but managers in eCDF institutions tended to rate their staff’s knowledge of e-learning pedagogy higher than did managers in non-eCDF institutions, even though both groups clearly felt this was an area of greatest current need and least spread of current capability. E-learning capability among staff was felt to be present in eCDF institutions, perhaps more so than in other institutions, but it was still too thinly spread.

“Focus on transforming teaching and learning rather than hardware … And fund over 3 years. No need for annual bids, the compliance cost and bid costs are too high. … Short to medium term projects, two to three year projects, are more valuable.” (Interview, eCDF Lead Institution manager)

“How have things changed? Many [lecturers] are using e-learning to improve their teaching. Distance learning has challenged this thinking. … To really improve the quality of teaching a paradigm shift is needed. Not just capability tinkering. … We don’t have a Quality Guidelines for lecturing face to face[, so] we apply distance education quality learning criteria to e-learning. But we should be applying them to face to face in tertiary as well. These guidelines have the potential to be guidelines for learning and quality teaching in tertiary in general. The people who work in tertiary are not trained to do the job.” (Interview, eCDF project manager)

“1. The need for more resource to undertake professional development with staff. 2. Lack of a formal policy of the institution’s direction in this area means staff do not know whether to invest time in it or not. 3). PBRF means staff time is prioritised for research.” (TEO survey response)

3.2.3 Success/failure factors in round 1 projects

The initial inductive analysis of the two rounds of interviews in the eCDF institutions gave rise to four key categories of success/failure factors that affected the projects. These related to effective project management at an operational level (leadership), the nature of the inter-community and inter-institutional collaborations involved (fellowship), the extent to which the participants and institutions ‘bought into’ the projects (ownership), and issues related to the governance and financial management of the projects (sponsorship).

**Leadership (management, expertise and authority)**

Virtually all interview participants commented on the importance of strong leadership and management in determining the success or otherwise of their project.
Some participants commented on a perceived 'gap' in leadership in their particular organisation, whereby, while senior management generally supported the project as it brought kudos and funding to the organisation, this support did not necessarily translate into the active promotion of the project in internal strategic forums or policy-writing groups. Several e-learning managers, for example, complained that their institutions had not enshrined e-learning in written planning documents or had given the project only token support. However, all the senior managers we interviewed were very knowledgeable about, and supportive of, the project and e-learning in their organisation.

Most interviewees commented on the importance of having a 'champion' for the project within each institution; someone with vision and passion for the project who could lead it operationally and assemble a team with the appropriate skills.

Some institutions had to look outside themselves for such expertise and the best match of skills. One institution took the sharing of expertise from a 'lead' institution among the others that lacked it as the very basis of their project. Several projects used operational managers from other eCDF projects on their own advisory groups, and at least two projects experienced significant difficulty when their key champion left the project part-way through. Such were simultaneously an acknowledgement of the expert mana of those people who were involved and an acknowledgement of the relative scarcity of e-learning leadership capacity nationwide.

**Fellowship (collaboration and community)**

Clear thinking about the collaborative nature and purposes of the project was universally important, especially with regard to transparent, mutual understandings of whether and how the project focused on 'collaborative effort' or 'collective benefit'.

Strategies for collaboration that were found to be effective and useful in eCDF projects included the following.

- Regular meetings of the collaboration partners.
- A formal, written collaboration agreement, clearly defining who does what, and who benefits and how, that is negotiated and signed before the project bid's submission.
- Working with a known community of collaborators. It was felt to be of particular benefit in many projects if the operational staff involved knew, or knew of, each other and the institutions involved had some history of

"Having a staff developer (and other teachers) driving the eLearning initiative rather than technical folk was important. Bottom up adoption of eLearning has created widespread understanding and use for flexibility." (TEO survey response)

"[There is a] low level of ICT competency among academic staff and lack of support structures to improve it. Management perception of eLearning is as distance learning or just about putting lecture notes online. We need the ability to resource sophisticated eLearning developments. (TEO survey response)"
collaboration or collaborative agreement, even if only at a memorandum of understanding level.

It was reported that the implications of ‘collaboration’ were not fully appreciated at the start of some projects, so making progress became time consuming, philosophically difficult and labour intensive.

As noted earlier, the forms and practices of collaboration varied among project participants. There were one or two projects where institutions felt they were only token members of the group, though most felt well informed. There were many projects where only one or two institutions took the lion’s share of the work, though most partners felt they benefited in the longer term. Although most projects were apparently managed well, conflicts did arise between project sponsors and stakeholders about the principles and practice of collaboration in a few. These exchanges tended to focus on expectations of resource distribution and benefits and reflected uncertainties about individuals’ and institutions’ respective roles and responsibilities with regard to the control of project finances.

It appears that a passionate individual or group is often the instigator of a good idea that receives support from others and then gains momentum. However, several interviewees were adamant that passionate people with good ideas are not, in themselves, sufficient to manage and implement a collaborative project. Clarity of purpose, strong project and people management skills, good governance and, above all, a preparedness to invest time and energy into the collaboration itself, are considered particularly important when collaboration is desired.

It is noted that one round 1 eCDF project consisted of developing protocols and guidelines for inter-institutional collaboration on e-learning, and these are now readily available.

Ownership (commitment and readiness)

Projects were successful partly insofar as the project goals and deliverables were aligned with the existing strategic goals of the institutions involved. This was the case in virtually all round 1 eCDF institutions, if only because such a commitment was a criterion of the funding. All the leading e-learning institutions in the country were involved in eCDF projects and some were involved in several. There was, therefore, an inherently high level of ‘authenticity’ in the projects and high levels of ownership among e-learning managers in particular.

However, building capability is not just matter of inter-institutional cooperation, it also involves cross-discipline and cross–staff group cooperation within institutions. While the presence of expert ‘champions’ was seen as a necessary condition for success in most projects, some interviewees also expressed a feeling that a project could get ‘lost’ in a specific department or confined in
outcome to specific personnel, unless conscious effort and activity were built in to ‘spread’ the project and its outputs more widely.

One project in particular highlighted that e-learning projects usually require collaboration among teaching experts, management experts and technical experts, who do not always take the same perspectives on a project. Differences were at times visible between educationalists who expected pedagogy to drive the project, staff who expected skills to be the driver, and IT technicians who wanted to get on with building IT tools for e-learning.

While governance arrangements required some attention, the crux of the matter was the performance of project managers and teams in planning, managing and relating well. In all cases, project managers and team members noted the importance of a high-quality engagement process and well-organised knowledge sharing.

Several also noted that projects were more likely to succeed when governance and project management experience and skills were strongly focused on the capabilities required for collaboration, and not just on e-learning knowledge or expertise. In this respect it was noted that the issues, challenges and costs of collaboration need to form part of the discussions and negotiation processes before the project is applied for or approved. As noted later, several projects underestimated the time cost of maintaining the collaboration.

There is some evidence that projects also need to be knowledgeable before the project design about the amount of existing capability in the participating institutions. Not working from a sound knowledge of ‘where the staff and students are at’ in their e-learning needs led to at least one professional development–oriented project having significant difficulty in achieving its original (unrealistic) expectations.

*Sponsorship (governance and financial management)*

All participants saw clear financial management principles and governance practices for collaborative projects as important, although some said they had not been as aware of this at the time of the bid as they later were.

Several projects reported that design and development captured most of the time and other resources, while implementation (knowledge transfer to practitioners) and evaluation (ongoing self-improvement) depended on the

“There’s now a bit of a focus on the experts doing their stuff, but there also needs to be [professional development] opportunities for those who haven’t dipped their toes. … There’s not a lot of encouragement or incentive at institutional level for staff. [We could] get someone to visit every institution and ‘showcase’ e-learning best practice around tertiary. … But bosses have to get turned onto it [e-learning] as improving learning and teaching, not just making money or increasing student numbers. It should be up to institutions but they haven’t got the money, so we [still] need special funding. It is hard to prove the cost-benefit.” (Interview, eCDF project manager)
goodwill and commitment of end-users. Including the time and other resources for embedding project findings or products through planned knowledge and skill transfer was frequently mentioned in the ‘what would I do differently next time’ sections of interviews.

Interviewees in two project institutions reported that some viewed collaborative projects as opportunities to obtain a financial return for support and ongoing endorsement of the project, rather than as a well-managed allocation of internal budgets against actual costs, and that it had not been clear beforehand where among the participating institutions control of funding lay. For the most part, however, such financial issues as were raised in interviews were less about financial governance than about the unpredictability of costs and cash flow issues resulting, for example, from a need to start work on several projects before contracts were signed.

Miscalculating (underestimating) the time cost of aspects of the projects was also a relatively common experience. About a third of the projects varied their contract as a result of time and timing problems, or put in a round 2 bid to fund the extension of the project to a more realistic time-frame. Unexpected delays, either at negotiation and start-up stages, or part-way through projects, were reported by several participants.

Several interviewees also commented on the apparent irony of the eCDF funding only collaborative development models at the same time as a competitive funding model was still in place for normal operations. Some institutions, especially those that saw the adoption of e-learning as primarily a chance to increase enrolments and student numbers, reported finding it hard to break the ‘competitive’ frame of operational thinking that had evolved in the sector, in favour of a collaborative model of capability building. Others mentioned a tension between one selection criterion that confined funding to projects that would not have otherwise been funded by the institutions and another that required institutions to provide evidence of commitment to ongoing institutional funding if the project were to be sustainable.

In terms of governance issues, several participants and institutional managers commented that while they had a productive and positive relationship with individual TEC project managers, they would have preferred the coherence of a coordinated approach to the projects whereby all eCDF project contracts were managed as a group by one or two, centrally located, contract managers. Ideally these managers would have an interest and background in e-learning and see elements of cross-fertilisation to be fostered and elements of duplication to be avoided among the various projects. Several project managers
also mentioned the disruptive effect of having to deal with more than one TEC contract manager over the contract’s life.

A demand for increased central coordination in the funding of e-learning in the sector was frequently made in interviews and often expressed in response to survey questions about future funding approaches.

The final governance issue mentioned in interviews, especially by managers of projects involving non-provider organisations, was that funding could be processed only through a TEO or TEI. This created difficulty for organisations that were already collective or collaborative entities, such as ASTE, TANZ, Te Tauihu o Ngā Wānanga and the Association of Polytechnics in New Zealand, in entering or administering bids on behalf of the group of organisations they represented.

“Funding should be based on government strategic requirements and identified priorities using the skills already in the tertiary sector. There should also be some funding for innovation that demonstrates benefit to the whole sector.” (TEO survey response)

“Future funding is need for embedding guidelines and quality standards across the sector. Balancing provision between the development of institutional capability with collaboration. Also research into the benefits and outcomes for learners.” (TEO survey response)

Summary: Success/failure factors in round 1 projects

Projects were successful insofar as they provided effective operational leadership, embodied genuine inter-community and inter-institutional collaborations, represented a genuine commitment by partners and participants to the project’s goals and were well governed.

The nine key success/failure factors were as follows.

- The extent to which senior management in the institutions showed a genuine interest in, and commitment to, the project and e-learning as a strategic goal generally.

- The extent to which an e-learning ‘champion’ or a small group of ‘champions’ was present in participating institutions and had leadership abilities.

- The leadership and management abilities of the person or team responsible for the project’s operational management. For some projects this operational leadership and expertise came from inside the lead institution, for others it came from partner institutions. Leadership ability and experience in e-learning are relatively scarce resources in the sector.

- The extent to which the collaborative nature and purposes of the project were supported by clear thinking, planning and formal procedures especially with regard to the parties having transparent, mutual understandings of the
extent to which the project was to focus on ‘collaborative effort’ or ‘collective benefit’. Successful projects spent time and energy building this understanding through meetings and advisory groups very early on in the development of the bid and in the early stages of delivery.

- The extent to which a known group of collaborators worked on the project and took a team approach with technical, teaching and management staff actively working together and given plenty of opportunity for knowledge sharing. When teams were composed of people who did not usually work together, time for team building was important.

- The extent to which one institution took a predominant role for the greater good or whether the partner institutions contributed equally to the project’s operation mattered less than getting clarity and pre-organised formal agreement about the respective roles and responsibilities of the participating individuals and institutions.

- The extent to which goals and time-frames were realistic. Projects were successful insofar as the project goals and deliverables were aligned and compatible with the existing strategic goals of the participating institutions, and were based on a sound and realistic knowledge of existing e-learning capability within participating institutions.

- The extent to which the calculation of, and allowance for, the time and compliance costs of contestable bidding and contract negotiation was realistic. The decentralisation of contract management to local TEC offices was felt detrimental to many projects.

- Relatively few projects were achieved, or indeed achievable, in the one-year time-frame initially designated.

3.3 Evaluation of the eCDF: Conclusions

Overall, the round 1 eCDF projects have collectively made significant contributions to the building of various e-learning capabilities in the sector, especially in terms of their immediate outcomes. Such impact, however, has been limited to the particular aspect or aspects of capability each project was concerned with, has varied in extent from one project to another, and has generally been much greater among participant institutions and participant groups within those institutions than widespread across the sector.

“There is a need to advise if industry training needs are part of the focus and priority for this fund. We have given up applying. There are exciting opportunities but we are unclear about the criteria that will be supported.” (PTE survey response)

“How are smaller regional Polytechnics etc being funded, and PTEs? Fund innovation—new pedagogy, new technology, new ideas—through the ITO.” (Interview, eCDF project manager)
The two most obvious and lasting capability effects of round 1 have been the:

- raised profile of e-learning, especially as a part of institutions’ strategic planning and technical infrastructure building, and especially in the larger TEIs
- establishment and consolidation of an active national community of practice among e-learning specialists and across traditional institutional boundaries.

In terms of the CARE framework for e-learning capability, there were projects focused on all four aspects (Capability (strategic management), Accessibility, Relevance and Excellence) with an emphasis on the first two areas, and this is reflected in the projects reportedly having the most impact in the sector.

The round 1 projects with the greatest spread of attention profile and that reported direct benefit in the sector were those that focused on strategic management such as the ELG project, technical (software) development such as the three open source projects, and the further building and sharing of expertise among e-learning specialists such as FLLiNZ. The most significant and more widespread outcomes, therefore, have been in relation to strategic planning and management for e-learning, and in relation to technical (especially software) networking infrastructure. There has been less, and less widespread, impact in relation to fostering equitable access to e-learning opportunities, and to increasing professional teaching capability outside the group of e-learning experts and early adopters.

Moreover, a cursory analysis of the eCDF projects selected for rounds 2 and 3 in 2006 and 2007, indicates that the profile of specific capabilities addressed by the eCDF has remained relatively uneven across the CARE framework through all three rounds. A particular focus of attention in all three rounds has been the development of tools and environments intended to make learning more accessible to students. Most of these projects have involved the creation or further technical development of specific software tools, such as authoring packages, ‘virtual learning environments’ and digital object repositories.

The focus on strategic systems and policy guidelines was a feature of the round 1 projects, but is less a feature of the projects selected for subsequent rounds. Since several of those projects were by nature developing one-off products that are now permanently available to the sector and do not need to be reproduced or extensively updated, it may be that the need for further capability building in this regard has indeed declined as the sector adopts these systems and guidelines.

Across all three years of the eCDF three or four selected projects have consistently been aimed at making e-learning available to student groups with particular needs or at developing digital content in content areas that hitherto have not been well served. These projects have included several continuations or ‘phase 2’ versions of projects funded in round 1. The Critical Factors project, for example, was succeeded by a similar project for Pacific learners, and the
Applied E-Learning project was extended for a different cohort of learners in round 2.

The long-term goals of several projects each year were also directed at improving the quality of teaching in e-learning contexts. These include the development of a certificate in e-learning design that builds on the round 1 Graduate Diploma project, the development of a formative assessment model and a train-the-trainers model applicable to e-learning contexts, and, of course, the continuation of the FLLiNZ programme for two years. While we note that these projects clearly relate to high-quality teaching they appear to be at the level of developing the ‘qualifications platform’ or creating useful support materials for the professional development of teaching staff. Except in the case of FLLiNZ, they offer little by way of the widespread provision of such professional development.

Thus, the area of greatest need for new or continued capability building reported in 2006 by eCDF institutions, and the area least directly addressed in the projects overall, relates to spreading knowledge and competence more widely among teaching staff, especially in regard to effective pedagogy in online contexts. It is noted, however, that this is also the area in which capability building is likely to be the most costly, in which we know the least about what constitutes ‘effective’ practice, and in which eCDF projects seem to have been the least sustainable from institutions’ own resources.

Collaboration among institutions was intended to be both a means and an end in eCDF projects. The extent and nature of effective collaboration evident in round 1 projects varied in both these regards and from project to project. Only a few projects involved joint operational responsibility. More often, the collaboration involved consisted of the partners’ commitment to sharing the knowledge and outputs gained from the projects conducted by one or two of their number. Overall, collaboration occurred among institutional partners less as a ‘joint venture’ than as an expected ‘collective benefit’.

Although some eCDF institutions did share e-learning capabilities in a formal way (eg. through the joint teaching of online courses or library-sharing arrangements), few formal or new collaborations between or among institutions seem to have resulted directly from participation in the projects. However, in the form of various guidelines and technical resources, the projects have produced and disseminated some significant resources, which individual institutions have not had to reinvent for themselves and which are now in common use in the sector. More than half of the 39 eCDF partners in the survey reported a direct benefit from the common adoption of these communal resources.

Even more importantly, perhaps, the projects played a significant role in establishing and fostering ongoing collaborations between and among the groups of e-learning specialists in eCDF institutions, and across the university–polytechnic divide.
It is clear from the study that the collective impact of round 1 of the eCDF has been greatest for particular groups within the participating institutions, most notably the groups of e-learning specialists, managers responsible for e-learning and the minority of teaching staff already engaged in online teaching.

It is also clear that the eCDF’s impact has been greater among partner institutions than among other institutions, and greater in the larger TEIs than in other institutions. When e-learning capabilities in eCDF institutions are compared with those in other institutions that provide online courses, eCDF institutions are more likely to:

- report awareness of, and direct benefit, from eCDF projects
- offer higher proportions of courses in online modes
- have formal e-learning strategies in place
- employ higher ratios of specialist technical staff
- share library or other online facilities with other institutions of a similar type
- engage in joint teaching with other institutions in online courses
- offer ongoing, technically focused, professional development opportunities to staff.

The comparatively greater awareness and adoption of eCDF project outputs, indeed greater e-learning activity in general, among eCDF institutions is perhaps a predictable finding, although it is probably a function of several factors, including, but not confined to, successful participation in an eCDF project. These factors include:

- involvement in one or more projects, which generated interest in other projects
- a pre-existing interest in, and commitment to, e-learning within the culture of most eCDF institutions, which the projects could build on but not have to create
- the great majority of eCDF institutions being large or very large organisations in the university, polytechnic and college of education sector, with significant resource capability and capacity already committed to e-learning activity.

It is difficult, if not impossible, to isolate, still less to quantify, the particular contributions to capability building made by the round 1 eCDF projects, if only because the group of participating institutions comprises almost all the universities and the colleges of education, and most of the larger polytechnics,

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8 Which are now part of universities in the region or city in which they are located.
all of whom were already quite well established in the field before the eCDF funding. This means statistical comparisons that show an effect among eCDF institutions also tend to show a similar effect according to institution type. eCDF institutions were more likely than non-eCDF institutions to show awareness and use of project outputs, but so were universities and polytechnics generally, and large polytechnics particularly. Suffice it to say, in those institutions that took part in the round 1 projects, e-learning capability is being built and consolidated faster than in other institutions, and the eCDF is widely regarded as having been instrumental for many, and pivotal for a few, in enabling that to happen.

The fact eCDF institutions were self-definingly the group of early adopters of e-learning may have limited the eCDF’s opportunity to have more widespread impact in building capability across the whole sector. PTEs, other tertiary education providers (OTEPS), ITOs and smaller polytechnics with no history of e-learning, for example, were seldom eCDF partners. As several respondents pointed out, the eCDF addressed the capability needs of the group of larger TEIs, but did not address the capability needs of the more numerous group of small, late-adopting or non-adopting providers, namely PTEs and small polytechnics. In many ways the history of round 1 of the eCDF consisted of the moderately rich getting richer, but little happening for the poor.

The main factors militating for success in the projects were ensuring that:

- both management and staff in partner institutions were strategically committed to e-learning as an institutional priority
- adequate leadership capability and e-learning expertise existed among those responsible for the project’s operation
- adequate attention was paid to clarifying and maintaining collegial and cross-institutional relationships
- realistic time-frames were set
- governance of the projects as a group was coherent at the national level.

Many in the interviews and surveys recommended that such capability funds, if they are to be contestable and project based, are best coordinated nationally in order to reduce apparent or real duplication of effort among projects and to maximise information sharing, and that interested non-provider groups and organisations (ITOs and cross-institutional organisations such as TANZ and ASTE) also have a significant role to play in building capability in the sector.

Perhaps the final point to be made in respect of the sustainability and relative costs and benefits of the eCDF to the sector is that such benefit has been manifest less in any inherent ‘added value’ or cost efficiencies that investment in e-learning capability has brought to individual institutions and more in the avoidance of duplicated effort and establishment costs in several key areas across the sector as a whole.
To the extent that the institutions involved in the ELG and Critical Factors projects, for example, produced strategic guidelines in their respective areas of interest for the sector, other institutions do not have to. To the extent that the institution involved in the EXE project has produced an open source, freely available XML (extensible markup language) editor for the easier production of e-learning resources, other institutions do not have to. To the extent that the Christchurch consortium of institutions in the Graduate Diploma project has produced a professional qualification on e-teaching for tertiary teachers and support staff, other institutions do not have to. To the extent that FLLiNZ has enabled several institutions to pool otherwise scarce expertise in order to provide advanced professional development for their e-learning expert staff, each individual institution has not had to make the investment. And so on.

However, as is implied in the discussion on the sustainability of round 1 projects, the benefits of such collaboration have not been absolute. Many institutions still feel competitive rather than collaborative pressure in building any capability that has the potential to increase student enrolments and therefore income. Avoiding duplication in the examples above reduces, but does not eliminate, the ongoing cost to individual institutions when adopting or embedding these resources and capabilities. Even more significantly, moreover, not all capabilities are equally amenable to such economies of collective enterprise. Some capabilities, staff professional development perhaps being prime among them, cannot be ‘done only once’ and cannot be done ‘on behalf of’, so will still require investment institution by institution over time. To this extent there seems to have been an emphasis in the allocation of the eCDF to high-cost, short-term, easily sharable projects related to strategic planning and software infrastructure, rather than to high-cost, long-term projects related to professional capability that need to be reproduced in each institution.

4.1 Introduction
This section comments on the empirical results of the study relevant to objective 3 of the evaluation. It scopes the state of e-learning capability across the tertiary sector as a whole, as at mid 2006. The empirical findings and our general conclusions about the overall state of e-learning capability in the sector are reported in respect of each of the four elements of the CARE framework (namely, Capability (i.e. strategic management), Accessibility, Relevance and Excellence).

4.2 Findings: E-learning capability across the sector

4.2.1 Strategic management of e-learning
Building capability in the form of sustainable strategic management practices for e-learning among tertiary institutions has been a significant priority area for the eCDF. Desired capability outcomes of this kind relate to the establishment and consolidation of collaborative relationships among participant institutions on e-learning, strategically focused planning for e-learning provision across the sector, and the rationalisation of e-learning policies and procedures to ensure cost-effectiveness and sustainability in any future investment in e-learning. In overall government policy, e-learning is an important area in which, and through which, tertiary institutions can achieve efficient and sustainable development. They can do this by collaborating to reduce the duplication of effort and course provision and by sharing the high set-up and maintenance costs of providing up-to-date and comprehensive information systems and learning resources for an ever-broadening catchment of students.

The primary indicators of sector-wide capability with respect to the strategic management of e-learning investigated in the evaluation relate to the extent of sector-wide collaboration and sharing of e-learning resources, formal strategy development and the specialised staffing commitment for e-learning, and sector-wide provision of e-learning in the form of courses with online components.

Extent of sector-wide collaboration and sharing of e-learning strategic resources
Cross-institutional collaboration or sharing in e-learning contexts is not common across the tertiary sector, but it is occurring (Figure 7). What collaboration there is, tends to be with one or two other institutions of a similar type. Joint (across institution) teaching into online courses was reported by three of the four responding universities and four of the polytechnics, while collaborative development of course materials for online courses was reported by 10 of the 14 responding polytechnics and one university. The universities tend to have
sharing arrangements (with other universities) with regard to their library catalogues and the borrowing of each other’s library resources.

**Figure 7** Numbers of tertiary education organisations with various forms of collaborative arrangements in e-learning

Collaboration on strategic planning and policy development around e-learning was reported most by polytechnics. Eight of the 14 responding polytechnics reported such arrangements and activity.

Relationships with overseas institutions in any of these areas are rare, but not unknown. Three providers reported joint teaching of online courses, five reported sharing e-learning course materials development, two reported sharing digital content repositories, and two reported sharing e-learning policy development with overseas institutions.

**Summary: Sector-wide collaboration on e-learning**

Cross-institutional collaboration or sharing in e-learning contexts is not common across the tertiary sector, but it is occurring. What collaboration there is, tends to be with one or two other institutions of a similar type.
Collaboration on strategic planning and policy development around e-learning was reported most by polytechnics. Formal collaboration among universities on e-learning relates most to the sharing of library facilities.

**Extent of formal strategy and policy development and specialist staffing commitment for e-learning**

All but 3 of the 38 ‘online provider’ institutions (and 7 of the non-providers) had a formally designated person responsible for managing e-learning in their organisation. A much smaller proportion reported having a formal strategy for developing e-learning capability within their institution. Three of the 5 responding universities, 5 of the 14 polytechnics and 6 of the 14 PTEs offering online components in courses did not have a formal capability-building strategy in place at the time of the TEO survey, although of these all but one polytechnic planned to have one within the year. Two of the 33 PTEs that did not provide courses with online elements nevertheless had a formal strategy in place, and a much larger proportion planned to have one within the year (11 out of 33).

Over the sector as a whole, about half the ‘online providers’ and a third of all providers had such a strategy in place, and two-thirds either had a strategy or planned to have one within the year.

‘Online provider’ institutions employed IT technical staff (IT support, webmasters, website editors and so on) and specialist e-learning professional staff (instructional designers and professional development specialists with e-learning expertise) in the ratio of 2 : 1 on average. While all but one ‘online provider’ institution employed one or more full-time equivalent IT technical support person, almost a quarter did not employ any staff in web development roles, a fifth did not employ professional development facilitators with e-learning expertise, and two-fifths did not employ instructional designers with expertise in e-learning course development.

**Extent of sector-wide provision of e-learning in the form of courses with online components**

According to the SDR data, of the approximately 286 providers in the sector, about 60% offered at least some courses with online components in 2004 or 2005, and about 40% did not, almost all of the latter being PTEs (1 wānanga, 1 polytechnic, 4 OTEPs and 116 PTEs).

Sector-wide, about 30% of all courses offered in 2004 and 2005 had a significant online element, including about a half of university courses, a third of college of education courses and a third of PTE courses.

Most PTE courses with online elements were web-supported (95%). Polytechnics offered a lower overall proportion (14%) of all courses with online elements than did PTEs, but were much more likely to offer fully web-based courses. Over a quarter of online courses in polytechnics were web-based and relatively few web-enhanced. Universities, by contrast, offered a lot of web-
based courses, but even more web-enhanced courses. Over 80% of the web-enhanced courses and 55% of the web-based courses offered in the tertiary sector were offered by universities.

Virtually all (99%) wānanga courses were provided offline, and the wānanga did not report providing any web-enhanced or web-based courses in 2004 or 2005.

Nationwide, some 20% of all courses were web-supported, 7% web-enhanced and 2% fully web-based.

The number of courses with online components offered by tertiary institutions increased significantly from 2004 to 2005. The number of online courses offered nationwide went up by almost 20% between the two years, with most of this increase being explained by increases in the number of web-supported and web-based courses.

However, it is easy to exaggerate the relative significance of such figures, because the overall proportions of courses offered online, as a percentage of the total number of courses available, increased much less, as it was part of a general increase in the number of courses in all modes (see Figure 8).

**Figure 8** Numbers and proportions of courses (Modes 1–4), 2004 and 2005 (Single Data Return data)

Note: Mode 1 = No online access; Mode 2 = Web-supported; Mode 3 = Web-enhanced; Mode 4 = Web-based. For more details, see Table 1.

Not only did the number of online courses offered nationwide increase from 2004 to 2005, so too did the number of tertiary providers offering them. The number of providers offering web-supported, web-enhanced and web-based courses increased by about 4%, 18% and 33% (from 15 to 20) respectively.

As is the case for the increase in the number of courses being provided, the proportional amount of increase this represents is somewhat ameliorated in
significance by an increase in the number of providers offering courses in all modes. The proportion of total providers that offered web-supported courses went down slightly, while that for providers that offered web-enhanced courses stayed the same and that for providers that offered web-based courses increased slightly. This is, in part, because of even greater increases in the number of providers offering offline courses and, in part, because, among the online offerings, more and more are web-supported and web-based.

Generally, therefore, more courses are being offered by more providers nationwide; and the increase in online provision as part of that is slightly, but not dramatically, higher than the increases in offline provision.

What is arguably more significant, is the apparent shift over time in the balance of provision among the different modes of online courses offered. There seems to be a trend among some providers, most notably PTEs, to move from offline to web-supported courses, and among others, most notably universities and polytechnics, to move from web-supported courses towards web-based courses. The proportions and numbers of courses that were web-enhanced have stayed relatively stable for all institution types, as institutions’ e-learning energies have gone into increasing web-supported and web-based provision.

Universities, colleges of education and polytechnics are significantly more likely to be offering courses with online components than are PTEs, and they are significantly more likely to be offering web-enhanced and web-based courses than are PTEs. Over 80% of the web-enhanced and web-based courses offered in 2004 and 2005 were offered by universities or polytechnics. PTEs offered 17% of all online courses in 2004 and 2005, the great majority of these being web-supported.

Summary: Sector-wide capability for the strategic management of e-learning

Formal cross-institutional collaboration or sharing in e-learning contexts is not common across the tertiary sector, but it is occurring. What collaboration there is, tends to be with one or two other institutions of a similar type.

Collaboration on strategic planning and policy development around e-learning was reported most by polytechnics. Formal collaboration among universities on e-learning relates most to the sharing of library facilities. Informal collaboration among the groups of e-learning experts within universities and polytechnics is, however, substantial and growing.

Strategic planning for e-learning is an evolving priority in tertiary institutions, whether they currently offer courses in e-learning modes or not. Over the sector as a whole, about half of ‘online providers’ and a third of all providers have a formal e-learning strategy or action plan, although most plan to develop one in the coming year.
The number of providers in the sector offering courses with online components is increasing. Much of this increase is explained by an increasing number of polytechnics offering more web-based courses.

The number and proportion of courses offered in online modes in the sector is substantial and increasing in the universities, but smaller and static among polytechnics, PTEs and wānanga.

Most courses with online components are web-supported in all institutions, though web-enhanced and web-based courses are much more likely to be offered by universities and larger polytechnics than by other institutions. Virtually all wānanga courses were provided offline and the wānanga did not report providing any web-enhanced or web-based courses in 2004 or 2005, though they do provide some web-supported courses.

Overall, the number and proportion of courses with online components is keeping pace with increases in the total numbers of courses offered. Within the three modes of online courses, however, there seems to be a trend among some providers, most notably PTEs, to move from offline to web-supported courses, and among others, most notably universities and polytechnics, to move from web-supported courses to web-based courses.

4.2.2 E-learning capability for access

E-learning capability building for increased learner involvement in tertiary education entails a consideration of how e-learning tools, technologies and systems might make learning more accessible to learners. Such accessibility may be achieved by using teaching and learning media and technologies that reduce barriers to participation for all learners irrespective of their social circumstances, decrease time and place dependence in course delivery, provide multiple rather than singular ‘media’ for courses, maximise interoperability among learning management systems, increase the transferability of qualifications among institutions, and so on.

The key indicators of sector capability for learner access investigated were the extent and commonality of interoperable e-learning software use across the sector, the range of services and facilities offered online by tertiary institutions, transferability and cross-creditability of online courses and tertiary teachers’ perspectives on the benefits and barriers in e-learning.

Use of interoperable e-learning software

In the survey of TEOs conducted as part of the evaluation, TEOs were asked to identify the main software platforms or packages they used to deliver online elements in courses and whether they used an LMS. (See Table 8.)

All of the institutions that offered online course elements stated they had an LMS. Institutions seem to have generally adopted a single platform approach to their LMS, although two universities and two polytechnics identified two delivery
packages being used within the one institution, and several providers were considering moving from an existing system to a new one (usually Moodle).

An analysis of the LMS platforms used in the sector shows that some platform consolidation is occurring, but it is not sector-wide. Overall, Moodle and Blackboard\(^9\) are becoming the ‘LMSs of choice’ in the sector, at least in the sense that they are the LMS environments most frequently used in tertiary institutions. Nevertheless, there is still significant variation in the platforms used among the universities (six different LMSs used in the eight universities) and among PTEs. The greatest commonality in LMS use is among polytechnics. Twelve of the 14 polytechnics in the TEO survey used Blackboard or Moodle.

The general consolidation towards a small number of LMSs increases the possibility of the inter-institutional transfer of information and resources with respect to the learners in all of the institutions using each of these systems. However, because current LMS systems are not interoperable with respect to each other, this consolidation also increases the potential for a ‘two or three horse race’ sector-wide, whereby transfer of information and resources among institutions will be feasible only with respect to those groups of institutions using one or other of those few LMSs.

### Table 8

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<td>Macromedia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breeze</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Intuto</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>MS Word</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

* Fifteen other individual learning management systems or web-authoring systems were also mentioned, each by a single, different private training enterprise (e.g. First Class, FrontPage, Net-G).

\(^9\) WebCT, an LMS used extensively worldwide, is used in two New Zealand universities. Recently, Blackboard purchased WebCT, so the future of either as long-term options for TEOs is in doubt.
Range of online services and facilities offered by tertiary institutions

It should be noted that the use of web-based technologies or other ‘http’ compatible systems, carry with them an inherent element of interoperability and transferability among institutions and ease of access for learners. In the same way that internet technologies make every institution’s resources and communications inherently accessible to any learner who has a computer and an internet service provider account outside the confines of the physical institution, so too do institutional intranets, which are based on the same coding protocols, make such resources and communications accessible across disciplines and departments within those institutions. To this extent, making information and course available online via the web or a ‘web-compatible’ system inherently increases the potential for the transferability of information within and among institutions, and increases ease of access for students. To make materials available ‘on the web’ is automatically to be ‘more accessible’.

The measure of capability beyond whether services and facilities are available online, however, is more a matter of what kinds of services and facilities are available online in the sector.

In 2003 (the year the round 1 eCDF projects were selected), the Ministry of Education surveyed a small sample of TEIs to assess those institutions’ capability with regard to providing online services and facilities. Fourteen of the 37 TEIs surveyed responded to the survey. Of those 14 institutions, 10 made some provision for online course delivery, 7 (half of the responding polytechnics and colleges of education and all of the universities) provided staff and students with 24-hour 7-day access to their e-learning site, 9 provided information on courses online for students, 2 had the facility for students to enrol online, and 1 made provision for students to pay their fees online.

In 2006, all of the TEIs in our TEO survey made provision for some kind for online course delivery, all but one provided 24-hour 7-day student access to an e-learning site, all provided course information to students online, 12 out of 21 had the facility for students to enrol online, and 8 out of 21 made provision for students to pay fees online.

Moreover, sector-wide by 2006, half of the institutions of all types surveyed provided for online course delivery. Of those, all provided course information to students online, 18 out of 41 provided for online student enrolment, and 12 out of 41 made provision for students to pay fees online. Under half of all institutions in the TEO survey (35 out of 83) reported providing 24-hour 7-day access to content and resources to their students, and a similar proportion provided such access for staff. This included all the universities and all but one of the responding polytechnics. A further 10 institutions, all PTEs or ITOs/OTEPs, stated that they did not offer such access but planned to do so by the end of 2007.

In terms of access to administrative services, while most institutions made course information available on the web, much smaller proportions allowed
students to enrol online or to pay course fees online (26 out of 78 and 16 out of 78, respectively). The majority of all institutions (65 out of 78), including institutions that did not provide courses online to students, reported that course information was made available online for students for at least some of their courses. About half made such information available for all of their courses, presumably through an institutional website.

About two-thirds (53 out of 78) of all institutions provided for online submission of student assignments, and two-thirds (50 out of 78) reported the regular use of email systems for staff–student information flow and teaching.

Just over half of the TEOs that offered online elements in courses make content in digital repositories available to staff and students, and most reported solid use of such resources (Table 9). The proportion of responding polytechnics that made such repositories available seems much lower than for other institution types. However, where they are available in polytechnics they seem to be similarly well used.

### Table 9  Tertiary education organisations making digital content repositories available

<table>
<thead>
<tr>
<th></th>
<th>Null</th>
<th>University</th>
<th>Polytechnic</th>
<th>College of education</th>
<th>Private training enterprise</th>
<th>Industry training organisation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>12</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>N =</td>
<td>5</td>
<td>14</td>
<td>3</td>
<td>14</td>
<td>3</td>
<td>3</td>
<td>39</td>
</tr>
</tbody>
</table>

For their part, solid majorities of teachers of online courses from all institution types in the teacher survey (n = 195) said they used digital content repositories in such contexts at least occasionally, although this seems to have involved sharing material with other staff within their own institution, rather than sharing more widely with staff or students in other institutions. (Note the under-representation of PTE respondents in the teacher survey.) (See Table 10.)

### Table 10  Extent of use of digital content repositories in courses with online elements

<table>
<thead>
<tr>
<th>Extent of use</th>
<th>Null</th>
<th>University</th>
<th>Polytechnic</th>
<th>College of education</th>
<th>Private training enterprise</th>
<th>Industry training organisation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>None or not applicable</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>23</td>
<td>8</td>
<td>38</td>
</tr>
<tr>
<td>Rare or occasional</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>11</td>
<td>2</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Extensive</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>N =</td>
<td>5</td>
<td>14</td>
<td>2</td>
<td>43</td>
<td>11</td>
<td>11</td>
<td>78</td>
</tr>
</tbody>
</table>
Almost half (38 out of 78) of TEOs provided online library catalogue systems for staff and students. Quite extensive use is made in online courses of online library search capability through online catalogues and searchable resource databases, at least in larger organisations such as universities and polytechnics. (See Table 11.) Logic would suggest that extensive use of such tools is also part of staff preparation and student research for offline courses. We note that the great majority of responding PTEs reported that they did not offer online library catalogues or online library facilities for students.

Only 12 institutions (15%) reported sharing student access to information systems such as library catalogues or digital content repositories inter-institutionally. Most of this sharing was done by universities and larger polytechnics, and for the most part seems to involve sharing with one or two other institutions of the same type.

Table 11  Extent of use of online library catalogue and database searching tools in courses with online elements

<table>
<thead>
<tr>
<th>Extent of use</th>
<th>Null</th>
<th>University</th>
<th>Polytechnic</th>
<th>College of education</th>
<th>Private training enterprise</th>
<th>Industry training organisation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>None or not applicable</td>
<td>2</td>
<td>1</td>
<td>28</td>
<td>10</td>
<td>41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rare or occasional</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extensive</td>
<td>5</td>
<td>11</td>
<td>3</td>
<td>7</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>3</td>
<td>5</td>
<td>14</td>
<td>3</td>
<td>47</td>
<td>12</td>
<td>84</td>
</tr>
</tbody>
</table>

Most institutions, and virtually all of those that made some provision for online learning in their courses, reported making a variety of e-learning tools available to staff and students. However, the use of such systems was widespread among staff mostly in relation to ‘resource-side’ systems such as institutional intranets, LMSs and digital content repositories. ‘Discourse-side’ information systems such as blogs, wikis and ePortfolios\(^\text{10}\) were much less likely to be used by staff or students, even when they were available (Table 12).

Relatively few institutions of any type made ePortfolios available for staff and students. One of the 5 responding universities, 2 of the 3 responding colleges of education, 2 of the 14 responding polytechnics, and 3 of the 47 responding PTEs made such provision. Only 4 institutions reported substantial use of ePortfolios by staff (1 college of education and 3 PTEs).

\(^{10}\) Blog is short for weblog, which is a journal (or newsletter) that is frequently updated and intended to be read by the public. A wiki is a website or similar online resource that allows users to add and edit content collectively. An ePortfolio is a multimedia electronic record in which staff or students collect, select, reflectively interpret or present their own evidence to support their assertions about what they have learned, know, and can or should do.
### Table 12  Availability and use of e-learning software and information systems in tertiary education organisations

<table>
<thead>
<tr>
<th></th>
<th>ePortfolio</th>
<th>Blog or wiki</th>
<th>Learning management system</th>
<th>Intranet</th>
<th>Digital content repository</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>4</td>
<td>6</td>
<td>31</td>
<td>33</td>
<td>32</td>
</tr>
<tr>
<td>Available</td>
<td>9</td>
<td>23</td>
<td>38</td>
<td>50</td>
<td>22</td>
</tr>
</tbody>
</table>

### Transferability and cross-creditability of online courses

Across tertiary institutions, transferability through any of joint teaching of online courses, active content sharing or specified cross-crediting, seems uncommon. Thirteen out of 77 responding TEOs in the TEO survey reported the joint teaching of online courses with other institutions, and most of that with one other institution rather than several institutions. Similarly, 7 out of 77 reported students accessing shared digital content repositories, 12 out of 76 reported students accessing shared online library facilities, and 11 out of 77 reported specified\(^\text{11}\) inter-institutional cross creditability for web-based courses.

### Teacher perspectives on barriers and benefits in e-learning

We did not gather data about the role of e-learning in reducing barriers or adding benefit from participants in the whole sector, but we did gather some from teaching staff in eCDF institutions. As reported earlier in this report, the teachers in the eCDF institutions were very positive about the potential of e-learning to enhance course delivery, especially in terms of increasing accessibility. For them, the greatest benefits of e-learning related to improving ‘access’ (“more flexibility in the delivery of courses” and “reduced barriers to access for learners”). The greatest barriers related to the “quality of provision” such as their e-learning skills and knowledge of effective online pedagogy. (See Figure 9.)

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\(^{11}\) In this we suspect respondents were referring to specific, identified cross-crediting arrangements for specific courses in one institution into specific qualifications at another. A lot of cross-crediting arrangements among institutions allow learners to exchange credits when enrolling in a qualification at a different institution. Such arrangements are likely to apply to all courses in a given field, independent of their mode of delivery.
**Figure 9** Percentages of staff using online elements in their teaching who identified each item as a barrier to effective e-learning

![Percentage Bar Chart]

<table>
<thead>
<tr>
<th>Staff ICT skills</th>
<th>Understanding of online pedagogy</th>
<th>Institutional priorities</th>
<th>Hardware/network</th>
<th>Student access</th>
<th>Lack of software</th>
<th>Financial constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>35%</td>
<td>16%</td>
<td>8%</td>
<td>49%</td>
<td>45%</td>
<td>53%</td>
<td>35%</td>
</tr>
<tr>
<td>35%</td>
<td>12%</td>
<td>21%</td>
<td>41%</td>
<td>49%</td>
<td>37%</td>
<td>23%</td>
</tr>
<tr>
<td>21%</td>
<td>41%</td>
<td>37%</td>
<td>32%</td>
<td>26%</td>
<td>23%</td>
<td>32%</td>
</tr>
<tr>
<td>19%</td>
<td>32%</td>
<td>49%</td>
<td>60%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>19%</td>
<td>60%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>14%</td>
<td>44%</td>
<td>44%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>11%</td>
<td>32%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>32%</td>
<td>23%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>35%</td>
<td>19%</td>
<td>26%</td>
<td>23%</td>
<td>23%</td>
<td>23%</td>
<td>23%</td>
</tr>
<tr>
<td>16%</td>
<td>12%</td>
<td>21%</td>
<td>11%</td>
<td>11%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>12%</td>
<td>21%</td>
<td>19%</td>
<td>11%</td>
<td>14%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>21%</td>
<td>19%</td>
<td>14%</td>
<td>11%</td>
<td>14%</td>
<td>11%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Note: ICT = information and communication technology.

**Summary: E-learning capability for access**

Sector-wide, technical systems capability is high for all universities, colleges of education and polytechnics, but very ‘mixed’ for PTEs.

The great majority of institutions offering courses with online components use a web-based LMS, with Moodle and Blackboard being the most commonly used LMSs. Some LMS platform consolidation is occurring but is not sector-wide. The universities and PTEs, in particular, still use a variety of non-interoperable LMS platforms.

Almost all institutions sector-wide offer at least some online administrative services to students, such as email access or online information on courses through a website. All TEIs provide 24-hour 7-day student access to an e-learning site, about half provide for online student enrolment and a third for the online payment of fees.

Capability with respect to digital content repository availability and use seems high in universities and TEOs, but there is possibly less capacity among polytechnics. The availability and use of discovery tools in the form of database search facilities is a feature of the larger institutions with substantial library
resources. Very few PTEs offer online library or reference database facilities to students.

Resource-side online or digital knowledge systems are made available by most institutions, at least to their own students. All tertiary institutions seem to provide email and web access to staff and students, though we did not ask this specifically. Most institutions reported making such provision at least in the forms of an institutional website, an LMS and/or an institutional intranet, and most reported routine use of these systems by the majority of their staff.

Provision for ‘discourse-side’ information sharing systems (e.g. blogs, wikis and ePortfolios) is much less prevalent. These are much less widely used, and there seems less knowledge sharing through such systems among institutions, than within them.

Sharing student access to information systems such as library catalogues or digital content repositories inter-institutionally is rare. Most of what does occur is among universities or larger polytechnics, and for the most part seems to involve an institution sharing with just one or two other institutions of the same type.

Formal collaborations or arrangements fostering the transferability of courses or credits through joint teaching of online courses, active content sharing or specified cross-crediting is uncommon in the sector, and where it occurs it tends to be an arrangement an institution makes with only one or two other institutions of the same type.

For teaching staff, the greatest benefits of e-learning related to access such as “more flexibility in the delivery of courses” and “reduced barriers to access for learners”, while the greatest barriers related to quality provision such as their e-learning skills and knowledge of effective online pedagogy.

4.2.3 E-learning for relevance

One reason for making tertiary courses more ‘accessible’ by using online media and systems is to expand the student catchment for tertiary education. This relates not only to a largely economically driven desire to increase income by increasing student numbers, but also to a largely equity-driven desire to make tertiary education more accessible to under-represented or disadvantaged student populations. The policy goal is to make post-compulsory education possible for, and relevant in content to, all potential learners, including under-participating groups.

The key e-learning capability for relevance indicators investigated were the demographics of student enrolment in tertiary online courses and the range of content in tertiary online courses.
Demographics of student enrolment in tertiary online courses

Student enrolment in courses with online elements increased significantly from 2004 to 2005, especially enrolments in web-supported and web-based courses. Indeed, the proportional rise in enrolments in courses with online components was even greater than the rise in the number of such courses, indicating that class sizes in such online courses are also increasing. While the number of online courses increased by 18% (compared with 8% for offline courses) from 2004 to 2005, the number of enrolments in online courses went up by 30% (compared with 16% for offline courses). Although such courses are still only a small minority of courses overall, institutions are offering more courses with online components and proportionally more students are enrolling in them. (See Figure 10.)

Figure 10 Numbers and proportions of enrolments in the four modes of offline and online courses, 2004 and 2005

<table>
<thead>
<tr>
<th>Numbers of enrolments</th>
<th>Proportions of total enrolments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mode 1</td>
</tr>
<tr>
<td></td>
<td>Mode 2</td>
</tr>
<tr>
<td></td>
<td>Mode 3</td>
</tr>
<tr>
<td></td>
<td>Mode 4</td>
</tr>
<tr>
<td>2004</td>
<td></td>
</tr>
<tr>
<td>180,000</td>
<td></td>
</tr>
<tr>
<td>360,000</td>
<td></td>
</tr>
<tr>
<td>540,000</td>
<td></td>
</tr>
<tr>
<td>720,000</td>
<td></td>
</tr>
<tr>
<td>900,000</td>
<td></td>
</tr>
<tr>
<td>1,080,000</td>
<td></td>
</tr>
<tr>
<td>1,260,000</td>
<td></td>
</tr>
<tr>
<td>1,440,000</td>
<td></td>
</tr>
<tr>
<td>1,620,000</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
</tr>
<tr>
<td>1,800,000</td>
<td></td>
</tr>
<tr>
<td>3,600,000</td>
<td></td>
</tr>
<tr>
<td>5,400,000</td>
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<td>7,200,000</td>
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<tr>
<td>12,600,000</td>
<td></td>
</tr>
<tr>
<td>14,400,000</td>
<td></td>
</tr>
</tbody>
</table>

Note: Mode 1 = No online access; Mode 2 = Web-supported; Mode 3 = Web-enhanced; Mode 4 = Web-based. For more details, see Table 1.

An analysis of the demographics of enrolments in such courses in 2004 and 2005 shows the following.

- While there were significantly more female than male enrolments in tertiary education courses generally, no clear gender differences existed in relation to enrolment in online courses compared with offline courses. Except in web-enhanced courses, where males constituted 46% of enrolments, just over a third of enrolments in all three other course modes were male and just under two-thirds female. Around 38% of total enrolments in both offline and web-based courses and 34% of enrolments in web-supported courses in 2004 and 2005 were male.
• Māori enrolments in web-based courses significantly increased from 2004 to 2005 (a 300% increase), matched by a proportional decrease in enrolment in web-enhanced courses. Māori were more likely to be enrolled in web-supported or web-based courses than in web-enhanced courses. Māori accounted for 26% of all enrolments, 18% of all web-based enrolments and 6% of all web-enhanced enrolments.

• Europeans were over-represented among enrolments in web-based courses, and Asians were over-represented in web-enhanced courses.

• While full-time students seemed no more or less likely than part-time students to enrol in web-based, web-supported or offline courses, a very low proportion of part-time students enrolled in web-based courses. Over 80% of enrolments in web-enhanced courses are full-time students. By contrast, full- and part-time students enrolled in courses in all other modes in equal proportions.

• The increase in the numbers of beneficiaries enrolling from 2004 to 2005 is greater in web-based courses than in all other modes of course, although enrolments in web-based courses still represent only a small minority (1.5%) of beneficiary enrolments generally.

• A similar trend (i.e. enrolments in web-based courses increasing faster than other modes but still representing only a very small proportion of enrolments overall) is apparent for students with disabilities, unemployed students and housepersons. Of enrolments by students with disabilities, 1.5% are in web-based courses compared with 5% of unemployed student enrolments, and 3% of houseperson student enrolments.

• Among these demographic groups, beneficiaries and people with disabilities are more likely to be enrolled in web-supported courses than are housepersons. Twenty-three percent and 26% of beneficiary and disabled student enrolments, respectively, are in web-supported courses compared with 16% of houseperson student enrolments.

• Housepersons and the unemployed seem the groups least involved in any form of online course overall, but both these groups account for more web-based course enrolments than the other non-mainstream groups of students considered. In other words, people coming to tertiary education from domestic life or unemployment do not tend to enrol in online courses; but if they do, they tend to enrol in web-based rather than web-supported or web-enhanced courses.

• Learners with lower level school qualifications enrol in different modes of course in similar proportions to those with advanced school qualifications.
Content of online courses

As can be seen in Figure 11, online elements are most likely to be included in courses in law, business and commerce, the sciences, teaching and medical and health. Around 40% of courses taught in each of these areas have online elements. The fields least likely to be taught using online elements are the trades and non-formal education, where 87% or more of courses have no online elements.

The great majority of courses available in web-enhanced or web-based modes are offered in the fields of business and commerce, the sciences and teaching, and these three fields seem to be the ones in which the growth in the number and proportion of courses provided online is greatest. Law also offers a high and increasing proportion of its courses in some form of online mode, but the great majority of these are web-supported rather than web-enhanced or web-based.

While these content fields offer proportionally more courses with online components than do other content fields, they do not necessarily represent the fields in which the most online courses or the most online enrolments exist in absolute terms. Because of the very large number of humanities courses offered in general (over a third of all courses offered in New Zealand each year are in the humanities), a very large number of humanities courses with online components are also being run. Approximately 26% of all online courses offered nationally each year are in the humanities. Over a quarter of all web-based courses taught in 2004 and 2005 were in business and commerce, a similar proportion were in the humanities, and 20% in teaching. Among them, these three areas account for almost three-quarters of all web-based courses offered in 2004 and 2005.

In the trades and general education, the number of web-supported courses increased markedly from 2004 to 2005, although the number of web-enhanced and web-based courses decreased. Moreover, providers of non-formal education seem to be leaving the online world. The numbers of these courses decreased across the board from 2004 to 2005, with most of the reduction being in courses with online components.

We note too, that the rapid increase in availability of courses with online components is often accompanied by an even more rapid increase in enrolments in such courses. It might be noteworthy that, in 2005, over half of enrolments in all business and commerce courses nationally were in courses with some online component, and over 10% of all enrolments in each of business and commerce, law and teaching were in web-based courses.
Summary: Sector-wide capability for e-learning for relevance

Student enrolments in courses with online elements, and class sizes in such courses, have increased significantly from 2004 to 2005, especially in web-supported and web-based courses.

In contrast to some overseas findings (US Department of Education, 2002), there are no significant gender differences in relation to enrolments in online compared with offline courses.

There was a significant (threefold) increase in Māori enrolments in web-based courses from 2004 to 2005, but Māori are still under-represented in online course enrolments compared with other ethnic groups and compared with their participation in offline courses. Europeans are over-represented among enrolments in web-based courses, and Asians are over-represented in web-enhanced courses.

People coming to tertiary education from domestic life or unemployment do not tend to enrol in online courses; but if they do, it tends to be in web-based rather than web-supported or web-enhanced courses. Beneficiaries and people with disabilities also do not tend to enrol in online courses, but if they do, they are more likely to enrol in web-supported courses.

Online courses are much more likely to be taught in some subject areas than in others. Online elements are most likely to be included in courses in law, business and commerce, the sciences, teaching, and medical and health. Forty percent or more of the courses taught in each of those areas have online elements. The fields least likely to be taught using online elements are in the...
trades and non-formal education, where 87% or more of courses have no online elements.

Over a quarter of all web-based courses taught in 2004 and 2005 were in business and commerce, a similar proportion of courses were in the humanities, and 20% were in teaching. These three areas account for almost three-quarters of all web-based courses offered. Generally, all modes of online course are a particular feature of the traditional academic fields of study more than they are of vocational, practical or general fields of study.

4.2.4 E-learning capability for excellence

The final of the four policy priorities for the tertiary sector in the CARE–STEP framework relates to the provision of high-quality learning experiences for students, and thus, primarily, to the human and professional aspects of institutional capability. ‘Excellence’ in the policy framework context refers to the capability that requires that the relevant people employed in tertiary organisations have the necessary knowledge, skill, experience, attitudes and relationships to provide high-quality learning experiences and use the most effective modes of provision when so doing.

Assessing ‘capability for excellence’ in regard to e-learning, therefore, requires an analysis of the spread and depth of e-learning expertise in TEOs and the relative ‘effectiveness’ of their use of e-learning modes of delivery. The proxy indicator for the former used in the evaluation consisted of teaching staff’s and e-learning managers’ declared perceptions of staff e-learning knowledge and skills in a national sample of about 83 TEOs. The proxy indicator used for the latter consisted of a sector-wide analysis of completion and pass rates for tertiary courses with and without online components for 2004 and 2005.

E-learning expertise and staff skills and abilities in tertiary institutions

Teacher capability, enthusiasm and skill in e-learning were isolated as strengths by many institutions, but almost always with the caveat that such capability was present among only a few staff or “in small pockets” or confined to the “early-adopters” and e-learning “champions” on the staff. In the TEO survey, a lack of professional development in e-learning for the wider population of staff was the most frequently mentioned limitation on institutional capability, and in the teacher survey it was the area of need teachers most frequently identified.

Over a third of responding institutions had a formal professional development programme to upgrade staff ICT skills and/or awareness, and a further quarter had plans to implement such a programme within the year. Generally, more institutions had, or planned to have, formal professional development for staff in relation to technical skills, than professional development in either the development of online learning objects and courseware or effective online pedagogies. Around 63% (51 out of 82) of responding institutions in the TEO survey had, or planned to have, a formal programme of professional
development on ICT technical skills in place for staff, and about half (45 out of 82) had such programmes or plans in the other two areas. Two polytechnics and around 20 of the 47 responding PTEs (predominantly those that were not providers of online courses), had no programmes or plans for programmes in any of the areas.

TEOs were also asked to rate their teaching staff's capability in e-learning. A relatively small proportion of institutions rated their staff's ICT skills as 'high' (these being 1 college of education and 7 PTEs), with most rating their staff's technical skills as 'moderate or mixed'. Thirty out of 73 TEOs rated their staff's technical skills as 'low' or 'nil', including 1 university, 4 polytechnics and 19 PTEs.

All provider institution types tended to rate their staff's e-teaching capabilities as lower in relation to knowledge of effective online pedagogies than in terms of technical skills. Only one university and two PTEs felt their staff capability in regard to effective online pedagogy was generally 'high'. By contrast, 47 of the other 72 responding institutions (65%) rated their staff's knowledge in this area as either 'low' or 'nil'. Restricting the sample to just those institutions providing courses with online learning elements, over a third (15 out of 42) of them rated their staff's capability around knowledge of online pedagogy as 'low' or 'nil', compared a fifth (9 out of 42) of the same institutions that rated their staff's technical skill as 'low' or 'nil'.

A constant refrain in the interviews and in responses to open questions in the surveys, was a perceived need to both broaden and deepen the capabilities of teaching staff. This was in terms of ICT skills among staff in institutions not yet engaged or just starting to be engaged in e-learning, but, more especially, in terms of improving the understanding of effective online pedagogy among those who were already so engaged.

**Completion and pass rates for courses with online components in tertiary institutions**

The primary indicators of the provision of ‘effective’ e-learning for students investigated were the course completion and pass rates for courses provided in the four modes (offline, web-supported, web-enhanced and web-based: see Table 1).

An analysis of course completion data in the SDRs for 2004 and 2005 indicates the following.

No significant differences existed in completion or pass rates between online modes as one group and offline courses. In fact, such rates were remarkably similar. (See Table 13.)

Pass rates were significantly higher for web-supported and web-enhanced courses (71% and 79% pass rates respectively) than for web-based courses.
(57% pass rate). (A pass rate is defined as the number of successful completions divided by the number of enrolments.)

‘Failure’ through non-completion or withdrawal (as opposed to completing the course but ‘failing’ formal assessment) accounts for most of this difference. A quarter of web-based students withdraw before the end of the course or do not complete the course. This is almost twice the withdrawal rate from offline courses, and three times the withdrawal rate from web-enhanced courses.

Web-enhanced courses have the highest combined completion–pass rates of all types of course, including face-to-face and other offline courses ($\chi^2 > 35$, $p > 0.0001$), and virtually identical pass rates to offline and web-supported courses when non-completions are withdrawn.

It was not possible from the SDR data to directly compare web-based course enrolments with enrolments in paper-based ‘distance’ courses. However, it was noted that non-completion and failure rates were proportionally higher across the board among extramural students than among intramural students. This suggests non-completion is more a function of ‘distance’, ‘isolation’ or ‘extramurality’, whatever the mode of delivery, than it is of ‘online-ness’ or ‘internet-ness’ per se. Comparing retention rates of web-based enrolments with retention rates for extramural enrolments generally (which include distance enrolments in courses delivered in non-web formats), indicates that web-based courses seem, if anything, slightly better at retaining distant (extramural) students than traditional ‘paper-and-post–based’ media. However, this needs further research to be confirmed.

Table 13  Completion and pass rates for courses using different delivery modes, 2004 and 2005 combined

<table>
<thead>
<tr>
<th></th>
<th>Offline courses (%)</th>
<th>Web-supported courses (%)</th>
<th>Web-enhanced courses (%)</th>
<th>Web-based courses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not complete as % of all enrolments in completed courses</td>
<td>13.9</td>
<td>16.5</td>
<td>7.1</td>
<td>25.4</td>
</tr>
<tr>
<td>Did not pass as % of all enrolments in completed courses</td>
<td>9.7</td>
<td>10.6</td>
<td>11.0</td>
<td>17.3</td>
</tr>
<tr>
<td>Passed as % of all enrolments in completed courses</td>
<td>76.5</td>
<td>73.0</td>
<td>81.9</td>
<td>57.4</td>
</tr>
<tr>
<td>Passed as % of non-withdrawals in completed courses</td>
<td>88.8</td>
<td>87.4</td>
<td>88.2</td>
<td>76.9</td>
</tr>
</tbody>
</table>

Overall, almost all of the differences in student performance in the four modes are the result of high withdrawal rates from web-based courses or high retention rates in web-enhanced courses.

Part-time students were more likely to not complete than were full-time students in web-supported and web-enhanced courses, but not in offline or web-based
courses. But they are especially more likely to fail web-based courses than are full-time students. Twice as many part-time students failed web-based courses as failed courses in other modes. Part-time students, therefore, generally do worse than full-time students do in online contexts (both withdrawals and fails), though both groups have similarly high withdrawal rates from web-based courses. A quarter of both full-time and part-time students withdraw from web-based courses.

There are no significant gender differences in completion or pass rates across the four course modes.

Completion rates were not significantly different to each other for most groups entering courses from self-employment, the home or salaried employment. But those coming from unemployment seem to have higher dropout rates across all modes than did these other groups.

Students coming from non-formal education did just as well in offline courses as those from formal education (except those coming from unemployment), and were slightly more likely to not complete (but not more likely to fail) web-supported courses. If anything, they do slightly better in web-enhanced courses; but, like most student populations, they do have slightly higher fail rates and much higher non-completion rates in web-based courses than in other courses.

Non-completion rates were similar for students from all institution types, but pass rates were noticeably higher among university students than among polytechnic and PTE students in all modes except web-enhanced, where they were similar.

It was also noted that students in web-based courses seemed more likely to seek or be granted extensions beyond course completion dates than were students in any offline, web-supported or web-enhanced courses. Seven percent of students enrolled in completed offline courses in 2004 and 2005 had extensions, compared with 4% in web-supported courses, less than 1% in web-enhanced courses and 19% in web-based courses.

We note, in particular, in respect of these results, that large numbers of institutions and teachers seem to be putting their e-learning energies into web-supported and web-based modes at the expense of web-enhanced, and yet the latter seems to be where the most effective practice is located.

Summary: E-learning for excellence

High teacher e-learning capability was universally reported, but not widespread, in tertiary institutions.

Professional development in all aspects of e-learning for the wider population of staff was the limitation on institutional capability most frequently mentioned by e-learning managers and the area of need teachers most frequently identified.
Over a third of the providers of online courses surveyed, including several universities and polytechnics (which provide most of the web-enhanced and web-based courses) rated the majority of their staff’s e-teaching capability as ‘low’ or ‘nil’, and most of the rest as ‘mixed’. All provider institution types tended to rate their staff’s e-teaching capabilities as even lower in terms of their knowledge of effective online pedagogies than in terms of their technical skills.

There are no significant differences in completion or pass rates between online courses grouped together and offline courses. In fact, such rates are remarkably similar. However, when all four modes are separated and compared, web-based courses have significantly lower gross pass rates than all other modes, largely because of the relatively high rate of non-completion or withdrawal from these courses. By contrast, web-enhanced courses have higher net pass rates than all other modes, including offline modes.

In our opinion, the comparatively lower completion or pass rates in web-based courses reflect in part a lack of understanding of effective pedagogies among tutors of web-based courses throughout the sector, and in part that enrollees in such courses are usually distant or isolated students who have a high withdrawal rate from courses in all modes.

It is particularly noted that the numbers and proportions of courses offered in web-enhanced modes are declining relative to those of other delivery modes, when, by the crude measures of pass rates and retention rates at least, it seems the most effective.

Completion and pass rates were not significantly different from each other for most groups entering courses in the various modes from unemployment, self-employment, the home or salaried employment. These groups seem to be entering such courses, and passing or failing them, in similar proportion, irrespective of delivery mode.

4.3 Is it built? Conclusions

*Build it, and they will come.*

(Oft-quoted line by Kevin Costner in the 1989 movie *Field of Dreams*)

As the Loasby (1998) quotation that opens this report reminds us, capability building is about creating the wherewithal for provision, rather than the provision itself. It is the creation of a ‘way’ in anticipation of the ‘will’; the thing ‘built’ in the hope that ‘they will come’. In the context of e-learning in the tertiary sector, it is thus an exercise in constructing an ‘infrastructure of opportunity’ that makes access to relevant, high-quality courses more possible, even if it cannot in itself guarantee this outcome.

Loasby (1998, p. 144) also claims that, because of their essentially conjectural nature, “capabilities are the least definable kinds of productive resources”.
Nevertheless, most formal models of organisational capability, and especially those focused on capability in service organisations, describe capability as being composed of (at least) three commensurate and relatively identifiable elements.

1 The governance and management structures that underpin the provision of the organisation’s services, as embodied in its strategic policies, practices and procedures.

2 The technical facilities and equipment required to provide the organisation’s services, as embodied in its physical plant and information technologies.

3 The domain-specific knowledge, skills, experience, attitudes and relationships necessary for the service to be delivered as embodied in the expert activity of the people who deliver it. (See, for example, AGIMO, 2006.)

In these respects, then, and in relation to the CARE framework, where does e-learning capability reside in the New Zealand tertiary education sector? Which institutions are more ‘capable’ in e-learning than others? What kinds of e-learning infrastructures are available for students to access? Who is being targeted in TEOs’ e-learning provision, and in what content areas? And how ‘capable’ are staff to provide it?

4.3.1 How and where is it being built? Strategic management for e-learning

The two primary indicators of capability building for the sustainable strategic management of e-learning in the sector investigated in the evaluation were: the extent of sector-wide collaboration and sharing of e-learning strategic resources and the institutional demographics of online course provision.

With respect to cross-institutional collaboration on e-learning, this is not common across the sector as a whole, but it is occurring and is increasing. The eCDF projects themselves have generated significant cross-institutional collaboration and sharing of information around e-learning, and have produced capability resources fairly commonly used in the sector as a whole. Overall, at the institution level, like institutions tend to collaborate and share with like institutions on e-learning. Sharing in relation to strategic resources seems more prevalent among polytechnics than among other institutions, and more prevalent among universities than among other institutions with regard to library and content resources. The TEIs are more likely both to have and to share strategic planning and resources than are PTEs in the e-learning field.

Online courses, defined as courses that incorporate internet-based elements, in web-supported, web-enhanced or web-based modes, are a growing but still minority component of tertiary institutions’ course profile. Sector-wide, online courses comprise about 30% of all courses offered, with the great majority of these being in web-supported modes. The number and proportion of fully web-
based courses are growing faster than those of courses in other modes, but still represent the smallest proportion of courses overall. Nationwide some 7% of courses are offered in web-enhanced modes and 2% in web-supported modes.

The proportion of institutions offering courses in online modes is also increasing. Some 60% of TEOs offered at least some courses with online elements in 2005. There are significant subsector differences in relation to the provision of online courses, however, with TEIs far more likely to offer courses in such modes than PTEs, and larger institutions are more likely to do so than smaller ones. Over 80% of the web-enhanced or web-based courses offered in 2004 and 2005 were offered by universities or polytechnics. It would appear that wānanga offer few, if any, courses in web-enhanced and web-based modes, and a very small but increasing number of web-supported courses.

Strategic e-learning capability, measured by the extent of cross-institutional collaboration on e-learning or by the extent of provision of courses in online modes, is greater among the larger TEIs than among smaller TEIs and significantly greater in both these groups than among PTEs.

Conclusion: it is ‘being built’, but more in the larger TEIs than in the smaller TEIs and PTEs.

4.3.2 What is being built? E-Learning media and information and communication technology infrastructures

Technical capability is more widely spread across the sector than is strategic capability, though this too is greater among the larger TEIs than among the smaller institutions and PTEs.

All TEOs offering online courses report having installed an LMS. There is evidence of some consolidation of LMS platforms as Moodle and Blackboard become the LMSs ‘of choice’ in the sector, especially among polytechnics. Nevertheless, there is still significant variance of LMS platforms among the universities and in the private sector.

The range of online services offered by tertiary institutions of all types has increased steadily since 2002. Some 60% of all institutions use an LMS for the provision of courses to students, but even higher majorities offer generic information, communication and administration services online to staff and students on a 24-hour 7-days a week basis.

Among the TEIs, though not among the PTEs, technical infrastructure capability was the least frequently reported barrier to learner access and the most frequently reported institutional strength in the evaluation surveys.

The sector’s capability and use of ‘resource-side’ technology systems, such as content repositories or online discovery and search tools, are greater than its capability and use of ‘discourse-side’ technologies, such as ePortfolios, wikis, blogs and other social software tools.
Conclusion: it is ‘being built’, but not necessarily using interoperable platforms, and more in relation to transmissive, mono-media technologies than in relation to discursive, multimedia technologies.

4.3.3 Who is it being built for? Learner catchment for e-learning

The creation of e-learning facilities and opportunities accessible by, and relevant to, all learners is a major goal of capability funding in the sector. The two key indicators of capability investigated in this regard were the extent to which online learning provision is being taken up by various learner groups and the range of content coverage in current tertiary e-learning provision.

Enrolments in online courses accounted for almost half of the EFTS-based funding consumed in 2005, with the majority of that being enrolment in web-supported courses. Web-enhanced courses account for less than 20% of EFTS-based funding and web-based courses for less than 5%.

Patterns of enrolment in online courses show that, contrary to trends reported in some overseas countries, there seem to be no significant gender differences in relation to enrolment in offline and online courses in New Zealand.

Pacific students are proportionally represented in courses in all modes, both offline and online. Māori are proportionally represented in web-supported and web-based courses (in the latter of which Māori enrolments tripled from 2004 to 2005), but are under-represented in web-enhanced courses. Europeans are over-represented in web-based courses and Asians in web-enhanced courses.

Matching an overall enrolment trend, enrolments in web-based courses by tertiary students coming from a background as housepersons or of unemployment are increasing, but still represent a very small minority of total tertiary enrolments by those groups.

There are significant subject and content field differences in the sector’s provision of online courses. Law is the only field in which the majority of courses are offered in online modes, with the great majority of these being web-supported. Substantial minorities of courses in medicine, business and commerce, the sciences and teaching are also offered in online modes. In absolute terms, the humanities account for the greatest number of courses, but proportional to the number of courses offered, most web-enhanced and web-based courses are offered in teaching and business and commerce. Between them teaching, business and commerce, and the humanities account for almost three-quarters of all web-based courses offered.

By contrast, proportionally few online courses of any type are offered in the trades and general education, and the numbers and proportions of online course offerings in non-formal education are actually declining.
Conclusion: it is starting to ‘be built’, but not in every content field. They are starting to come, but not to every field or necessarily in identical proportions to each other.

4.3.4 How well is it being built? Quality in e-learning provision

The two key indicators of staff capability and quality online course provision investigated were TEOs’ ratings of staff skills and abilities in e-learning, and completion and pass rates achieved in the various modes of offline and online course across the sector.

While teaching staff in the institutions surveyed were positively disposed towards e-learning, especially insofar as it was seen as increasing student access to tertiary education, staff capability was the most frequently stated limitation in relation to institution’s e-learning capability.

Most institutions offering online courses have some capability with regard to e-learning expertise, but this capability and expertise is not widespread within institutions, even in those that offer the most online courses. Teaching staff’s technical skills with ICT and e-learning tools were rated as ‘moderate or mixed’ by most institutions, but very few TEOs (3 out of 78 in the survey) rated their staff’s e-learning skills and pedagogical knowledge as ‘high’, and 65% rated this as either ‘low’ or ‘nil’.

The establishment of a nascent and collaborative ‘community of practice’ among e-learning experts in institutions across the sector has been a significant outcome of the round 1 eCDF projects, although specialist expertise in e-learning and leadership in the pedagogy of e-learning remain resources ‘spread thinly’ nationwide.

Conclusion: in relation to professional capability in e-learning delivery, it is being built, but slowly, and it is not widespread among staff in most institutions.

In relation to the effectiveness of the different modes of online provision available, overall it seems that in online teaching–learning modes, as in offline modes, quality depends more on context and is determined more by how the technologies are used, than on the technologies themselves. Nevertheless, there are differences in apparent achievement among the modes as they are being implemented. This is likely to reflect that most teachers are still developing an understanding of what makes for effective pedagogy in online contexts and the particular demographics of the student group that tends to enrol in fully online courses (specifically distant and isolated students), more than it reflects some inherent quality or shortcoming of ‘online-ness’ itself.

Conclusion: with regard to web-supported e-learning, it is being built, they are coming, and they are doing no worse. With regard to web-enhanced e-learning, it is being built, they are not coming so quickly, but they are doing marginally better. With regard to web-based e-learning, it is being built, they are coming, but they are not staying.
5 Recommendations for Funding

5.1 Introduction

E-learning in tertiary sectors worldwide is undergoing something of a sea change. In part, this change is technology driven, as Web2 technologies, social software, greater and faster broadband coverage, and more and more complex networking systems expand the field of educative possibility by ‘multi-mediated’, personalising and democratising the internet. In part, it is economically driven, as institutions seek more cost-efficient solutions to the ever-expanding and often hidden cost of building e-learning infrastructure, and as they try to balance the high initial investment cost of building e-learning capability against the potential longer-term return of expanding their student catchment and ‘market’. And, in part, it is quality driven, as tertiary institutions come to the realisation that effective e-learning is more than just a matter of ‘putting lectures on the web’, that what might constitute ‘high quality’ in online or ‘blended’ pedagogies is still an emerging field of research, and that ‘e-teaching’ may be neither widely understood nor necessarily highly prioritised among the majority of teaching staff. (See, for example, Laurillard, 2002, 2006; Gilbert, 2005; Dutton, 2004; Collis and van der Wende, 2002; Hegarty, 2004; Farrell, 2001; Marshall, 2005.)

At the government (funder) level, these contradictory drivers for investment in e-learning capability create a series of tensions and dilemmas that are not easily resolved by adopting a single, or universally applicable, funding formula or set of criteria. How, for example, can a funding regime based on ‘regionalising’ the focus of provision by polytechnics be best reconciled with investment in the very e-learning facilities that would make it easier and more economic for polytechnics to provide courses nationally, or even internationally? Where, similarly, is the point in a devolved system at which any central (government) responsibility to fund the establishment of basic capability and infrastructure ends, and local (institutional) responsibility to fund the improvement or extension of existing operational capability begin? Similarly, are the responsibilities of a state-funding agency to fund the e-learning infrastructure and capabilities of private, for-profit education enterprises different from or similar to its responsibilities in relation to other aspects of capability or infrastructure in those enterprises, or to its responsibilities to fund infrastructure in not-for-profit and state-owned enterprises, even if the former is seen as a significant area of significant national need? And so on.

These, of course, are not questions for this evaluation to resolve or make recommendations about. But they do explain why a series of alternatives are proposed in the recommendations that follow, rather than a set of specific priorities.
5.2 Is ‘seed funding’ for building e-learning capability in the tertiary sector necessary?

To some extent our answer to whether seed funding is necessary for building e-learning capability in the tertiary sector depends on whether ‘capability’ and infrastructure funding are regarded as building only the ‘foundations’, only the ‘foundations and the structural framework’, or the ‘whole house’.

The notion of sector capability inherent in the eCDF projects was a mixture of e-learning ‘tool’ or resource production, institutional community development and collaboration around e-learning. If the very production of these tools and the establishment of an e-learning ‘community’ within institutions is seen as a sufficient test of capability (capability as ‘establishing potential’), then much of the work with respect to most of the tools and with respect to the community of e-learning experts, is done, and has been done well. If, on the other hand, widespread knowledge of the tools and extant e-learning leadership across the sector are seen as the key tests of capability (capability as ‘spreading potential’), then much of the work has been done with respect to most of the tools among some of the e-learning expert community and among some staff in the larger institutions in the sector, but by no means all, or even for a critical mass. If the widespread adoption and use of e-learning tools and resources and widespread collaborative action within or across tertiary institutions are the tests of capability (capability as ‘embedding potential’), then much work still needs to be done, at least with respect to some of the tools and with respect to most the wider teaching community across most of the sector.

To the extent that all elements of e-learning capability are not yet embedded across the sector, continued funding for e-learning capability is still necessary in our view. However, funding for technological innovation and research and development projects around effective practice in e-learning are arguably also important. Again, whether this means funding just for capability might still be necessary but insufficient to embed best practice in e-learning, depends on the definition of capability applied. Such activities as technology innovation and research into best practice could be regarded as basic ‘operational’ or ‘research’ activity, so be more appropriately funded by institutions from their operational grant or perhaps from generic ‘innovations’ or ‘research’ funds administered separately from capability or e-learning funds.

In our view, however, a strong case (and need) still exists for the central funding of research and innovation, specifically with regard to e-learning in the sector, if only because e-learning and e-education are both in their infancy as educational practices, and will continue for the foreseeable future to be ever-changing in terms of the technologies required and the activities they might enable. In the sense that research and innovation in the field are still essential to building the knowledge necessary to provide high-quality e-learning experiences for students, such research and innovation could also be regarded as being a key part of capability building rather than something separate from it.
In terms of future funding strategies, it would be possible to pool funding for e-learning within the consolidated operational grant given to each provider on a common formula basis or to absorb funding for e-learning within other contestable funding pools, such as the Innovations Fund. However, for the reasons stated above, we believe the sector still requires funding specifically targeted at e-learning capability, and unless such funding were to be ring-fenced in some way it could be difficult to ensure the funds were used for the purposes for which they were given. Providers that already have high e-learning capability could also be advantaged in such systems, while the dilution effect across the 300 or so TEOs in the sector would mean the amount available to smaller institutions or those with the greatest need would in all likelihood be insufficient to have significant effect.

5.3 Recommendations for e-learning capability funding

Considering the broad definition of capability building that is implicit in the policy goals driving the eCDF to date, and given the sector’s current capability profile as outlined in previous sections of the report, it is our view that three guiding principles or approaches might usefully frame future funding for e-learning capability, with a fourth being some mixture of the three.

1. Funding for equity in e-learning  
   Funding ‘where it is not working or not currently available’.

2. Funding for embedding quality practice in e-learning  
   Funding to ‘spread what we know works in e-learning’

3. Funding for research and innovation in e-learning  
   Funding to ‘find out what might work better’

4. A differentiated funding model  
   This might be a mix of all of the above, allowing different projects to be funded based on different principles.

5.3.1 Funding for equity in e-learning

If future funding is to be equity- or needs-based, then, on the basis of the evaluation of the eCDF and scoping of e-learning capability in the sector, the key areas of such ‘need’ are:

- broad-based capability building in PTEs, ITOs, and smaller or rural polytechnics
- targeted capability building in the universities and larger polytechnics
- leadership capability built within the e-learning expert community
- e-learning focused on the needs and circumstances of Māori, second-chance learners and learners in rural or isolated situations
Broad-based capability building in private training enterprises, industry training organisations, and smaller or rural polytechnics

PTEs and smaller polytechnics still have less capability than larger organisations in the main centres. If the operational focus of non-university-based education provision is to be regionalised and networked under an institutional profile-funding regime, then PTEs, OTEPs generally, the small number of schools providing tertiary courses, the wānanga, and the rural polytechnics all need across-the-board capability to provide e-learning opportunities for their students and to belong to such networks. Institutional profiles in these institutions should reflect this need.

PTEs have significantly less capability and provide significantly and proportionally less e-learning than the rest of the sector (especially online learning in web-enhanced and web-based modes). Moreover, there are individual exceptions to this, but as a group PTEs have needs across the broad spectrum of capabilities, including strategic planning, technical infrastructure, content and subject coverage, and staff capability. A case exists for further research to identify the current barriers and enablers in PTEs that might explain the slow adoption of e-learning modes in this group of tertiary providers.

The questions of how appropriate or important it is for the state to fund capability or capacity building in private companies, and how this might be done, clearly need to be considered. Either way a clear need exists to incentivise the private sector to build its e-learning capability if it is to keep up with the public sector in this regard.

ITOs do not directly provide courses for students, so were not well represented in the round 1 eCDF projects or in our study of tertiary course ‘providers’. But they are, nevertheless, a significant influence in the provision of tertiary education and need to be involved in strategic planning for e-learning in the sector. A case exists for further research into how ITOs can help to facilitate the building of e-learning capability in the sector, especially given a current policy emphasis on trades training and the apparent under-representation of trades, industry and vocational training in current e-learning provision sector-wide.

Targeted capability building in the universities and larger polytechnics

Universities and the larger polytechnics have specific, rather than broad-based, capability-building needs. These relate to ‘relevance’ and ‘excellence’ issues more than to technical facilities or strategic systems, except perhaps in regard to operational collaboration in the latter. The universities, for example, all have sound capability with regard to LMSs, even though the range of platforms used varies significantly.

It could be argued that ‘capability’ is the measure of the range of services an organisation can provide, and that, for that range of services, ‘capacity’ is the measure of how much of the service it can provide, for how many people, and how often. If so, then for all of the universities and larger polytechnics in the
main centres, the current need is more about building sustainable capacity across the full range of existing capabilities, than about establishing the necessary range of initial capabilities in the first place.\textsuperscript{12} That is, the need is to extend the capability that already exists ‘in patches’, more widely within each institution, and to expand the range of services offered through efficient collaboration across institutions. While a network of e-learning departments is being established nationwide, a network of e-learning institutions collaborating operationally is much slower in evolving.

Providing effective programmes of staff development focused on ‘relevance’ and ‘quality’ issues in course provision to a wider population of teaching staff than is provided to at present, is the key to making the current range of e-learning capabilities sustainable and to expanding current e-learning capacity in universities and the larger polytechnics.

Several polytechnics still need broadly based e-learning capability to be built. Operational alliances on e-learning or active collaboration in e-learning projects, as exemplified by the more genuinely collaborative of the eCDF projects, would seem an obvious way of linking those polytechnics that have established capability with those that do not.

\textbf{Building leadership capability within the e-learning expert community}

E-learning expertise is still a scarce resource nationwide and this expertise needs to be shared and used at the policy-development level. It is essential to continue supporting projects that build leadership capability in relation to e-learning; projects that foster and use e-learning leadership maintain and expand the community of practice already established and foster new leaders in the field. A FLLiNZ-type programme, using a more sustainable financial model, has been a proven exemplar of such activity both here and overseas.

\textbf{E-learning focused on the needs and circumstances of Māori, second-chance learners and learners in rural or isolated situations}

The wānanga seem slower to adopt e-learning in web-enhanced and web-based modes than similar sized institutions among the universities and polytechnics, and Māori students are over-represented among the distant and second-chance learner groups enrolling in web-based courses. There is also a particular need for course content and resources applicable to Māori and in the Māori language (eg. multimedia resources, content repositories and customisable communications technologies in te reo Māori in all parts of the sector).

\textsuperscript{12} The ‘e-learning maturity model’ (Marshall, 2005) may provide a useful framework for individual institutions to assess the elements of their capability and capacity that still need development.
5.3.2 Funding for embedding quality practice in e-learning

If funding were to be targeted at embedding e-learning capability or spreading ‘best practice’ in e-learning, then key areas of investment would be:

- projects aimed at embedding e-learning practices more widely within and/or among tertiary institutions, making e-learning part of ‘core business’
- ‘best practice’ research and development focused on increasing our understanding of what constitutes quality in tertiary teaching in online or ICT-mediated contexts.

Projects aimed at embedding e-learning practices more widely within and/or among tertiary institutions

If the eCDF projects are any indication, e-learning tends to become the domain of a small group of enthusiasts and the spread of consciousness within institutions is slow without significant support and incentivisation from senior management. This incentivisation is likely to be most successful if it is about valuing and emphasising teaching, in all modes, rather than about emphasising or valuing technology per se.

Such initiatives could include the following.

- Feasibility studies of incentivised action research projects by later adopters in small rural polytechnics around high-quality online pedagogy, accompanying the implementation of technical and strategic infrastructure across the institutions.
- Projects in all subsectors that are aligned with, or add value to, the activities of other significant sector initiatives (eg. the two centres of excellence in ICT and tertiary teaching, or research funding programmes (eg. the Tertiary E-Learning Research Fund and the Foundation for Research, Science and Technology).
- Professional development programmes aimed at building critical mass in teaching staff’s ICT skills and, more importantly, understandings of effective pedagogies in online and blended contexts. A nationally coordinated initiative by which educational providers are funded to work together to provide such professional development has been successfully implemented in the school sector since 1999.

‘Best practice’ research and development focused on what constitutes quality in tertiary teaching in online or ICT-mediated contexts

Funded activity along these lines could include explorations:

- of what it is about web-enhanced course provision that results in higher retention and achievement than occurs with other delivery modes
of how web-based courses can be made more participative and/or achieve higher retention rates among the particular groups of learners who enrol in such courses

- to establish empirically the cost-effectiveness of e-learning collaborations and interoperability; for example, economic modelling within one or two leading e-learning institutions to establish the real investment cost and benefit of open source software compared with proprietary platforms.

We note that this too implies an investment in professional learning, but on the part of those already engaged in and leading e-learning, not just those about to embark on it.

5.3.3 Funding for research and innovation in e-learning

If funding were to be ‘innovations’ based, then key areas for investment would be as follows.

- Studies and trials of the educational application of new or emerging technologies likely to enhance the multimedia aspects of online course delivery and learning (eg. Web2 tools, podcasts, vodcasts, and virtual and enhanced reality simulations).

- Studies and trials of the application of emerging ‘discourse-side’ tools (eg. wikis, blogs and videoconferencing) targeted at increasing the participative (and not just the interactive) qualities of web-enhanced and web-based course delivery.

- Evaluation or conceptual tools and frameworks that institutions can use to self-evaluate their use of e-learning. Two examples are as follows.
  - A clear and up-to-date conceptual definition of the purposes, nature and forms of ‘e-learning’. A critical review of the four modes of e-learning in the SDR internet field would be a positive step in this regard. In particular, the current categorisation tends to conflate all of the (pedagogical) role that web or online resources or activities play in a course, the level of compulsion or requirement involved, and the proportion or amount of a course that is taught online or face to face. It also tends to assume that all e-learning is ‘web-based’ in some way, and makes little allowance for the discourse-resource continuum as an emerging feature of e-learning activity. Such a review could more clearly delineate the categories and more closely align them to current definitions of e-learning in the literature.
  - Development and incentives for the application of practical tools and frameworks that institutions might use to use to evaluate their use of e-learning. A sound conceptual outline of some such tools may already exist, for example, Marshall’s (2005) E-Learning Maturity Model and the Critical Factors project, but these tools are not widely known or used, and
need to be refined and reproduced in usable, practical formats before institutions are likely to widely adopt them.

5.3.4 Summary: Recommendations for e-learning capability funding

In our view it is important that capability funding continues to be made available. It needs to be available to fill the ‘need/equity’ gaps in sector capability, to embed e-learning as part of ‘core business’ in the sector, and for research and innovation into the effective use of new technologies as they become available.

5.4 General recommendations

The recommendations above focus on where future funding for e-learning might be best targeted. As part of the evaluation we also sought institutions’, participants’ and stakeholders’ views, from the experience of the round 1 eCDF projects, on the procedural aspects of how such funding might be managed. Our recommendations in this respect are as follows.

1 If funding remains ‘project’ based, then many projects are funded for longer periods than applied in the eCDF.

   Two to three years is not an unrealistic timescale for a capability-building project. Such funded projects, however, should do more than simply build a resource or product. Production-oriented projects should also be required to provide for both dissemination and trialling or piloting activities, and for an investigation of short- to medium-term outcomes as inherent elements of the project. Projects to embed and investigate best or innovative practice projects need to be similarly structured, with due attention to the need for dissemination, roll out of outcomes and sharing of findings for the collective benefit of the wider sector. Projects should not be about creating intellectual property or practice kept within a small group of institutions at the expense of the wider sector. This may mean funding fewer projects overall, some on a larger scale and for longer than has been the case to date.

2 Clear, coherent and transparent criteria and desired priorities within those criteria are published in requests for proposals for contestable funding.

   We note this was done for the 2006 (supplementary) round of the eCDF.

3 E-learning capability initiatives are nationally coordinated.

   This means projects should be seen to complement each other as parts of a coordinated strategy and single set of priorities, and any collection of e-learning projects should be managed centrally rather than regionally.

4 The TEC builds its own capability with regard to e-learning expertise and, as far as possible, maintains both continuity and coordination in fund or project management.
In the first eCDF round inefficiencies were perceived to occur in the eCDF’s operation because of a lack of e-learning expertise within the TEC and by virtue of the devolution of contract management to several regional managers who did not always know the ‘big picture’.

5 E-learning and proposals for e-learning projects are transparently linked to the core business and strategic goals of each of the tertiary organisations involved, which in turn are linked to the national strategic goals.

This will also help to ensure a genuine level of institutional ownership of the project at management level.

6 Proposed projects include a demonstration of sustainability in the form of an ongoing organisational commitment beyond the period of project funding, perhaps in the form of a budgeted action plan.

7 Evaluation and investigation of outcomes are a part of project planning.

Some eCDF projects commissioned independent research or some form of participant research and reporting into the effectiveness of the project, but most did not. Evaluation plans should be a requirement of future project bids, especially if projects are funded over two to three years when downstream outcomes and effects might more reasonably be investigated and identified.

8 Projects are clearly aimed at providing a common and widespread benefit to the sector and are not motivated by one institution’s or group of institutions’ desire to get a ‘competitive edge’ or create exclusive intellectual property.

The current emphasis on ‘collaboration’ as a feature of funded activity in building e-learning capability should be continued, but project selection criteria need to acknowledge the current constraints on ‘collaborative development’ in projects and instead focus on ‘collective benefit’ to the sector. The experience of the eCDF would indicate there is little current incentive for the joint production and development of e-learning projects. However, there is a common acknowledgement of the efficiency gains of sharing the results and products of such projects as this avoids unnecessary duplication of effort across the sector. Future funding should, therefore, ensure that in project plans there is an emphasis on providers demonstrating that ‘collective benefits’ or increased ‘common practice’ have resulted from funded activity.

5.5 Strategies and mechanisms for future funding
The eCDF regime tended to provide for some elements of capability more than others (eg. a focus on strategic planning resources and software production rather than on human capability building), and for project involvement and outcomes to be more beneficial to institutions wishing to extend an existing level of capability than to institutions wishing to create capability ‘from scratch’.
National, centralised coordination of future funding allocations would help to ensure such coverage and equity, but the funding mechanisms themselves could also play a role in this.

Two possible mechanisms for continued capability funding specifically targeted at e-learning would be as follows.

- **Ring-fenced ‘grants on application’**. In other words, a central e-learning capability fund from which institutions would automatically be granted funding ‘on application’ provided they could establish their need to build further capability in e-learning. Such funding could, for example, be made available on the basis of capability needs or targets identified in applicants’ institutional profiles. This approach has been used to good effect in the school sector since 1998, but it would be a more costly option than the current eCDF and would mean a commitment of funding greater in scale than that of the eCDF (ie. $21 million over three years).

- **Retaining the mechanism used in the eCDF of a contestable funding pool specifically targeted at e-learning projects.** Any contestable funding regime should consider carefully which of equity, roll-out or innovation is the key principle being applied in each case, and should ensure that funding is appropriately spread among these to ensure institutions with some existing capability and institutions without current capability all receive support, and that all elements of capability are covered in the suite of projects funded.

Within each of these broader mechanisms a range of specific payment mechanisms could be considered.

- **Dollar for dollar subsidies**
  Institutions or groups of institutions agree to provide a similar investment from their own resources to match that provided by government. (This could be, for example, an appropriate way of sustaining otherwise unsustainable or very expensive initiatives. The FLLiNZ project comes to mind in this regard. It is a very effective programme, building e-learning leadership across the sector, but is unsustainable under its current financial model.)

- **Zero-budgeted bids**
  Essentially, the system used in the eCDF rounds, whereby institutions provide predetermined services over an agreed time-frame for a set fee.

- **Drip feeds**
  This could be appropriate for longer-term projects that can be realistically ‘phased’ into more or less autonomous, but cumulative, sets of activity, with funding for subsequent phases being dependent on the successful completion of each previous phase. (This could be appropriate, for example, for some technical software or hardware production projects where a basic product might be produced but then enhancements added later as a result of successful implementation. This is often a scenario applicable in open source software development.)
Appendix A: First Round E-Learning Collaborative Development Fund Projects

Table A1 lists the 16 round 1 E-Learning Collaborative Development Fund projects.

<p>| <strong>Project title and synopsis (abbreviated project title used in figures/text)</strong> |
|---------------------------------|---------------------------------|
| E-GROW Northland (E-GROW)       | Developing and implementing a strategy to grow the capability of all Northland’s private training education providers to deliver e-learning. Assessing organisations’ staff and capability. Implementing cooperative training for key staff groups and infrastructure for organisations. |
| Ngā Kiwi Kete: The E-Learning Toolbox (Kete) | Working with other tertiary education organisations to develop a resource that will increase staff knowledge of e-learning and better provide and support e-learning initiatives within the organisation. |
| E-Learning XML Editor (EXE)     | Providing software that will enable academics and teachers at all New Zealand education institutions to easily publish e-learning web pages and enable all institutions to cross-reference their e-learning work. |
| New Zealand E-Learning Quality Standards, Framework and Guidelines (ELG) | Developing a set of guidelines and standards to ensure the high quality of e-learning provided in tertiary education organisations. |
| Te Ako Hikohiko Wānanga E-Learning Research Capacity Building (Ako/Te Ako Hikohiko) | Increasing the ability of Māori communities to research what e-learning works best for them, and encourage the learning of te reo through electronic means. |</p>
<table>
<thead>
<tr>
<th>Project leader</th>
<th>Project title and synopsis (abbreviated project title used in figures/text)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Waikato Institute of Technology</strong>&lt;br&gt; Best Training&lt;br&gt; Wellington Institute of Technology&lt;br&gt; Northland Polytechnic</td>
<td>Open Source Courseware Initiative New Zealand (OSCI)&lt;br&gt; Developing and implementing a unique New Zealand courseware tailored to New Zealand’s population, particularly Māori and Pacific peoples. Reducing the dependence and risks associated with commercially developed learning management systems.</td>
</tr>
<tr>
<td><strong>University of Waikato</strong></td>
<td>Flexible Learning Leaders in New Zealand (FLLiNZ)&lt;br&gt; Supporting the leadership and development of up to 15 academic staff annually to lead New Zealand in the e-learning environment.</td>
</tr>
<tr>
<td><strong>Wellington Institute of Technology</strong>&lt;br&gt; E-Learnz Incorporated&lt;br&gt; Learning Media&lt;br&gt; Southern Institute of Technology</td>
<td>Generic Trade Training Modules (GeTT/GeTT Mod)&lt;br&gt; Providing generic (and beginners’) e-learning modules for industry trainees, second-chance learners and secondary school students. This is a part of the larger e-Learnz project (immediately below).</td>
</tr>
<tr>
<td><strong>E-Learnz Incorporated</strong>&lt;br&gt; Victoria University of Wellington</td>
<td>E-Learnz Collaborative Tool Box (ELEARNZ)&lt;br&gt; Establishing a core set of resources that will encourage tertiary education providers to collaborate on the delivery of online technology programmes, courses and content.</td>
</tr>
<tr>
<td><strong>Christchurch Polytechnic Institute of Technology</strong>&lt;br&gt; Maata Waka Enterprises&lt;br&gt; Manukau Institute of Technology&lt;br&gt; Open Polytechnic of New Zealand&lt;br&gt; Universal College of Learning&lt;br&gt; Otago Polytechnic</td>
<td>Delivering Applied E-Learning in the Workplace: polytechnics and ITOs Working Together (Applied/Applied E-Learning)&lt;br&gt; Training workplace facilitators to increase the workforce training in e-learning and developing protocols for continuous improvement.</td>
</tr>
<tr>
<td><strong>Christchurch College of Education</strong>&lt;br&gt; University of Canterbury&lt;br&gt; Lincoln University&lt;br&gt; Christchurch Polytechnic Institute of Technology</td>
<td>Graduate Diploma in Applied E-Teaching and Support (Grad. Dip./Graduate Diploma)&lt;br&gt; Establishing a graduate diploma of applied e-teaching and support to address the need for skilled teachers in e-learning.</td>
</tr>
<tr>
<td>Project leader</td>
<td>Project title and synopsis (abbreviated project title used in figures/text)</td>
</tr>
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<td>----------------</td>
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</tr>
<tr>
<td><strong>Open Polytechnic of New Zealand</strong>&lt;br&gt;Massey University&lt;br&gt;Lincoln University&lt;br&gt;Tai Poutini Polytechnic&lt;br&gt;Tairawhiti Polytechnic&lt;br&gt;Nelson Marlborough Institute of Technology&lt;br&gt;Universal College of Learning&lt;br&gt;Christchurch Polytechnic&lt;br&gt;Institute of Technology.</td>
<td>Open Source E-Learning Environment and Community Platform (OSCP) Using and developing open source e-learning application software for adoption throughout New Zealand's tertiary education sector.</td>
</tr>
<tr>
<td><strong>Association of Polytechnics of New Zealand</strong></td>
<td>Critical Success Factors for Effective Use of E-Learning with Māori Learners (Critical Factors) Training educators and identifying critical factors to increase access, participation and achievement by Māori.</td>
</tr>
<tr>
<td><strong>Association of Polytechnics of New Zealand</strong></td>
<td>Developing E-Learning Leaders and Institutional Capability through Collaboration (ELLs) Encouraging the use of e-learning techniques in polytechnics by establishing a team to provide support and advice to organisations and tutors setting up and developing e-learning based training.</td>
</tr>
<tr>
<td><strong>Te Hau Takitini o Aotearoa</strong>&lt;br&gt;Association of Staff in Tertiary Education</td>
<td>E-Learning Collaborative Teaching Initiative (ASTE/ASTE conference) Developing standards and resources for teaching e-learning in the tertiary sector.</td>
</tr>
<tr>
<td><strong>Wellington Institute of Technology</strong>&lt;br&gt;(to be delivered by E-Learnz Incorporated)</td>
<td>eCDF Providers Forum (Forum) Arranging and facilitating a series of forums for all eCDF providers to encourage and develop collaboration.</td>
</tr>
</tbody>
</table>
Appendix B: Intervention Logic Outcomes Hierarchy

Figure B1 shows the intervention logic outcomes hierarchy the Tertiary Education Commission Te Amorangi Mātauranga Matua developed for the E-Learning Collaborative Development Fund.

Figure B1 Intervention logic outcomes hierarchy for the E-Learning Collaborative Development Fund
Appendix C: Related Ministry of Education–Funded Research

Project

Project manager(s)/lead organisation(s)
Victoria University of Wellington and E-Learnz Incorporated
Stephen Marshall
Email: stephen.marshall@vuw.ac.nz

Project summary
This project engages in a detailed e-learning capability determination exercise over several New Zealand tertiary education organisations. It assesses their current strategic and operational capability for delivering and maintaining e-learning in an educationally effective but also organisationally effective manner.

Executive Summary (PDF 3874kb)
Project Report

Project
An Investigation into Factors that Influence New Zealand Polytechnic/Institute of Technology Tutors’ Uptake of E-Learning, with Particular Reference to Early and Later Adopters and Resisters.

Project manager(s)/lead organisation(s)
Waikato Institute of Technology
Dr David Mitchell and John Clayton, Waikato Institute of Technology
Email: dmitch@waikato.ac.nz; ctjfc@wintec.ac.nz

Project summary
This project investigates the factors that lead New Zealand polytechnic and institute of technology tutors to adopt or resist the incorporation of e-learning approaches into their teaching practices. It includes consideration of perspectives of both tutors and organisational management.

The study focuses on four main groups: early adopters, later adopters, intending adopters and resisters. The research uses case studies, focus group interviews and national surveys to establish the factors that facilitate or discourage tutors’ decisions to adopt e-learning.

Executive summary (PDF 108kb)
Project report (PDF 1029kb)
Project

Project manager(s)/lead organisation(s)
Aotearoa Tertiary Students' Association
Jane Renwick and Stephen Owen
Email: research@atsa.org.nz; janerenw@paradise.net.nz

Project summary
This research tests a survey-based method for assessing learner perceptions of the effectiveness of e-learning support systems. The study also surveys e-learning professional staff's (tutors and support personnel) beliefs about the effectiveness of those systems. The findings of the two surveys are tested for any correlation between the learners’ judgments and staff assessments.

Executive summary (PDF 166kb)
Project report (PDF 1152kb)
Appendices (PDF 866kb)

Project
Approaches and Implications of E-Learning Adoption on Academic Staff Efficacy and Working Practice: A Comparative Study.

Project manager(s)/lead organisation(s)
Universal College of Learning and Otago Polytechnic
Maurice Moore (UCOL)
Email: m.moore@ucol.ac.nz
Bronwyn Hegarty (Otago Polytechnic)
Email: bronwynh@tekontago.ac.nz

Project summary
This research project examines the multiplicity of staff development programme being offered by a cross-section of New Zealand tertiary institutions in the polytechnic, university and college of education sectors, using case study research methodology. Not only is the current status of staff development for e-learning across the tertiary sector examined, but also other factors impacting on staff experiences with e-learning.

Final report (PDF 1239kb)
Literature review (PDF 512kb)
Appendix D: Ethical Procedures

The research was implemented according to procedures consistent with the Australasian Evaluation Society’s (2006) *Guidelines for the Ethical Conduct of Evaluations*.

The evaluation plan was approved by an ethical advisory group composed of senior researchers from within CORE Education and its two partner organisations before data collection, including at least one member who was not an active member of the E-Learning Collaborative Development Fund (eCDF) evaluation team.

Informed consent was sought from all participants in interviews, and all respondents and participants were informed about confidentiality, anonymity and security in relation to the raw data collected. As part of the informed consent process, participants were asked to consent to the publication of unattributed extracts, quotations, survey responses and selections from other direct data they may have provided that might be useful as evidence in the evaluation findings.

Non-identification in the publication of results was guaranteed to individual participants and, where possible, institutions, unless prior written consent is obtained.

In the case of the eCDF projects, participants were informed that raw data gathered for the evaluation would be used only for the purpose related to the questions in the evaluation and would be kept in a secure place by CORE Education for seven years after the publication of the evaluation results. Informants and participants were informed that raw data would be kept confidential to the research team and the particular participants who provided such data, except that:

- unattributed material may be made available to the Tertiary Education Commission Te Amorangi Mātauranga Matua on request if it is in the public domain or, if provided confidentially, permission is granted by the provider

- anonymised survey results will be available to the Tertiary Education Commission (TEC), and other education agencies through the TEC, for research and statistical purposes provided they are relevant to the questions guiding the evaluation

- raw data provided by the TEC will be returned to the TEC on request after the evaluation.

Informed consent was obtained from interview subjects and survey respondents by means of formal letters, email messages and telephone calls from TEC and CORE Education to participating institutions and individuals before interviews and before the URLs for survey questionnaires were distributed. Invitations to eCDF participants and teaching staff to participate in surveys were drafted by
the evaluators and distributed by e-learning managers within their institutions. These invitations included information about the evaluation and relevant consent and confidentiality statements.
Appendix E: Evaluation Instruments: Interview Schedule and Tertiary Education Organisation Survey Questionnaire

Interview schedule

Broad areas of focus in the first set of interviews were discussed with the Tertiary Education Commission Te Amorangi Mātauranga Matua, the advisory group and the external reviewer of the evaluation. The areas of interest and question prompts used in the interview round were as follows.

**Goals and expectations.** Interview questions and probes included: who are the expected beneficiaries of the project? Reasons for submitting the project and its goals. What evidence do they have for claims of ‘need’ for the project?

**Collaboration.** Interview questions and probes included: what evidence is there of cross-institutional partnership and collaboration (developing the project, dissemination and subsequent use)? Different partners’ roles. How has collaboration been achieved? Enablers and barriers. What do they know of other eCDF projects?

**E-Learning.** Interview questions and probes included: what definitions of e-learning informed the project and have these changed? Enablers and barriers experienced in implementing the e-learning aspects of project. Access/flexibility questions (institutional, teacher and student perspectives). Examples of effective e-learning practices related to the project.

**Capability.** Interview questions and probes included: participants’ views on what capability is. What capabilities do their project relate most to? Technical, systems, professional development etc issues experienced. What aspects of capability do they think their project has contributed most to? What ‘capabilities’ are still needed? How can they be best spread, and has the fund fostered or how could the fund foster this? Is it building the right capabilities in the right places? If they were resubmitting the project what would be different?

**Cost-effectiveness.** Interview questions and probes included: what has the Fund allowed them to do that they could not or would not otherwise have done? Would more or less funding have generated more or less outcome? Their views on the Fund in general. Was it ‘money well spent? In their case? In other cases? What have been the most and least ‘expensive’ aspects of project?

**Existing evidence.** Interview questions and probes included: what data are they using to show success and impact? Copies and examples of institutional statistics etc. if they exist.

**Survey populations and process.** Interview questions and probes included: contacts for future data gathering, lists of participants and managers for surveys, permissions and process re email distribution for surveys.
Survey questionnaire: Tertiary Education Organisation Survey

PRINTABLE COPY OF ONLINE QUESTIONNAIRE

Name of Institution (Confidential, not included in database) _______

1. Type of institution:
   [ ] University [ ] Polytechnic [ ] College of Education [ ] PTE [ ] ITO [ ] Other:

2. FTE academic staff
   [ ] Small (1-25) [ ] Medium (25-100) [ ] Large (100-1,000) [ ] Very large (1,000+)


4. Does your institution provide for on-line delivery of any of its educational programmes?
   [ ] Yes [ ] No

5. Roughly what proportion of your institution’s courses would operate in the following ways.
   • No online access (No part of the course or paper is accessible to students online)
     [ ] 0% [ ] Up to-25% [ ] 25-50% [ ] 50-75% [ ] 75-100%
   • Web-supported (a paper or course provides students access to limited online materials and resources. Access is optional, as online participation is likely to be a minor component of study)
     [ ] 0% [ ] Up to-25% [ ] 25-50% [ ] 50-75% [ ] 75-100%
   • Web-enhanced (students are expected to access online materials and resources as online participation is likely to make a major contribution to study)
     [ ] 0% [ ] Up to-25% [ ] 25-50% [ ] 50-75% [ ] 75-100%
   • Web-based (students are required to access the accompanying online materials and resources, online participation is the main or only mode of study in the course.)
     [ ] 0% [ ] Up to-25% [ ] 25-50% [ ] 50-75% [ ] 75-100%

6. Does your institution have:
   • A formal strategy to develop e-Learning capability programme in place to develop course material for online delivery?
     [ ] Yes [ ] No, but planned for next year [ ] No
   • A dedicated person responsible for driving your e-Learning strategy?
     [ ] Yes [ ] No, but planned for next year [ ] No
   • 24 hour, 7 day access to your e-Learning site for students?
     [ ] Yes [ ] No, but planned for next year [ ] No
• 24 hour, 7 day off-site access to your computer network/system for staff?
  [ ] Yes  [ ] No, but planned for next year  [ ] No

• A formal programme to upgrade staff skills in IT literacy?
  [ ] Yes  [ ] No, but planned for next year  [ ] No

• A formal programme to upgrade staff skills in the development of online learning objects and courseware?
  [ ] Yes  [ ] No, but planned for next year  [ ] No

• A formal programme to upgrade staff skills in effective pedagogies in online environments?
  [ ] Yes  [ ] No, but planned for next year  [ ] No

7. Approximately how many FTE staff do you employ in the following areas:

Instructional designers (with e-Learning capability)
  [ ] 0,  [ ] 1-2,  [ ] 3-5,  [ ] 6-10,  [ ] 10+

Professional Development facilitators/advisers (with e-Learning capability)
  [ ] 0,  [ ] 1-2,  [ ] 3-5,  [ ] 6-10,  [ ] 10+

Web developers (Webmasters, HTML editors etc)
  [ ] 0,  [ ] 1-2,  [ ] 3-5,  [ ] 6-10,  [ ] 10+

IT support staff:  [ ] 0,  [ ] 1-2,  [ ] 3-5,  [ ] 6-10,  [ ] 10+

8. Which of the following online tools/facilities are made available for use by academic staff by your institution? (Tick all those that apply)

[ ] ePortfolios  [ ] LMS (eg: Moodle, Blackboard, WebCT, Interact etc)
[ ] Institutional Intranet  [ ] Blogs/Wikis  [ ] Discoverable content repositories.

9. How familiar in your view are academic teaching staff with each of the e-Learning resources and initiatives listed below?

<table>
<thead>
<tr>
<th>Most of our teaching staff would:</th>
<th>Be unaware of it</th>
<th>Have heard of it but not use it as part of teaching</th>
<th>Occasionally use it as part of course delivery</th>
<th>Regularly use it as part of course delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPortfolios</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LMS environments (Moodle, Blackboard, Interact etc)</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Blogs/Wikis</td>
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<tr>
<td>Institutional Intranet</td>
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<td></td>
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<tr>
<td>Discoverable content in electronic repositories</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
10. What is/are the main software package(s) used for delivering online course material at your institution?

11. What is/are the main software package(s) used to develop online course material at your institution?

12. To what proportion of courses do each of the following apply?

   • Prospective students can find information about the course online?
     [ ] None  [ ] Some  [ ] Most  [ ] All

   • Students can enrol in the course online
     [ ] None  [ ] Some  [ ] Most  [ ] All

   • Students can pay course fees online
     [ ] None  [ ] Some  [ ] Most  [ ] All

13. In your estimation, how extensively are the following used in those courses with online components in your institution?

   • Online communication processes for interaction with lecturers (Including Email)
     [ ] Not at all  [ ] Rarely  [ ] Extensively

   • Synchronous lectures to online students
     [ ] Not at all  [ ] Rarely  [ ] Extensively

   • ePortfolio based assessment
     [ ] Not at all  [ ] Rarely  [ ] Extensively

   • Online chat
     [ ] Not at all  [ ] Rarely  [ ] Extensively

   • Content resource repositories
     [ ] Not at all  [ ] Rarely  [ ] Extensively

   • Discussion boards
     [ ] Not at all  [ ] Rarely  [ ] Extensively

   • Online library catalogue and database searching
     [ ] Not at all  [ ] Rarely  [ ] Extensively

   • Online library borrowing services
     [ ] Not at all  [ ] Rarely  [ ] Extensively

   • Electronic submission of assignments
     [ ] Not at all  [ ] Rarely  [ ] Extensively
14. Do you offer any fully web-based courses to students? Nationally?
[ ] Yes [ ] No Overseas? [ ] Yes [ ] No

15. Do you offer any complete qualifications online to students? Nationally?
[ ] Yes [ ] No Overseas? [ ] Yes [ ] No

16. With how many other providers does your institution have the following kinds of collaborative arrangements for e-Learning?

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Other NZ institutions</th>
<th>Overseas institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross creditability for web based courses</td>
<td>None 1-2 3-4 5-6 7+</td>
<td>None 1-2 3-4 5-6 7+</td>
</tr>
<tr>
<td>Joint teaching into web based or web enabled courses</td>
<td>None 1-2 3-4 5-6 7+</td>
<td>None 1-2 3-4 5-6 7+</td>
</tr>
<tr>
<td>Shared online content repositories</td>
<td>None 1-2 3-4 5-6 7+</td>
<td>None 1-2 3-4 5-6 7+</td>
</tr>
<tr>
<td>Shared online library catalogues accessible to students</td>
<td>None 1-2 3-4 5-6 7+</td>
<td>None 1-2 3-4 5-6 7+</td>
</tr>
<tr>
<td>Shared library online borrowing arrangements</td>
<td>None 1-2 3-4 5-6 7+</td>
<td>None 1-2 3-4 5-6 7+</td>
</tr>
<tr>
<td>Collaborative e-Learning policy and strategy development</td>
<td>None 1-2 3-4 5-6 7+</td>
<td>None 1-2 3-4 5-6 7+</td>
</tr>
<tr>
<td>Shared e-Learning policies, guidelines etc.</td>
<td>None 1-2 3-4 5-6 7+</td>
<td>None 1-2 3-4 5-6 7+</td>
</tr>
<tr>
<td>Collaborative planning or development of online course materials</td>
<td>None 1-2 3-4 5-6 7+</td>
<td>None 1-2 3-4 5-6 7+</td>
</tr>
</tbody>
</table>

17. How would you rate your institution’s current capability in the following areas:

- Teaching Staff ICT skills
  - High Moderate/Mixed Low Nil

- Teaching Staff understanding of online pedagogy
  - High Moderate/Mixed Low Nil
<table>
<thead>
<tr>
<th>Topic</th>
<th>Selection Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional strategic priorities, policies and procedures</td>
<td>Please select one</td>
</tr>
<tr>
<td>Hardware/network constraints</td>
<td>Please select one</td>
</tr>
<tr>
<td>Student access to ICTs for coursework</td>
<td>Please select one</td>
</tr>
<tr>
<td>Financial resourcing for e-Learning</td>
<td>Please select one</td>
</tr>
</tbody>
</table>

18. What are currently the greatest limitations of the institution in relation to its e-Learning capability?

19. What are the main strengths of the institution in relation to its e-Learning capability?

20. How well known and beneficial have each of the following NZ e-Learning (eCDF) projects been to date to you or your institution? (NOTE: A brief description of each project is attached at the end of the questionnaire)

- **E-GROW Northland**
  - [] I am not aware of the project, no institutional benefit
  - [] I have heard of the project but no direct institutional benefit to date
  - [] We have used resources, gained knowledge and benefit from the project

- **Nga kiwai kete: the e-Learning Toolbox**
  - [] I am not aware of the project, no institutional benefit
  - [] I have heard of the project but no direct institutional benefit to date
  - [] We have used resources, gained knowledge and benefit from the project

- **The EXE e-Learning XML Editor**
  - [] I am not aware of the project, no institutional benefit
  - [] I have heard of the project but no direct institutional benefit to date
  - [] We have used resources, gained knowledge and benefit from the project

- **NZ e-Learning Quality Standards Framework and Guidelines**
  - [] I am not aware of the project, no institutional benefit
  - [] I have heard of the project but no direct institutional benefit to date
  - [] We have used resources, gained knowledge and benefit from the project
• The Te Ako Hikohiko e-Learning Research Capacity Building project
[ ] I am not aware of the project, no institutional benefit
[ ] I have heard of the project but no direct institutional benefit to date
[ ] We have used resources, gained knowledge and benefit from the project

• Open Source Courseware Initiative
[ ] I am not aware of the project, no institutional benefit
[ ] I have heard of the project but no direct institutional benefit to date
[ ] We have used resources, gained knowledge and benefit from the project

• The FLLiNZ fellowships
[ ] I am not aware of the project, no institutional benefit
[ ] I have heard of the project but no direct institutional benefit to date
[ ] We have used resources, gained knowledge and benefit from the project

• Generic Trade Training Modules (GeTT Mod)
[ ] I am not aware of the project, no institutional benefit
[ ] I have heard of the project but no direct institutional benefit to date
[ ] We have used resources, gained knowledge and benefit from the project

• The eLearnz Collaborative Tool Box
[ ] I am not aware of the project, no institutional benefit
[ ] I have heard of the project but no direct institutional benefit to date
[ ] We have used resources, gained knowledge and benefit from the project

• Delivering Applied e-Learning in the Workplace: Polytechs and ITOs working together
[ ] I am not aware of the project, no institutional benefit
[ ] I have heard of the project but no direct institutional benefit to date
[ ] We have used resources, gained knowledge and benefit from the project

• Graduate Diploma in Applied eTeaching and Support
[ ] I am not aware of the project, no institutional benefit
[ ] I have heard of the project but no direct institutional benefit to date
[ ] We have used resources, gained knowledge and benefit from the project
• Open Source e-Learning Environment and Community Platform

[ ] I am not aware of the project, no institutional benefit

[ ] I have heard of the project but no direct institutional benefit to date

[ ] We have used resources, gained knowledge and benefit from the project

• Critical Success Factors for effective use of e-Learning with Maori Learners

[ ] I am not aware of the project, no institutional benefit

[ ] I have heard of the project but no direct institutional benefit to date

[ ] We have used resources, gained knowledge and benefit from the project

• The e-Learning Leaders and Institutional Capability Collaboration

[ ] I am not aware of the project, no institutional benefit

[ ] I have heard of the project but no direct institutional benefit to date

[ ] We have used resources, gained knowledge and benefit from the project

• The e-Learning Collaborative Teaching Initiative

[ ] I am not aware of the project, no institutional benefit

[ ] I have heard of the project but no direct institutional benefit to date

[ ] We have used resources, gained knowledge and benefit from the project

• The eCDF Providers Forum

[ ] I am not aware of the project, no institutional benefit

[ ] I have heard of the project but no direct institutional benefit to date

[ ] We have used resources, gained knowledge and benefit from the project

21. In your opinion, where would any future e-Learning funding be best targeted in the Tertiary sector, and why?
Appendix F: Demographics of Survey Responses

Survey of E-Learning Collaborative Development Fund participants and teaching staff

Sixteen projects were approved in the first round of E-Learning Collaborative Development Fund (eCDF) funding, involving about 32 provider institutions and other tertiary or e-learning organisations. The number of institutions or organisations formally involved in any given project ranged from one to eight, and any given institution could be involved in up to three different eCDF projects, either as a lead institution for a project or as one of the partner institutions for others.

The respondent populations surveyed in relation to eCDF outcomes were as follows.

- The participant survey was of managers with an interest in the projects in project institutions, and the project’s operational managers and key participants (‘n’ estimated at 3–6 people per project = about 70–80 people)
- The teaching staff survey was of all full-time teaching staff in round 1 eCDF project institutions (‘n’ estimated at several thousand).

To minimise work and cost around the surveys, respondents were asked to complete the questionnaires online, although an option to print out a questionnaire form to help in preparing a response was included for managers and project participants.

The survey was introduced to tertiary education organisations (TEOs), participants and teaching staff through an explanatory email including an invitation to participate and links to the online questionnaires. During the first round of interviews with eCDF project managers, it was negotiated that they would distribute the originating email to participants and staff. Some did this using staff email lists and some randomly selected staff from such lists. The Association of Staff in Tertiary Education also kindly agreed to distribute the invitation to participate in the teaching staff survey through its branch members, and the Ministry of Education did likewise for TEOs through its E-Learning Listserve.

The exact number of ‘active participants’ to whom the questionnaire was distributed is unknown as the various project managers sent out the invitations to take part and they decided who counted as an ‘active participant’. However, based on the estimates of active participants gained during project interviews and on existing participant lists for some of the projects where these existed, the response rate is estimated at 50%.

Responses were fairly evenly spread among the projects. No responses were received with regard to three projects (E-GROW Northland, Open Source E-Learning Environment and Community Platform, and the eCDF Providers Evaluation of the E-Learning Collaborative Development Fund 125
Forum), although key staff from all of these projects were interviewed and managers from institutions in the first two projects responded to the TEO survey. Ten respondents did not specify their particular role in the project, but, of the rest, most (12) were eCDF project managers or managers in institutions responsible for e-learning with a supervisory brief over the eCDF project. The others were evenly divided among operational staff (content writers, technical staff, e-learning developers and so on) and members of advisory groups.

Respondent demographics for the survey of eCDF project participants are outlined in Tables F1–F3.

**Table F1**  Number of respondents to participant survey, by project

<table>
<thead>
<tr>
<th>Project</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied E-Learning</td>
<td>3</td>
</tr>
<tr>
<td>ASTE conference</td>
<td>1</td>
</tr>
<tr>
<td>Critical Factors</td>
<td>7</td>
</tr>
<tr>
<td>E-GROW</td>
<td>0</td>
</tr>
<tr>
<td>ELEARNZ</td>
<td>1</td>
</tr>
<tr>
<td>ELG</td>
<td>1</td>
</tr>
<tr>
<td>ELLs</td>
<td>4</td>
</tr>
<tr>
<td>EXE</td>
<td>3</td>
</tr>
<tr>
<td>FLLiNZ</td>
<td>5</td>
</tr>
<tr>
<td>eCDF Providers Forum</td>
<td>0</td>
</tr>
<tr>
<td>GeTT Mod</td>
<td>1</td>
</tr>
<tr>
<td>Graduate Diploma.</td>
<td>4</td>
</tr>
<tr>
<td>Kete</td>
<td>3</td>
</tr>
<tr>
<td>OSCi</td>
<td>5</td>
</tr>
<tr>
<td>OSCP</td>
<td>0</td>
</tr>
<tr>
<td>Te Ako Hikohiko</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>39</strong></td>
</tr>
</tbody>
</table>

Note: For an explanation of the abbreviated project names, see the Glossary.

**Table F2**  Number of respondents to participant survey, by role in project

<table>
<thead>
<tr>
<th>Role in eCDF project</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not stated</td>
<td>10</td>
</tr>
<tr>
<td>Institutional management/oversight</td>
<td>8</td>
</tr>
<tr>
<td>Operational manager</td>
<td>4</td>
</tr>
<tr>
<td>Technical/content developer/writer</td>
<td>9</td>
</tr>
<tr>
<td>Advisory group</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>39</strong></td>
</tr>
</tbody>
</table>
Table F3  Number of respondents to participant survey, by level of participation

<table>
<thead>
<tr>
<th>Level of participation</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil (took no real part in the project)</td>
<td>1</td>
</tr>
<tr>
<td>Occasional (attended one or two meetings, some advice, watching brief etc)</td>
<td>7</td>
</tr>
<tr>
<td>Moderate (attended meetings regularly, quite active for short times, etc)</td>
<td>9</td>
</tr>
<tr>
<td>Significant (part of main operational team, a significant part of my job)</td>
<td>15</td>
</tr>
<tr>
<td>Integral (project provided full time employment for year or more)</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
</tr>
</tbody>
</table>

There were 417 responses received to the ‘staff’ survey distributed among teaching staff in eCDF institutions. Staff from polytechnics (294 out of 417 responses) and, possibly, staff in colleges of education (25 out of 417), are over-represented in the respondent group compared with staff from other institution types. There were proportionally fewer responses from university staff (39), especially given that most of the universities were involved in one or more eCDF projects. There were proportionally fewer (46) responses again from staff in private training enterprises (PTEs) or industry training organisations (ITOs), but it is noted that very few PTEs were involved in eCDF projects. There were more staff responses from ITOs (32) than from PTEs (14).

Respondents to the staff survey were divided more or less equally between staff who were actively engaged in e-learning as it was defined in the evaluation (n = 202) and staff who were not engaged in e-learning activity (n = 212). This was the case for respondents from all institution types. (See Table F4.)

Table F4  Respondent demographics for the survey of teaching staff in eCDF institutions

<table>
<thead>
<tr>
<th>Institution type</th>
<th>Incorporate online components in teaching?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not stated</td>
<td></td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>University</td>
<td></td>
<td>26</td>
<td>13</td>
</tr>
<tr>
<td>Polytechnic</td>
<td></td>
<td>141</td>
<td>153</td>
</tr>
<tr>
<td>College of education</td>
<td></td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Private training enterprise</td>
<td></td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Industry training organisation</td>
<td></td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>202</td>
<td>212</td>
</tr>
</tbody>
</table>

Survey of tertiary training organisations

The sample for the ‘TEO survey’ survey was the whole population of the largest 230 tertiary providers in the country (TEOs with about five or more full-time teaching staff), based on a list of such institutions provided by the Tertiary Education Commission Te Amorangi Mātauranga Matua.
The survey was made available in the form of an online questionnaire, with an option to complete a downloaded electronic (MS Word) version and submit it by email if the institution preferred. The Tertiary Education Commission sent an introductory letter to the chief executives of all the organisations, introducing the evaluation. We followed this up with a request for participation by email. A single institutional return was requested, focusing on institutional rather than individual capability, to be completed by a senior manager or other agent ‘most likely to know’ on behalf of the institution.

The population for the survey is best described as ‘providers of tertiary courses’, including tertiary education institutions (TEIs), colleges of education, wānanga, PTEs, and other tertiary education providers (OTEPS). The original invitation to participate in the survey was also sent to 34 ITOs nationwide. However, because ITOs do not directly provide courses, most of the questions, which were primarily aimed at ‘providers’ of courses, were not relevant to this group.

Four ITOs did respond to the survey and completed the open-ended questions in it that requested their views on future e-learning funding priorities. One ITO answered questions related to course provision, presumably on behalf of a provider. Three of the eight schools involved in the provision of tertiary courses to senior students also responded to the survey. In quantitative analyses, OTEP, ITO or school responses were usually grouped with those from PTEs.

Table F5  Respondents to the tertiary education organisation survey

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tertiary education organisations (TEOs) contacted</td>
<td>266</td>
</tr>
<tr>
<td>Providers in population (excluding industry training organisations (ITOs))</td>
<td>232</td>
</tr>
<tr>
<td>Responding providers (including one ITO and three schools)</td>
<td>84</td>
</tr>
<tr>
<td>Overall response rate (providers)</td>
<td>36%</td>
</tr>
<tr>
<td>Number of TEOs submitting online</td>
<td>68</td>
</tr>
<tr>
<td>Number of TEOs submitting by MS Word document</td>
<td>16</td>
</tr>
</tbody>
</table>
### Table F6  Respondents to the tertiary education organisation survey by institution type

<table>
<thead>
<tr>
<th>Institution type</th>
<th>Institutions responding to TEO survey</th>
<th>Institutions in the population of providers</th>
<th>Responding institutions in eCDF round 1</th>
<th>Percentage of institution type responding to TEO survey (%)</th>
<th>Institution type as percentage of provider population (%)</th>
<th>Institution type as percentage of round 1 eCDF institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td>6</td>
<td>8</td>
<td>7</td>
<td>62</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>Polytechnic</td>
<td>14</td>
<td>23</td>
<td>15</td>
<td>61</td>
<td>10</td>
<td>54</td>
</tr>
<tr>
<td>College of education</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>75</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>PTE/OTEP</td>
<td>55</td>
<td>189</td>
<td>4</td>
<td>24</td>
<td>81</td>
<td>14</td>
</tr>
<tr>
<td>School</td>
<td>3</td>
<td>8</td>
<td>0</td>
<td>37</td>
<td>3</td>
<td>NA</td>
</tr>
<tr>
<td>ITO</td>
<td>1</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Not stated</td>
<td>3</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Note: ITO = industry training organisation; NA = not applicable; OTEP = other tertiary education provider; PTE = private training enterprise; TEO = tertiary education organisation.
Appendix G: Mapping Sector Capability against the ICT Strategic Framework for Education

ICT Strategic Framework for Education
The ICT Strategic Framework for Education (Career Services et al, 2006), against which the evaluation results were originally to be mapped, outlines key targets for the sector for 2010, covering seven elements of e-learning capability. These elements are:

- shared (interoperable) resources
- discoverable content
- information and knowledge management
- lifelong learning
- information literacy skills and competencies
- effective, efficient systems
- learners, teachers, researchers, administrators working together.

A set of proxy indicators of sector capability in these target areas and findings from the evaluation aligned to the indicators are outlined in Table G1.
Table G1  Proxy indicators of sector capability from the ICT Strategic Framework for Education

<table>
<thead>
<tr>
<th>PROXY INDICATORS</th>
<th>1. Shared, interoperable resources</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of learning management system (LMS) and courseware development environments for which there are clear interoperability standards.</td>
<td>All 42 institutions in the tertiary education organisation (TEO) survey that offered online course elements stated they had an LMS. Institutions seem to have generally adopted a single-platform approach to their LMS, although two universities and two polytechnics identified two delivery packages being used, and several providers were considering moving from an existing system to a new one (usually Moodle). Sector capability is high for all universities, colleges of education and polytechnics, and ‘mixed’ for private training enterprises (PTEs) with respect to their making an LMS available. This applies both in terms of their relative use of, and commitment to, LMS software and platforms, and also in terms of their relative capability to offer course elements through a range of web-based (ie. inherently interoperable) e-learning media. However, while these LMSs are interoperable in the sense that they are all web-based, they are not interoperable with respect to the easy exchange of information from one to another. Moodle and Blackboard are the LMS environments most used in tertiary institutions. The greatest variation in LMS platforms used occurs among the universities and PTEs, and the greatest commonality among polytechnics.</td>
<td></td>
</tr>
<tr>
<td>Proportions of TEOs with institutional intranets.</td>
<td>Sector capability to provide online resources of all types through interoperable systems is lowest among PTEs. Two-thirds (50/78) of TEOs responding to the TEO survey had their own institutional intranet. All of the universities and colleges of education, 11/14 of the polytechnics and 24/47 PTEs had an intranet. Approximately half of the TEOs do not have an institutional intranet. Of those that did have an intranet, two-thirds reported extensive use of the intranet by staff. Ninety percent of the 78 TEOs responding to the TEO survey make course information for some or all of their courses available to prospective students online. All of the TEOs that do not make such provision were PTEs or industry training organisations (ITOs).</td>
<td></td>
</tr>
<tr>
<td>Proportions of TEOs making course information available to students online</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. Discoverable content in digital repositories

Open standards-based digital repositories. Discovery tools.

Targeted resources are held in specialised national standards–based repositories for digital learning, teaching, research, administration and reporting

Communities of interest are able to locate, access and share digital content hosted in disparate national and international repositories

PROXY INDICATORS

<table>
<thead>
<tr>
<th>Proportion of TEOs making online content repositories available.</th>
<th>Just over half of the TEOs that offer online elements in courses make content in digital repositories available to staff and students, and most report solid use of such resources. The proportion of responding polytechnics that make such repositories available seems much lower than that for other institution types. However, where they are available they seem to be similarly well used.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of ‘online provider’ TEOs making digital content repositories available</td>
<td>Just over half of the TEOs that offer online elements in courses make content in digital repositories available to staff and students, and most report solid use of such resources. The proportion of responding polytechnics that make such repositories available seems much lower than that for other institution types. However, where they are available they seem to be similarly well used.</td>
</tr>
<tr>
<td>Available</td>
<td>Unstated</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Available</td>
<td>1</td>
</tr>
<tr>
<td>Total TEOs</td>
<td>5</td>
</tr>
</tbody>
</table>

Solid majorities of teachers of online courses from all institution types in the teacher survey (n = 195) said they used digital content repositories in online courses at least occasionally, although this seems to have involved more sharing of material with other staff within their institution than with staff in other institutions. (Note: PTE teaching staff were under-represented in the teacher survey, and polytechnic staff were over-represented.)

Quite extensive use is made in online courses of online library search capability through online catalogues and searchable resource databases, at least in larger organisations such as universities and polytechnics. Logic would suggest that extensive use of such tools is also made as part of ad hoc staff preparation and student research for offline courses. Such facilities were much less likely to be used by staff and students in PTEs in large part because they were not available.

Capability with respect to digital content repository availability and use seems high in universities and TEOs, but there is possibly less capacity among polytechnics. Discovery tools in the form of database search facilities seem a feature of the larger institutions with substantial library resources. Capability problems for smaller institutions and PTEs would logically be greater with regard to closed or subscription repositories such as journal databases, than for free, publicly available repositories discovered through readily accessible web-based tools such as Google Scholar.
3. Information & knowledge management

Information and knowledge management practices

All education organisations will be able to use information and knowledge held across the sector

All education organisations have ongoing access to and use effective information and knowledge management practices

<table>
<thead>
<tr>
<th>PROXY INDICATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of TEOs reporting awareness and use of various knowledge management tools</td>
</tr>
<tr>
<td>Most institutions, and virtually all of those that made some provision for online learning in their courses, reported making a variety of information-sharing systems available. However, the use of such systems was widespread among staff most in relation to ‘resource-side’ systems such as institutional intranets, LMSs and digital content repositories. ‘Discourse-side’ information systems such as blogs, wikis and ePortfolios were much less likely to be used by most staff and less widely known about, even where they were available.</td>
</tr>
</tbody>
</table>

**Number of TEOs making information systems available, and use by most staff**

<table>
<thead>
<tr>
<th>EPortfolios</th>
<th>Blogs/wiki/s</th>
<th>Intranet</th>
<th>LMS</th>
<th>Digital content repositories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>4 (occasional use or better)</td>
<td>11 (occasional use only)</td>
<td>31 (occasional use or better)</td>
<td>33 (occasional use or better)</td>
</tr>
<tr>
<td>Available</td>
<td>9</td>
<td>23</td>
<td>38</td>
<td>50</td>
</tr>
</tbody>
</table>

The majority of institutions (68/78) reported that course information was made available online for students about some or all of their courses. About half (39) made such information available for all their courses, presumably through an institutional website.

About half (38/78) also had online library catalogue systems, two-thirds (53/78) made provision for online submission of student assignments, and two-thirds (50/78) also reported regular use of email systems for staff–student information flow and teaching.

Only 12 institutions (15%) reported using inter-institutional information systems such as shared library catalogues or shared digital content repositories.
### 4. Lifelong learning

**Continuity ePortfolios**

Learners have access to digital learning resources throughout their lives

Electronic record-keeping procedures support seamless participation in learning

All learners can acquire and update their abilities, interests, knowledge and qualifications from pre-school years to post-retirement

<table>
<thead>
<tr>
<th>PROXY INDICATORS</th>
<th>Under half of the institutions in the institutional survey (35/83) reported providing 24-hour 7-day access to content and resources to their students, and a similar proportion provided such access for staff. This included all the universities and all but one of the responding polytechnics. A further 10 institutions, all PTEs or ITOs/OTEPs, stated that they did not offer such access but planned to do so by the end of 2007. Relatively few institutions of any type made ePortfolios available for staff or students. One of the 5 responding universities, 2 of the 3 responding colleges of education, 2 of the 14 responding polytechnics, and 3 of the 47 responding PTEs made such provision. Only four institutions reported any substantial use of ePortfolios, these being one college of education and three PTEs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of TEOs providing 24-hour 7-day student access to content and resources.</td>
<td></td>
</tr>
<tr>
<td>Proportion of TEOs reporting availability and usage of ePortfolios.</td>
<td></td>
</tr>
</tbody>
</table>
5. Information literacy skills and competencies

Coordinated change management

Coordinated training initiatives support learners, teachers, researchers, administrators and support staff in their ability to use new information and communication technology (ICT) tools and services

All learners, teachers, researchers, administrators and support staff can use their ICT tools and services effectively and efficiently

<table>
<thead>
<tr>
<th>PROXY INDICATORS</th>
</tr>
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<tbody>
<tr>
<td>Proportions of TEOs providing staff professional development initiatives on e-learning.</td>
</tr>
<tr>
<td>Over a third of responding institutions had some formal professional development programme to upgrade staff ICT skills and/or awareness, and a further quarter had plans to implement such a programme within the year. Generally, more institutions had or planned to have formal professional development for staff in relation to technical skills than in relation to professional development in either the development of online learning objects and courseware or knowledge of effective online pedagogies. Of responding institutions, 51/82 had or planned to have a formal programme of professional development on ICT technical skills in place for staff, and 45 had such programmes or plans in the other two areas. Two polytechnics and 4 of the 24 PTEs that provide online courses had no programmes or plans for programmes in any of the areas.</td>
</tr>
</tbody>
</table>

| TEO ratings of staff capability in e-learning. |
| A relatively small proportion of institutions rated their staff’s ICT skills as ‘high’ (being 1 college of education and 7 PTEs) with most rating their technical skills as ‘moderate or mixed’. Thirty out of 73 rated their staff’s technical skills as ‘low’ or ‘nil’, including 1 university, 4 polytechnics and 19 PTEs. All institution types tended to rate their staff’s e-teaching capabilities as lower in relation to knowledge of effective online pedagogies than in relation to technical skills. Only 1 university and 2 PTEs felt their staff capability in regard to effective online pedagogy was generally ‘high’, whereas 47 of the other 72 responding institutions (65%) rated their staff’s knowledge in this area as ‘low’ or ‘nil’. Restricting the sample to just those institutions that currently provide courses with online learning elements, over a third (15/42) of these institutions rated their capability in online pedagogy as ‘low’ or ‘nil’ compared with 9/42 (20%) of the same institutions that rated their staff’s technical skill as ‘low’ or ‘nil’. |

Evaluation of the E-Learning Collaborative Development Fund
6. Effective, efficient systems

Learning, teaching, research and administration systems meet minimum usability standards and are developed in line with national and international best practice.

Learners, teachers, researchers, administrators and support staff have access to effective, efficient systems.

<table>
<thead>
<tr>
<th>PROXY INDICATORS</th>
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<tbody>
<tr>
<td><strong>Teaching and learning:</strong></td>
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<tr>
<td>Proportions of TEOs offering courses with e-learning elements.</td>
</tr>
</tbody>
</table>
| Just over half of all tertiary providers offer courses with online components, most of these courses being ‘Web-supported’ in nature. All of the universities and colleges of education, all but one of the polytechnics, and about a third of the PTEs offered courses with online components in 2004 and 2005. The number of providers offering modes 2–4 online courses is increasing (up by about 4%, 18% and 33% (15-20) respectively, from 2004 to 2005), but the total numbers of such courses still represent only a small minority of courses overall.

Across all provider types, about a third of all courses offered in 2004 and 2005 had some online component. Universities are offering proportionally more courses with online elements than are other providers. Some 53% of all university courses offered in 2004 and 2005 had some online component.

Polytechnics offer proportionally fewer courses with online components compared with other provider types (18% of polytechnic courses have online components compared with about 36% of PTE and college of education courses), although polytechnics offer a relatively high proportion of the country’s fully web-based courses. The wānanga did not report providing any web-enhanced or web-based courses in 2004 or 2005.

While PTEs offer up to 30% of their courses with online components by far the great majority of these are web-supported. A third of all web-based courses are offered by polytechnics and a half by universities, while 83% of all web-enhanced courses are offered by universities. |

| Administration: |
| Proportions of TEOs making course information, enrolment and payment of fees available to students online. |
| Administration: While most institutions make course information available on the web, much smaller proportions (26/78 and 16/78) allowed students to enrol online or pay course fees online. |

| Research: Proportion of TEOs making library facilities available online to students. |
| Research: About half (38/78) of surveyed institutions had online library catalogue systems, which were extensively used within online courses. The great majority of responding PTEs reported that they did not offer online library catalogues or online library facilities for students. |
7. Learners, teachers, researchers, administrators working together & sharing resources

Sharing effective practice and resources. Online learning communities.

Effective practices and resources are shared quickly and effectively within and between education organisations

Online communities of practice are an integral part of professional learning

Collaborative workspaces for subject, institutional and regional groupings are widespread

Learners, teachers, researchers and administrators use a range of collaborative tools to work together effectively

<table>
<thead>
<tr>
<th>PROXY INDICATORS</th>
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<tbody>
<tr>
<td>Proportions of TEOs reporting sharing and collaborating in e-learning contexts.</td>
</tr>
<tr>
<td>Participation in online professional learning communities among teaching staff engaged in e-learning</td>
</tr>
</tbody>
</table>

Sustained cross-institutional collaboration and sharing in e-learning contexts is not commonplace in the tertiary sector. But it is occurring, and what there is tends to be with one or two other institutions of a similar type. Joint (across-institution) teaching into online courses was reported by 3 universities and 4 polytechnics, while collaborative development of course materials for online courses was reported by 10 of the 14 responding polytechnics and 1 university. The universities also tend to have sharing arrangements (with other universities) with regard to their library catalogues and the borrowing of each other’s library resources.

Collaboration on strategic planning and policy development around e-learning was reported most by polytechnics. Eight of the 14 responding polytechnics reported such arrangements and activity. Relationships with overseas institutions in any of these areas is rare but not unknown. Three providers reported joint teaching, five reported sharing course materials development, two reported sharing digital content repositories and two reported sharing e-learning policy development with overseas institutions.
| Participation in online professional learning communities among teaching staff engaged in e-learning | The great majority of the teachers who incorporated online elements into their courses reported that they were members of an online professional community, although only a third of those said they were ‘active’ or ‘very active’ in that community. The most frequently mentioned ways of keeping informed about e-learning were internal newsletters on e-learning circulated within the institution, courses on e-learning run by the professional development unit, and accidental corridor conversations with colleagues. The latter was particularly mentioned by university based respondents.

(Note: The staff survey was conducted only in TEIs involved in the eCDF first round. It does not represent staff perceptions in the PTE/OTEP subsectors.)

Use of online media for professional development on e-learning (professional development websites, listserves, blogs/RSS feeds) seems to be a feature of the professional lives of polytechnic tutors in particular. Seventy-two percent of the responding online teachers from polytechnics (n = 133) reported using such online media as a way of keeping informed about developments in e-learning compared with 33% of respondents from universities (n = 24). However, the low numbers of staff survey respondents from institutions other than polytechnics means such differences are not statistically established. |
# Glossary and Abbreviations

Note: *Italicised* terms are defined elsewhere in the Glossary.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGIMO</td>
<td>Australian Government Information Management Office</td>
</tr>
<tr>
<td>Ako (used in figures only), Te Ako Hikohiko</td>
<td>Te Ako Hikohiko Wānanga E-Learning Research Capacity Building (round 1 <em>E-Learning Collaborative Development Fund</em> project)</td>
</tr>
<tr>
<td>Applied (used in figures only), Applied E-Learning</td>
<td>Delivering Applied E-Learning in the Workplace: Polytechnics and Industry Training Organisations Working Together (a round 1 <em>E-Learning Collaborative Development Fund</em> project)</td>
</tr>
<tr>
<td>ASTE</td>
<td>Association of Staff in Tertiary Education (also used to mean the ASTE conference in figures)</td>
</tr>
<tr>
<td>ASTE conference</td>
<td>E-Learning Collaborative Teaching Initiative (a round 1 <em>E-Learning Collaborative Development Fund</em> project)</td>
</tr>
<tr>
<td>blog</td>
<td>See <em>weblog (blog)</em>.</td>
</tr>
<tr>
<td>CARE</td>
<td>Capability, Accessibility, Relevance and Excellence: the main elements of the <em>Statement of Tertiary Education Priorities</em>, which specifies the Government’s strategic priorities in education.</td>
</tr>
<tr>
<td>Critical Factors</td>
<td>Critical Success Factors for Effective Use of E-Learning with Māori Learners (a round 1 <em>E-Learning Collaborative Development Fund</em> project)</td>
</tr>
<tr>
<td>DEST</td>
<td>Department of Education, Science and Training (UK)</td>
</tr>
<tr>
<td>E-GROW</td>
<td>E-GROW Northland (a round 1 <em>E-Learning Collaborative Development Fund</em> project)</td>
</tr>
<tr>
<td>E-Learning Collaborative Development Fund (eCDF)</td>
<td>A fund designed to improve the tertiary education system’s capability to deliver e-learning that improves education access and quality for learners.</td>
</tr>
<tr>
<td>eCDF</td>
<td>See <em>E-Learning Collaborative Development Fund (eCDF)</em>.</td>
</tr>
<tr>
<td>EFTS-based funding</td>
<td>Tertiary funding on the basis of the number of equivalent full-time students.</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>ELEARNZ</td>
<td>E-Learnz Collaborative Tool Box (a round 1 E-Learning Collaborative Development Fund project)</td>
</tr>
<tr>
<td>ELG</td>
<td>New Zealand E-Learning Quality Standards, Framework and Guidelines (a round 1 E-Learning Collaborative Development Fund project)</td>
</tr>
<tr>
<td>ELLs</td>
<td>Developing E-Learning Leaders and Institutional Capability through Collaboration (a round 1 E-Learning Collaborative Development Fund project)</td>
</tr>
<tr>
<td>ePortfolio</td>
<td>A multimedia electronic record in which staff or students collect, select, reflectively interpret and/or present their own evidence to support their assertions about what they have learned, know, and can or should do.</td>
</tr>
<tr>
<td>EXE</td>
<td>E-Learning XML Editor (a round 1 E-Learning Collaborative Development Fund project)</td>
</tr>
<tr>
<td>FLLiNZ</td>
<td>Flexible Learning Leaders in New Zealand (a round 1 E-Learning Collaborative Development Fund project)</td>
</tr>
<tr>
<td>Forum (used in figures only)</td>
<td>eCDF Providers Forum (a round 1 E-Learning Collaborative Development Fund project)</td>
</tr>
<tr>
<td>GeTT (used in figures only), GETT Mod</td>
<td>Generic Trade Training Modules (a round 1 E-Learning Collaborative Development Fund project)</td>
</tr>
<tr>
<td>Grad. Dip. (used in figures only), Graduate Diploma</td>
<td>Graduate Diploma in Applied E-Teaching and Support (a round 1 E-Learning Collaborative Development Fund project)</td>
</tr>
<tr>
<td>ICT</td>
<td>information and communication technology</td>
</tr>
<tr>
<td>ITO</td>
<td>See industry training organisation (ITO)</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
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<tr>
<td>intervention logic</td>
<td>The linking of expected outcomes from the <em>E-Learning Collaborative Development Fund</em> (eCDF) to the policy priorities to which the eCDF was expected to contribute. Part of the analytical framework (with the CARE framework) for defining outcomes and sector-wide capability in the evaluation.</td>
</tr>
<tr>
<td>outcomes hierarchy</td>
<td></td>
</tr>
<tr>
<td>JISC</td>
<td>See <em>Joint Information Systems Committee (JISC)</em>.</td>
</tr>
<tr>
<td>Joint Information Systems Committee (JISC)</td>
<td>A UK body supporting education and research in the use of information and communications technologies.</td>
</tr>
<tr>
<td>Kete</td>
<td><em>Ngā Kīwai Kete: The E-Learning Toolbox</em> (a round 1 <em>E-Learning Collaborative Development Fund</em> project)</td>
</tr>
<tr>
<td>learning management system (LMS)</td>
<td></td>
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<tr>
<td>LMS</td>
<td>See <em>learning management system (LMS)</em>.</td>
</tr>
<tr>
<td>modes (of e-learning provision)</td>
<td>The four modes of online and offline ‘e-learning provision are drawn from the four levels defined in the <em>Single Data Return</em>.</td>
</tr>
<tr>
<td>• Mode 1: No online access</td>
<td>No part of the course or paper is accessible to students online (ie. the course is a traditional face-to-face or paper-based distance course).</td>
</tr>
<tr>
<td>• Mode 2: Web-supported</td>
<td>A paper or course provides students access to limited online materials and resources. Access is optional as online participation is likely to be a minor component of study.</td>
</tr>
<tr>
<td>• Mode 3: Web-enhanced</td>
<td>Students are expected to access online materials and resources as online participation is likely to be a major contribution to study.</td>
</tr>
<tr>
<td>• Mode 4: Web-based</td>
<td>Students are required to access the online materials and resources, as online participation is the main or only mode of study in the course.</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<td>--------------------------</td>
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</tr>
<tr>
<td>offline courses</td>
<td>Tertiary courses with no web component. Contrasted with online courses that have web components.</td>
</tr>
<tr>
<td>online courses</td>
<td>Tertiary courses provided using any of the web-supported, web-enhanced or web-based modes. Contrasted with offline courses that have no web component.</td>
</tr>
<tr>
<td>open source software</td>
<td>Software for which the underlying programming code is available to users so they can read it, make changes to it and build new versions. There are many types of open source software, mainly differing in the licensing term under which (altered) copies of the source code may (or must be) redistributed. Open source code is typically created as a collaborative effort in which programmers improve the code and share the changes within the community.</td>
</tr>
<tr>
<td>OSCI</td>
<td>Open Source Courseware Initiative New Zealand (a round 1 E-Learning Collaborative Development Fund project)</td>
</tr>
<tr>
<td>OSCP</td>
<td>Open Source E-Learning Environment and Community Platform (a round 1 E-Learning Collaborative Development Fund project)</td>
</tr>
<tr>
<td>OTEP</td>
<td>Other tertiary education provider (OTEP)</td>
</tr>
<tr>
<td>PTE</td>
<td>A private business accredited as a provider of tertiary level courses.</td>
</tr>
<tr>
<td>SDR</td>
<td>See Single Data Return (SDR)</td>
</tr>
<tr>
<td>Single Data Return (SDR)</td>
<td>The source of information for the tertiary funding system, which forms the basis of the calculation of equivalent full-time student (EFTS) entitlements for individual providers. The return also provides the base data for compilation, analysis, and reporting of tertiary education statistics on student enrolments and qualification completions.</td>
</tr>
<tr>
<td><strong>Statement of Tertiary Education Priorities (STEP)</strong></td>
<td>A statutory document that the Minister of Education releases every one to three years. It applies across the entire tertiary education system, and sets out the Government’s priorities for the system’s performance. The priorities align with the main strategies and discrete objectives in the <em>Tertiary Education Strategy</em>.</td>
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<tr>
<td><strong>STEP</strong></td>
<td>See <em>Statement of Tertiary Education Priorities (STEP)</em></td>
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<tr>
<td><strong>TANZ</strong></td>
<td>Tertiary Accord of New Zealand</td>
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<tr>
<td><strong>Te Ako Hikohiko</strong></td>
<td>Te Ako Hikohiko Wānanga E-Learning Research Capacity Building (a round 1 <em>E-Learning Collaborative Development Fund</em> project)</td>
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<tr>
<td><strong>TEC</strong></td>
<td>See <em>Tertiary Education Commission Te Amorangi Mātauranga Matua (TEC)</em></td>
</tr>
<tr>
<td><strong>TEI</strong></td>
<td>See <em>tertiary education institution (TEI)</em>.</td>
</tr>
<tr>
<td><strong>TEO</strong></td>
<td>See <em>tertiary education organisation (TEO)</em></td>
</tr>
<tr>
<td><strong>Tertiary Education Commission Te Amorangi Mātauranga Matua (TEC)</strong></td>
<td>The agency responsible for leading the government’s relationship with the tertiary education sector, and for policy development and implementation. The TEC is responsible for funding the government’s contribution to tertiary education and training offered by <em>tertiary education organisations</em> (eg. tertiary education institutions (ie. universities, polytechnics, colleges of education and wānanga), <em>private training enterprises</em>, foundation education agencies, <em>industry training organisations</em>, and adult and community education providers). The TEC also monitors the financial, leadership and governance performance of all tertiary education institutions. The TEC works with the tertiary education sector to implement the <em>Tertiary Education Strategy</em> and <em>Statement of Tertiary Education Priorities</em>.</td>
</tr>
<tr>
<td><strong>tertiary education institution (TEI)</strong></td>
<td>A university, college of education, wānanga or polytechnic.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
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</tr>
<tr>
<td>tertiary education organisation (TEO)</td>
<td>Any of the group of institutions and organisations accredited as providers of tertiary level courses.</td>
</tr>
<tr>
<td>Tertiary Education Strategy</td>
<td>The Government’s document outlining the key priorities and strategic objectives for tertiary education.</td>
</tr>
<tr>
<td>web-based courses</td>
<td>See <em>modes</em>.</td>
</tr>
<tr>
<td>web-enhanced courses</td>
<td>See <em>modes</em>.</td>
</tr>
<tr>
<td>web-supported courses</td>
<td>See <em>modes</em>.</td>
</tr>
<tr>
<td>weblog</td>
<td>An online journal (or newsletter or diary) that is frequently updated and intended to be read by the public.</td>
</tr>
<tr>
<td>wiki</td>
<td>A website or similar online resource that allows users to add and edit content collectively.</td>
</tr>
</tbody>
</table>
References


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