Approaches and implications of eLearning Adoption in Relation to Academic Staff Efficacy and Working Practice

Final Report

Lead Researchers
Bronwyn Hegarty
Merrolee Penman

Institutional Researchers
Cheryl Brown
Dawn Coburn
Beverley Gower
Oriel Kelly
Grant Sherson
Gordon Suddaby

Project Manager
Maurice Moore

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Acknowledgements

Executive Summary

This research project was conducted to provide a snapshot of staff development and self-efficacy in eLearning in the tertiary sector in New Zealand. The project was funded from the 2004-2005 Tertiary e-Learning Research Fund (TeLRF), administered by the Ministry of Education as part of their Tertiary Education Strategy 2002-2007. Researchers and participants for the project were from six institutions, namely:

- UCOL (Universal College of Learning) the lead institution,
- Otago Polytechnic as lead researchers,
- MIT (Manukau Institute of Technology),
- WINTEC (Waikato Institute of Technology),
- Dunedin College of Education and
- Massey University.

An expert panel of researchers from the field of eLearning in New Zealand and Australia were invited to oversee research procedures and findings.

Rationale

The research project was conducted to investigate whether staff development for eLearning in place at the six institutions for eLearning helped staff develop their capability and confidence to utilise new technologies for teaching. Staff development has been identified by other researchers as a factor associated with the adoption of eLearning in the tertiary sector. The researchers were aware of a number of different models of staff development in use, categorised as either competency-based work-shops for technical skills, just-in-time) or capability-based (metacognitive strategies e.g. mentoring) or formal qualifications in eLearning. It was understood from other research studies, that timely and appropriate staff development, in a supportive and strategic institutional culture, was more likely to lead to an enhanced adoption of eLearning

Research Process

Case study methodology was used to investigate three main questions: the range of eLearning staff development models offered by New Zealand tertiary providers; how staff development models prepared academic staff for eLearning and the relationship to self-efficacy; why some models were more effective than others. In other words this research aimed to investigate the effect of meta-cognitive strategies on self-efficacy, and the association with how learners applied their knowledge. The research was conducted in four stages:

Stage 1: focus groups were carried out to establish common terms used by staff in various institutions to aid in the development in the questionnaire

Stage 2: implementation of an online questionnaire to survey self-efficacy of staff in eLearning as facilitated through staff development (formal and informal) opportunities,

Stage 3: individual interviews of selected staff.

Stage 4: two types of case study were developed - individual and thematic – to provide a snapshot of the current situation with staff development for eLearning. The findings are merely representative of polytechnic, university and college of education academic staff not conclusive regarding the tertiary sector.

In addition an in-depth literature review was used to inform the development of the questionnaire, and design of the individual interviews. The qualitative data (comments on online questionnaire and interviews) was interpreted using thematic analyses. The quantitative data (self rating scores) was analysed using descriptive statistics.

Findings

Overall, participants scored high self-efficacy for eLearning, and the majority had some experience in eTeaching. Most people had attended formal staff development workshops, and all participants used a wide range of strategies for self-directed staff development (informal). There were four main findings:

- There was a predominance of competency-based workshops and support offered by all six institutions (face-to-face, online, one-on-one, mentoring) as well as qualifications, just-in-time support, show casing and visiting expert seminars.
- Informal staff development was the most common practice and there was evidence of staff using metacognitive strategies for their learning.
- Existing formal staff development models in the six institutions were not adequate to assist staff to fully develop their capability and potential for eLearning as they were mainly providing a beginning competency.
- The findings of this project were consistent with research elsewhere in the New Zealand tertiary sector, for example, Mitchell, Clayton, Gower, Barr and Bright (2005) in relation to factors impacting on staff who engage with eLearning, and some of the impediments which may affect adoption of eLearning, e.g. time and adequate support.

Recommendations

The following recommendations are made in the interests of developing capability for both academic and support staff and to extend the potential of eLearning for staff and students alike.

1. Apply a multi-faceted approach to staff development using competency-based and capability-based methods. Staff development should be designed to meet each institution's specific needs, and situated in the programmes and teaching methods required by staff, as opposed to staff having to take training focussed on a LMS and work to fit their teaching to it.
    a. Flexible delivery methods, and a variety of strategies to promote experimentation and exploration, would make staff development accessible to a broader selection of staff.
    b. A project team approach could be used to foster staff through metacognitive learning process with both training and scholarly activity used to cover technical and pedagogical aspects. Within the team would be a number of peers and the appropriate support personnel including an expert peer as a mentor. Additionally, this approach would promote a community of practice and result in a "snowball" effect on other staff.

2. Provide incentives including funding, time release and promotion for staff who engage in project team, mentoring and community of practice approaches to staff development for the planning and implementation of flexible courses.

Suggestions for further research are listed in Chapter Six.

Definitions

eLearning - the use of multimedia technologies (e.g. Internet-based, CDROM technologies, video, audio, teleconference) as resources for learning.

eTeaching - the use of multimedia technologies for teaching.

Metacognitive strategies – involve deep learning and active strategies which self-regulated learners use to plan, organise, self-teach, self-monitor and self-evaluate as part of their learning process.

Self-efficacy - the belief people have in their own abilities to perform in particular areas. The higher the level of self-efficacy the more confident one is to deal with challenges.

Formal staff development - courses/workshops as well as staff development that might occur through mentoring or facilitating. The type of staff development included here is formally recognised, part of your workload, remunerated possibly and may or may not be driven by staff developers.

Informal staff development - learning that takes place outside of structured or contracted learning situations. It is not formally recognised, may not be a recognised part of workload, is not remunerated, and may or may not be driven by Head of School/Department, Dean or Staff Developers.

Chapter One: Introduction

1.1 Overview

This project was one of the 2004-2005 Tertiary e-Learning Research Fund (TeLRF) contracts awarded by the Ministry of Education. Researchers for the project were from several institutions which currently provide staff development training for academic staff involved in eLearning.

UCOL (Universal College of Learning) was the lead institution for project management, Otago Polytechnic was the lead institution for research, and four other institutions also provided researchers and participants. They were MIT (Manukau Institute of Technology), WINTEC (Waikato Institute of Technology), Dunedin College of Education and Massey University. . TOPNZ (The Open Polytechnic of New Zealand) and CPIT (Christchurch Polytechnic Institute of Technology) provided participants for a pilot to test the questionnaire. An expert panel was established from a pool of eLearning colleagues who were well known in New Zealand and Australia and their brief was to oversee research procedures and findings.

1.2 Rationale for the Project

If institutional productivity in eLearning was affected by staff inadequately skilled and resourced in ICT (information and communication technologies) and pedagogy for online teaching and learning, an investigation such as this project would help to uncover the missing links. At the time of the research, several different models of staff development were being used in New Zealand for eLearning, such as:

- Competency-based training in the form of short 'hands on' workshops which focus on the acquisition of ICT and LMS[1] skills;
- Capability-based professional development which incorporates metacognitive strategies for learning
- Workshops and courses which address the theory of pedagogy, design and online facilitation
- Individual and group training for specific vocational areas
- Mentoring
- 'Just in time' and 'as needed' support
- Professional development for eLearning – conferences, literature, discussion lists/forums, eLearning qualifications, networking, communities of practice

The researchers believed that capability in eLearning was wider than just the acquisition of technical skills (Ellis and Phelps, 1999; Phelps, Ellis, and Hase, 2001; Phelps, & Ellis, 2002; Phelps, accepted 2005). They saw a need for staff development which was designed to help teaching staff overcome fear and anxiety, and motivate them to become involved in new technologies for teaching. Also there was a need to address pedagogy and educational design for the online environment, and challenge staff to broaden their experience.

Where staff were inadequately skilled for eTeaching, course development for online delivery was often kept at a basic level with the provision of course notes and some email communication. Additionally, the development and design of courses which fully embrace what many authorities believe are quality indicators, e.g. resource-based learning (RBL) and constructivist methods, appeared to be limited. In the interests of quality eLearning, several

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[1] Learning Management System

researchers ([2]see reference list) and quality assurance bodies ([3]see reference list) have looked for a connection between quality learning experiences and skilled staff. It appeared that low level ICT skills, as well as an unwillingness to experiment and try new ways of teaching, was linked to self-efficacy,[4] and success with eLearning. It was believed that a research project to examine existing staff development models and their effectiveness would inform future professional development strategies for eLearning both nationally and internationally.

1.3 Research Goals

The research goals were to:

- Investigate a range of staff development (SD) models for eLearning, offered by a cross section of New Zealand institutions, in the Polytechnic, University and College of Education sectors, using case study research methodology.

- Compare staff experiences with a range of SD models, for example, traditional ICT (information and communication technology) competency-based training workshops; capability-based eLearning and alternative models – 'just in time', 1:1 customised group training, mentoring etc.

- Explore staff experiences with eLearning through the links between staff development models (ICT training versus capability-based PD) and eLearning self-efficacy, and subsequent application to course development.

The research project used focus groups, a questionnaire, interviews and content analysis of questionnaire comments and interviews to gather data for the establishment of a series of case studies depicting the type of staff development models in use to prepare staff for eLearning. The data were also collected to determine whether staff development and self-efficacy with eLearning were linked to the way staff actually teach online.

1.4 Stages of the Project

The research was conducted in four stages:

Stage 1- Focus Group
Participants were invited to join in a focus group session to establish a foundation for existing staff development models and terminology to be used in the questionnaire. Eight to ten participants at each of the institutions involved in the research project contributed to a structured focus group discussion.

Stage 2- Online Questionnaire

A two part questionnaire was developed to examine self-efficacy with eLearning (part A) and experiences with staff development for eLearning (part B). Part A was developed in consultation with a clinical psychologist and an Expert Panel. This part of the questionnaire was tested for internal criterion validity with a pilot sample. The questionnaire was administered online.

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[2] (Schwier, 1995; Bednar et al, 1995; Hedberg, Brown & Arrighi, 1997; Kennedy, 1997; Robyler, Edwards and Havriluk, 1997; Wilson, 1997; Inglis, Ling and Joosten, 1999; Phipps and Merisotis, 2000; Brennan, R. McFadden, M. & Law, E. 2001; Mayes, 2001; Nichols, 2001; NSDC/NICI, 2001; Rowlands 2001; Herrington, Oliver and Reeves, 2002; Husson and Waterman; 2002; Sims, 2003)

[3] ANTA, 2002; Haddad and Draxler, 2002; DfES, 2003; Ministry of Education, 2004; Parker, 2004)

[4] Self-efficacy is about the belief people have in their own abilities to perform in particular areas (Pajares, 2002).

Stage 3- Interview

Participants who filled out the online questionnaire were invited to submit their name and contact details if they were willing to be interviewed. Institutions partnered up for the interview process so that staff could be interviewed by a researcher external to their own institution. Up to five interviews were conducted per institution.

Stage 4 – Case Studies

Two types of case studies were developed. Case studies about individual situations related to staff development and eLearning and case studies in relation to the themes which emerged from content analysis of the online questionnaire and subsequent interviews. These provide a snapshot of specific examples and also an overview of what is happening in eLearning in the tertiary sector in New Zealand.

1.5 Literature Review and Main Points

A literature review was undertaken so that a comparison with staff development models could be made and information gathered about factors affecting adoption of eLearning, self-efficacy and eLearning and institutional efficacy. The literature was also used to establish baseline questions for the online questionnaire by finding out what had already been done in the area of staff development, self-efficacy and technology. The following diagrams illustrate some of the main points established by the literature review.

Figure 1: Four Factors which Influence the Effectiveness of Staff Development Models

2. Staff Development Models

- f2f workshops
- self-paced learning
- situated learning
- case studies
- mentoring
- project-based
- online delivery
- qualifications
- collaboration
- networking
- technology training
- pedagogy
- eTeaching skills
- resource sharing
- forums

Apply SD learning to real teaching and learning situations

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3. Achieving self-efficacy → Assess existing skills

↓

Gain greater awareness of own skills

↓

Employ metacognitive strategies

↓

Reach higher levels of self-efficacy and capability

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4. Institutional efficacy

→ Timely and appropriate staff development

→ Culture supportive and strategic

→ Enhanced adoption of eLearning

Chapter Two: Methodology

The lead researchers were responsible for the research design, and along with researchers from the other five participating institutions collaborated to collect and analyse data. The sample was wide-ranging but kept at a manageable size.
The study used four major methods to collect and present data: Focus Groups, online questionnaire, interviews and case studies.

2.1 Research Design

Case study research (Gall et al., 1996; Mason, 1992b) was selected as the most appropriate methodology to investigate the research questions. Gall et al. (1996) clearly state that case study is utilised as a methodology where the researcher plans to shed light on a phenomenon. In this study, the phenomenon chosen was the process of training and professional development (PD) in information and communication technology (ICT) for teaching online, which as yet has little research on its effectiveness. Gall et al. (1996) state that, the next step in using case study methods is to select a case for intensive study. In this study, the cases selected were existing staff development courses offered by a range of tertiary providers. Having selected the case study, the next stage was to identify the focus of the case on which the data collection and analysis would concentrate. In this study the focus of the research was intended to be whether metacognitive strategies enhanced self-efficacy with eLearning and whether self-efficacy affected the type of course design utilized for eLearning. We examined learning strategies in focus group sessions, as part of the online questionnaire and in interviews to find out how self-efficacy and staff development both influenced and shaped eTeaching.

Research Questions

Three research questions were investigated:

- What is the range of eLearning staff development models offered by New Zealand tertiary providers?

- How do SD models prepare academic staff for eLearning?

  - Are staff experiences of eLearning and levels of self-efficacy related to the type of staff development provided (ICT training versus capability-based PD or alternatives)?

- Why are some staff development models more effective than others?

  - Does the use of metacognitive strategies in professional development have an effect on self-efficacy levels of learners?

  - Does the level of self-efficacy influence staff experiences of eLearning and how they apply their knowledge to courses using online delivery. Data Collection

The sample size was wide ranging but kept to a manageable size. A range of qualitative and quantitative data collection and analysis techniques were used. Focus groups, an online questionnaire and individual interviews were used to collect data. Statistical analyses such as frequency, means, median and mode as well as Pearson's[5] correlations and probabilities

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[5] Karl Pearson's product-moment correlation

were calculated on both self-efficacy and staff development data from the online questionnaire. Content analysis was undertaken on qualitative data from the questionnaire and from transcribed interview data. Content analysis is an interpretive method, allowing for themes to emerge from the texts and the voice of the participant to be heard.

Focus Groups

Firstly, focus groups were initiated to help develop sampling tools i.e. inform terminology and questions for the online questionnaire and also to gather some initial information about participants' experiences with eLearning. Participants in the focus group sessions included staff developers, training coordinators, eLearning support staff, instructional designers, academic staff who had attended formal staff development sessions for eLearning and staff who taught online. At the six participating institutions groups of 6-8 people were assembled for the focus group sessions.

Three questions were put to each focus group. (See full details in Appendix A.)

1. What type of formal staff development support is offered at your institution to prepare you for eLearning?

2. What type of informal staff development support is offered at your institution to prepare you for eLearning?

3. What types of strategies for eLearning have you used, or are encouraged to use through formal or informal learning?

Focus group sessions were either recorded as notes and summarised by the facilitator or recorded on tape and transcribed. Subsequently, the information was used to develop an online questionnaire. An overview of the findings of the focus group sessions is presented in the results section.

Online Questionnaire

A total of 82 participants across all six institutions completed the online questionnaire which had three sections: general information (demographics), self-efficacy for eLearning and staff development (Appendix B).

i. General information (demographics)

Definitions of eTeaching and eLearning were provided as: The use of multimedia technologies (e.g. Internet-based, CDROM technologies, video, audio, teleconference) resources for teaching and learning respectively. General information included demographics as well as information about eTeaching and eLearning qualifications.

ii. Self-efficacy for eLearning

Self-efficacy questions were taken from work conducted by others in the area of measuring confidence associated with computer use and training (Compeau, Higgins & Huff, 1999; Phelps, 2002). The questions were modified and divided into five sections (see Appendix B) with the assistance of a consultant clinical psychologist who also provided help with testing validity and scoring of the responses.

The five sections on self-efficacy examined were:

1. Personal efficacy using computer technology/eLearning tools and methods for teaching.

2. Confidence using specific eLearning tools.

3. Confidence when undertaking a project for online delivery.

4. Personal characteristics when learning new   software or using eLearning tools and facilities.

5. Overall confidence using eLearning tools and methods.

Validity testing

Validity was measured through pilot testing the self-efficacy part of the questionnaire against parts of a self-efficacy questionnaire used by Phelps (2002) (Appendix B). Participants at Christchurch Polytechnic Institute of Technology and The Open Polytechnic New Zealand were invited to participate in pilot testing (n=9). The sample was too small to ascertain statistical Internal criterion validity, therefore professional judgement was provided by the consultant who had been contracted to provide advice about the self-efficacy elements of the project.

iii. Staff Development

In this section, data were collected to research both formal and informal methods of staff development, the learning strategies which were used by participants and how learning and knowledge gained through staff development was applied to eTeaching. Participants were asked about the types of staff development they had undertaken in preparation for eLearning over the last 10 years. Definitions were provided for formal and informal staff development.

Formal Staff Development

Questions about formal staff development were related to courses undertaken at both the participant's own institution and other institutions in preparation for eTeaching. The options provided were:

- General computing instruction e.g. Microsoft Office, email, Internet.

- Online teaching and learning guidance/instruction – <u>technical</u> (e.g. how to set up resources on Blackboard).
- Online teaching and learning guidance/instruction – <u>pedagogical</u> (e.g. how to facilitate teaching and learning).

- Specialist software instruction e.g. Blackboard, Flash, Dreamweaver.

Ways in which formal staff development courses and workshops were delivered was also investigated i.e. online, face-to-face, one-on-one support, mentoring, mixed mode. In all sections of the questionnaire, participants were given the opportunity to provide descriptive comments about their circumstances and opinions.

Informal Staff Development

A range of options were provided for participants to select from such as, conferences, working with early adopters/peers, blogs, observation of others' online courses etc. (see full list in the questionnaire, Appendix B).

Learning Strategies and Application of Staff Development

Participants were asked to consider a scenario and indicate which learning strategies they had used e.g. utilise a trial and error approach, seek the help of a mentor, maintain a reflective journal etc. (see full list of options, Appendix B). The following scenario was provided:

> *Your manager has said that you must learn how to use a new eLearning method and develop expertise in the method to aid your students' learning. What learning strategies would you use to familiarise yourself with the method and to make sure you are a confident and competent practitioner?*

For the last part of the questionnaire, participants were asked to describe one or two examples of how formal and/or informal staff development had shaped their eTeaching.

Analysis of Questionnaire

Descriptive statistics such as frequencies, mean, median and mode were used and scores of efficacy in using eLearning methods and tools were estimated for each participant. Correlation statistics were used to determine if there were links between eLearning self-efficacy and staff experiences of eLearning, and between self-efficacy in eLearning and formal staff development.

Content analysis of comments was used to determine any themes and trends. Judgement was also used to establish whether there was a pattern. Profiles of individuals willing to be interviewed were developed using data from the online questionnaire. The profiles enabled both generic and questions specific to individuals to be developed for the interviews.

Interviews

Interviews with five participants from each institution were planned. Prior to interviews being conducted, descriptive profiles were compiled from the questionnaire data. There were several reasons for this and they were to:

1. Select appropriate participants for interview.
2. Ensure a diverse range of participants with varying experiences were sampled in a more in-depth way i.e. by interview.
3. Provide background information for the interviewers.
4. Modify interview questions to fit each interviewee's individual situation.
5. Provide a basis for developing case studies about individual participants.

Content analysis of transcribed interviews was used to determine trends and themes. Pre-determined categories for content analysis were as follows:

- eLearning tools and methods.
- User confidence.
- User preparedness.
- Institutional support.
- Challenge and how handled.
- Challenge and possible help.
- Formal staff development.
- Informal staff development.
- How staff development was applied to eTeaching.
- Learning strategies.
- Issues/problems.
- Suggestions.

It was also expected that other themes would emerge from the content analysis.

Case Studies

Case studies were compiled from six individual profiles which represented a range of participant experiences with eLearning, and secondly from the themes which emerged from content analysis of the interviews and from analysis of the online questionnaire data. The former case studies are presented as *Case Studies of Individuals* and the latter as *Case studies of eLearning Efficacy and Staff Development.*

Chapter Three: Results

Results are organised in three sections: Focus Group findings, online questionnaire results – demographics, efficacy and staff development – and interviews. A summary for each section is also included.

3.1 Focus Group Findings

An overview of the findings from the focus groups held at the start of the research project is presented in this section of the results. Three questions were put to each focus group.

1. What type of *formal* staff development support is offered at your institution to prepare you for eLearning?
2. What type of *informal* staff development support is offered at your institution to prepare you for eLearning?
3. What types of strategies for eLearning have you used, or are encouraged to use through formal or informal learning?

Responses for all six of participating institutions have been collated and are presented together rather than being linked to any individual institution. The focus group questions informed the staff development section of the online questionnaire by providing terminology common to all six institutions to shape the questions. Invitations to the focus group sessions were extended to staff developers, training coordinators, eLearning support staff, instructional designers, academic staff who had attended formal staff development sessions for eLearning and staff who taught online but had not necessarily attended formal staff development.

3.1.1 Formal Staff Development

A range of formal options were provided in institutions, and are shown in
Table 1 below:

- ***Workshops – technical and pedagogical.***
- ***Sessions associated with the introduction of a Learning Management System (LMS).***
- ***eLearning qualifications.***
- ***Overseas and local experts – seminar and workshop sessions.***
- ***Mini conferences in-house.***
- ***Sharing of best practice seminars.***
- ***Computing courses.***
- ***Mentoring.***
- ***Just-in-time help and resources.***
- ***Departmental sessions.***
- ***Drop in sessions - offered in a variety of flexible delivery modes.***
- ***Encouragement to attend conferences e.g e-Fest and ASCILITE.***

Table 1: Formal staff development options

Participants mentioned that the timing of the support was important, for example, just before a semester started was very useful but 'just in time' was best.

Two institutions collaboratively organised a two day series of workshops with another local provider, and invited well-known experts in eLearning to conduct the workshops. Staff were invited free of charge and given a mix of best practice "show and tell" examples, theory about eLearning and hands on activities. The series provided learning for both staff new to eLearning and those with some experience.

Some places had qualifications for online teaching and learning specific to their own institution and others were developed collaboratively. Some included elements of eLearning exposure and others were primarily about eLearning. Some qualifications were compulsory for staff, and provided free, others were optional and had a cost involved. Some courses about eLearning were part of other qualifications, e.g. Introduction to On-Line Learning (ITOL) a small optional course in the Certificate in Adult Learning, and a 300 level course called Applied eLearning and Adult Education in the Bachelor of Applied Social Science. Others were complete qualifications e.g. Online Learning and Teaching Certificate programme, Certificate in Educational Technology and Graduate Certificate in Applied eLearning. In some institutions, staff were given incentives to undertake study for qualifications. Incentives included professional development time, free fees and promotion.

One institution offered qualifications in eLearning at three levels of accreditation (level 5, 6 and 7), so there was a lot of choice for staff. In some cases, people tended to take specific one-off accredited eLearning courses for professional development rather than undertake full qualifications. Four of the institutions participating in this research project had collaboratively developed a qualification called the *Graduate Certificate in Applied eLearning*. Participants could complete the full qualification, and several were intending to do this, or take two of the courses as stand-alone courses.

Some staff also undertook credited qualifications and courses offshore as distance students, and found the experience of being a student helped their teaching as well as providing skills and theoretical knowledge for eTeaching.

Workshops and computing classes for educating staff about a new LMS tended to be approached from a technical focus i.e. how to use the functions of the LMS, with some considerations about design included. Pedagogy tended to be covered in credited courses attached to qualifications, as opposed to training workshops.

There were issues regarding the type of support offered. Staff support to undertake the qualifications was variable between institutions, with some having fees paid unconditionally but no time allocation to participate, others had fees paid on passing the full qualification and others were required to negotiate the use of their professional development allowance.

There were other examples around support. In one institution, for example, IT Services provided software training in Dreamweaver, but any links or usage for eLearning had to be made by the participants themselves as that aspect was not covered at all. Also, courses were often fully booked so staff could not get access to training when needed.

There was mention of situations where expertise in relation to eLearning was becoming the realm of a select few. In one instance, academic staff were discouraged from researching into the capabilities of new or different technologies themselves, because support people saw it as their role to do that and advise academic staff members about the suitability of the technology. This was also the case where students were employed

to do web production work but at the end of the contract, staff were left "high and dry" and didn't know how to maintain the resources. At the same institution, a comment was made that there was also little idea of the importance of providing staff development to assist staff to try out different technologies and develop their capability; it was believed that if support staff were 'doing the technical work', then academic staff didn't need to "tinker".

When building courses and using technologies people tended to go to institutional training courses as offered e.g. Blackboard, and seek the help of others with experience who mentored them. Courses varied from LMS related instruction to areas such as web page design and development. The driving force for attending staff development sessions came from two quarters: staff members' desire to learn more about eLearning, and where staff were given the responsibility of leading eLearning in their section or department

In some institutions, courses weren't continued because staff seemed to prefer one-on-one, just-in-time or departmental sessions, hence there was quite a bit of individual assistance given as support for using Blackboard, and sessions where an overview of how Blackboard could be used was shown to staff. For some this occurred during orientation to the institution. Some staff felt that although courses at other institutions were paid for there was a lack of direction in their own institution apart from being given time to find out how to do eLearning. Conversely in other institutions there was no reduction in workload or additional remuneration for staff engaging in formal eLearning development.

Some early adopters had undertaken training in more than one eLearning system e.g. Web Crossing, WebCT, Blackboard and other software, and in a variety of ways such as formal workshops at other institutions, online and informally. Their learning had then been extended to setting up online courses and mentoring others. Some participants had been influenced by observing peers teaching online and were interested in working with a mentor in the same area as themselves. A formal arrangement that was described was called COLIG (College OnLine Interest Group), and as a direct result of contacts made in this group, some buddying-up had occurred on an informal basis.

3.1.2 Informal Staff Development

Many participants regarded the informal strategies as a valuable source of staff development. It was noted that both the people assisting with staff training and the recipients of the training and support gained new knowledge through informal staff development methods. People at one institution commented that the skills learned in workshops were often forgotten, and it was good to have peers to help them afterwards. Some were put off by people who knew everything as they felt "dumb" if they didn't know what they were doing. A peer who could assist with "just-in-time" help, and who didn't mind being asked over and over was mentioned as a valuable learning resource.

At some institutions, a project team approach was taken and staff worked as subject matter experts alongside members of a support team when setting up their online courses. At others, staff development support for building an online course included instructional design, mentoring and training either for individuals or for small groups. In one case, an in-house publication about eLearning enabled guest writers to share their experience and best practice with readers. There were also examples of people who had taken the "lone ranger" approach i.e. "needing to be everything - trying to be

everything". In other words, trying to become technical experts when they would have been better as subject experts.

Informal support from eLearning experts was variable. Help was available from 'early adopters' and was usually an excellent source in one institution but only occurred if it was asked for. It was also reported that early adopters often did not actively seek to provide support to other staff. Additionally, some support was available from locally based IT staff, again, if requested rather than offered. In another institution, mentoring was provided by early adopters in departments and programmes.

Some staff attended Blackboard conferences and other conferences related to eLearning e.g. DEANZ[6], e-Fest, ASCILITE[7] which were helpful. These provided an introduction to eLearning from which they could explore different options. Often it was mainly support staff who attended conferences specific to eLearning, whereas academic staff tended to go to conferences related to their own specific subject area. Some people felt that reports and recommendations made following conferences tended to get lost in institutional bureaucracy, meaning opportunities for expanding eLearning in such institutions were lost.

A range of informal techniques were used for staff development in eLearning, and these are shown in Table 2 below:

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[6] Distance Education Association of NZ

[7] Australasian Society for Computers in Learning in Tertiary Education

Peer Support	Organised and Expert Support	Individual Pursuits
- Newsletters. - Departmental cross pollination of ideas. - Buddies. - Casual assistance. - Team teaching. - Swapping of teaching resources. - Staff online discussion forum. - List serves. - Newsgroups. - Blogging. - Working with peers to set up courses. - Involvement in projects. - Access to others' online courses. - Feedback from students. - Peer support. - Projects. - Teaching others. - Family and friends	- Phone and face-to-face support by experts in a central team. - IT assistance from librarians. - Visits to other institutions. - General computing courses. - Show and tell sessions. - Conferences – face-to-face and online. - Consultation with support team/instructional designer/staff developer/multimedia developer. - Running a Blackboard site Helpdesk. - On-line journals.	- Reading. - Web searches. - Looking for other examples. - Exploring and problem-solving for both their own use and to help other staff. 'How to do it' resources. - Internet-based research. - Trial and error. - Production of learning objects. - Building web pages. - Textbook cartridges. - Free online websites for online learning. - eLearning methods used in formal study associated with professional disciplines. - Awards and scholarships e.g. flexible learning leadership. - Notes from courses. - Manuals. - Magazines.

Table 2: Informal options for staff development in eLearning

3.1.3 Strategies for eLearning

There was some confusion about what was meant by learning strategies. Items in the following list were mentioned in response to the question about strategies, and as can be seen these responses were similar to several of the items mentioned under informal staff development.

- A personal development site in which to 'play' and test.
- Problem-based learning.
- Web searches on topics of interest.
- Development of personal resource of information on eLearning.
- Observation of others' Blackboard sites helped with ideas.
- Reading institutional newsletter about eLearning to pick up ideas.
- User group for Blackboard helps with swapping ideas and resources.
- Online discussion forum helps with ideas.
- Computing courses and formal eLearning qualifications .
- Asking librarians.
- Visits to other places.
- Practising skills.
- Attending Blackboard days.
- Journaling.
- List serve membership.
- Attending sessions by visiting educators for inspiration.
- Support and training 1:1 from SD team.
- Being part of a group project.
- Help files.
- Reading articles.

The list of strategies mentioned by participants was varied and indicated a wide range of interest and enthusiasm for eLearning. It was evident from the range of strategies and informal staff development methods in use, that the participants taking part in the focus groups were engaging with eLearning, and were willing to explore and keep up to date.

3.1.4 Other Methods used for Support

Support was provided in creative ways such as an automatic email four weeks after a consultation with the support person, which asked how things were progressing. This technique triggered staff into thinking about the issues again, and to ask more questions of the support person. Additionally, support staff gave themselves a 'super-designer' access to all the online courses in their area, which enabled them to check on progress and provide support and ongoing pedagogical advice.

3.1.5 Other Points Raised

- Whether it was formal or informal, the need for pedagogical or technical support occurred across different time frames. Pedagogical support was needed prior to development work, but technical support was most useful when provided on a 'just in time' basis.

- It was found that when online, formal, staff development sessions finished, interaction between participants ended as well. It was felt that some semi-formal arrangement was needed to help the interactions continue such as an online forum or newsgroup.

- Central support was mixed with local support at some of the larger institutions. In most cases, local mentoring support was informal and ad hoc.

- It was felt in some institutions that formal eLearning staff development had focussed on how to use a particular technology e.g. Blackboard rather than providing an overview of the potential of eLearning, the possible contribution to teaching and learning and the transformative opportunities eLearning provided. In one case, technical support was being dropped and replaced by pedagogical support.

- Several participants commented that they would like to see an institutional direction set for eLearning.

3.1.6 Summary

The focus groups provided a snapshot of opinions about formal and informal staff development and learning strategies used by staff in their professional development for eLearning. The aim was to gather a common terminology to inform the online questionnaire and this was achieved. Additionally, some information about processes and issues related to staff development for eLearning was gathered and this has provided a valuable overview related to the institutions who are participating in this research project.

3.2 Online Questionnaire

The results of the online questionnaire presented to academic staff at six institutions in New Zealand attracted 82 responses overall. For the purposes of this project the following definitions were used: eTeaching and eLearning relate to the use of multimedia technologies (e.g. Internet-based, CDROM technologies, video, audio, teleconference) resources for teaching and learning respectively.
The results are organised under the following headings:|

- Demographics – years teaching and eTeaching, qualifications

- Efficacy in eLearning – personal, tools, projects, practical

- Staff development
  - Formal – own institution and other institutions
  - Informal

- Learning strategies used to develop skills for eLearning

- Application of staff development to eTeaching

3.2.1 Demographics

In this section of the questionnaire, factors such as age, role, gender, years teaching and years eTeaching were investigated, along with the percentage of courses taught using eLearning tools in 2004 and the percentage anticipated in 2005. Participants were also asked about any study they were currently undertaking for a qualification which encompassed eLearning and any qualifications obtained in the area of eLearning.

The respondents' ages ranged from 27 years to 67 years (mean=48, SD=8.6), and there were 31 males compared to 49 females and two undisclosed. Participants were primarily lecturers or tutors, and also included professors, course advisors, consultants, programme managers, instructional designers and a Kaiwhakahaere Tikanga Ako. Years teaching ranged from 2 to 45 (mean=16.8, SD=9.8; median=15), and years eTeaching ranged from a minimum of 0 to a maximum of 20 (mean=3.49, SD=4.1; median=2).

Comparison of Teaching	Median	Minimum	Maximum	Mean	SD
Years Teaching	15	2	45	16.8	9.8
Years eTeaching	2	0	20	3.49	4.1
% eTeaching in 2004	25	0	100	41.2	41
% eTeaching in 2005	45	0	100	46.2	41.5

Table 3: Comparison of teaching and eTeaching
- % eTeaching refers to the proportion of teaching undertaken in 2004 and 2005 which involved eLearning tools and methods.

Twenty respondents (24.4%) were studying for qualifications which encompassed eLearning, the programmes included were: Online Teaching & Learning Certificate, Post graduate Certificate in Applied eLearning, Certificate in Educational Technology, Certificate in Frontline Management, Graduate Certificate in Applied eLearning, Doctor Health Science, Graduate Diploma in eLearning, Master of Nursing.

Nineteen respondents (23.2%) had already obtained qualifications in eLearning including: Graduate Diploma in Information Technology in Education, Master in Education - Computers in Education, Certificate in Educational Technology, MA in Open and Distance Education, Certificate in Online Education and Training, Certificate in eLearning, Certificate in Online Learning.

As can be seen in Table 4 below, there was no relationship between overall efficacy and years eTeaching (r = 0.14, p = 0.21). There was, however, a moderate association (r = 0.358, p = 0.001) between percentage of courses taught using eLearning tools (methods) in 2004, and the efficacy score for overall confidence using eLearning tools. Additionally, as would be expected, there was a correlation (r = 0.542, p = 0) between years eTeaching and percentage of courses taught using eLearning tools (methods) in 2005. No relationship, however, between percentage of courses taught using eLearning tools (methods) in 2005 and overall confidence (r = 0.092, p = 0.41).

Comparison of eTeaching and Efficacy	Overall efficacy	% Teaching in 2004	% Teaching in 2005
% Teaching in 2004	0.358*		
% Teaching in 2005	0.092	0.163	
Years eTeaching	0.14	0.27	0.542*

Table 4: Relationships between eTeaching and efficacy (n = 82)
- Probability (*p*) significant at less than 0.006 for all measurements of r.
- % eTeaching refers to the proportion of teaching undertaken in 2004 and 2005 which involved eLearning tools and methods.

3.2.2 Efficacy in eLearning

A series of questions was posed about five different aspects of efficacy i.e. confidence for eLearning. The five aspects are listed below:

1. Personal efficacy using computer technology/eLearning tools and methods for teaching.

2. Confidence using eLearning tools.

3. Confidence when undertaking a project to set up an online course.

4. Personal characteristics when learning new software or using eLearning tools and facilities.

5. Overall confidence in using eLearning tools and methods in teaching.

Responses to questions in each of the five sections were scored to determine levels of efficacy in each different type of situation. Where questions were posed as negative confidence, scores were reversed to obtain the actual efficacy, for example, question 1-05, *I feel anxious about using eLearning tools* and question 1-06 *the thought of using eLearning methods for teaching is uncomfortable* (see Table D-1, Appendix D).

An analysis of questionnaire data was conducted using Pearson's tests of correlation[8] to determine if there were relationships between overall efficacy and variables such as years eTeaching, percentage courses taught in 2004 and 2005, and the frequency of formal staff development. Additionally, six characteristics of efficacy were selected as most important for measuring the rest against. These are listed below:

- Overall efficacy in using eLearning tools and methods in teaching.

- Confidence in ability to teach well in a course that requires the use of computer technology.

- Not worried about making mistakes using computer technologies.

- Learning how to be an eTeacher is easy.

- No one around to tell you what to do as you go.

- Try and persist on own until it works correctly.

All efficacy characteristics in the questionnaire, apart from those relating to the section on using eLearning tools, were tested against the six characteristics using Pearson's tests of correlation. The results are depicted in Table 5 further on in the report.

A graph depicting overall confidence with eLearning is depicted in Figure 2. Thirty-nine participants (48%) indicated their overall confidence (efficacy) for using eLearning tools and methods was high and eighteen (22%) believed they had very high confidence. Ten people (13%) rated their level of overall confidence as low or very low. The mean efficacy score was 3.8 confirming that overall most participants had above average confidence with eLearning.

There does not appear to be any relationship between years eTeaching and overall efficacy for using eLearning tools and methods. There was a moderate relationship, however, between the percentage of courses taught using eLearning tools in 2004 and overall efficacy ($r = 0.416$, $p = 0$).

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[8] Short for Karl Pearson's product-moment correlation

Figure 2: Overall Efficacy using eLearning Tools and Methods in Teaching (n=82)

% Frequency

Efficacy Score: v low = 4, low = 9, average = 18, high = 48, v high = 22
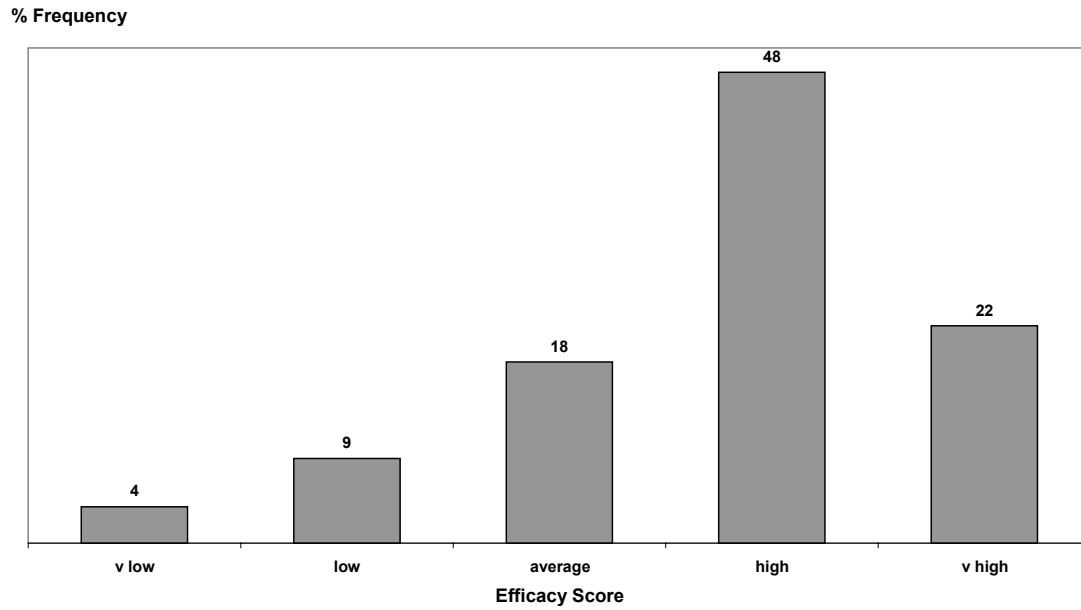
When each aspect or category of questions was examined, efficacy scores were generally high or very high. For example, 88% indicated high or very high personal efficacy for eLearning, and 84% had the necessary characteristics for eLearning (see Figure 3). For each question relating to each of the five aspects of efficacy, mean efficacy scores were calculated as well as descriptive statistics such as median and mode (Table D-1, Appendix D). Mean efficacy scores which stand out for each of the five aspects of efficacy are mentioned in each of the sections below.

Figure 3: Frequency of high and very high efficacy for five aspects of eLearning (n=82)

% Frequency

Aspects of eLearning: Personal efficacy and feelings = 88, eLearning Tools = 63, Setting up an online course = 68, Characteristics for eLearning = 84, Overall confidence with eLearning = 66
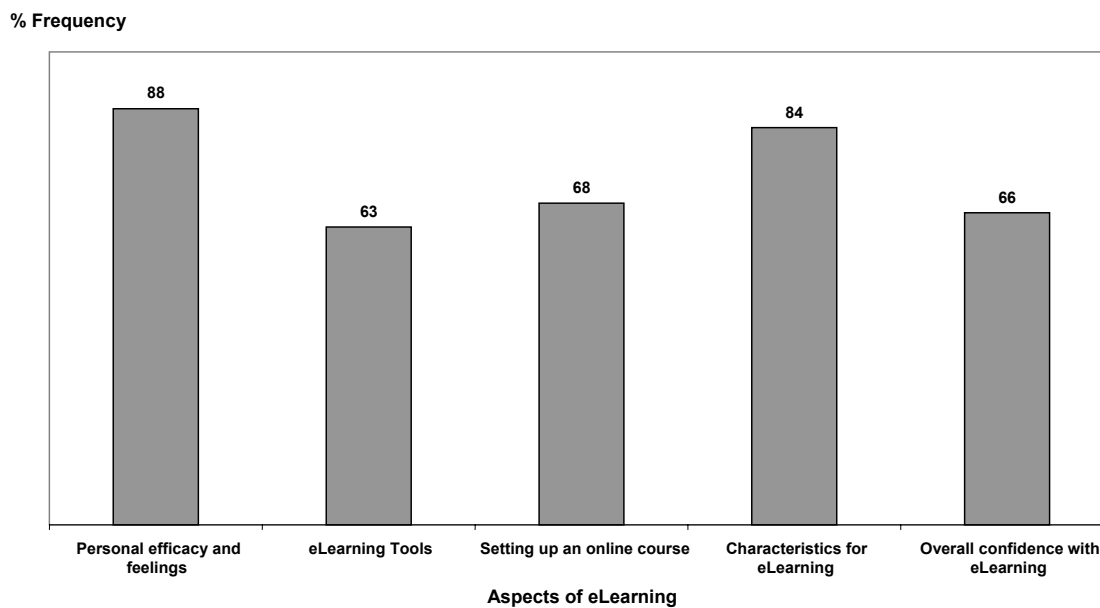
Situations where there was a significant relationship between efficacy scores for questions and the six selected characteristics are presented in Table 5
Table 1below.

Six Characteristics	Overall efficacy	Confident in ability to teach well	Not worried about making mistakes	Learning to be an eTeacher is easy	No-one around to tell what to do as go	Try and persist on own until it works correctly
Questions	**Pearson's Correlation ®**					
1.1. I am confident about my ability to teach well in a course that requires me to use computer technology.	0.879					
1.2 I feel at ease learning about computer technology.			0.446			
1.5 I feel anxious about using eLearning tools*			0.356*			
1.9 I enjoy using eLearning tools.				0.316		
3.2 If you had only an instruction manual for reference					0.679	
3.3 If you could call someone for help if you got stuck					0.497	
4.1 Expect that I will experience many problems*		0.356			0.321*	
4.6 Put a lot of effort into getting it right						0.376

Probability (p) significant at less than 0.006 for all measurements of r.   ** Efficacy score reversed*

Table 5: Significant relationships between efficacy scores of six characteristics and question

Most significantly, there are several correlation results displayed in Table 5 which need noting.

1. If participants were confident about their ability to teach well in a course that required them to use computer technology, they would also feel they were confident overall in using elearning tools and methods in their teaching (*r = 0.879, p = 0*).

2. Participants who were confident if they had only an instruction manual for reference were also confident if no-one was around to tell them what to do as they went (*r = 0.679, p = 0*).

3. If participants feel at ease learning about computer technology they will not be worried about making mistakes when using it for teaching (*r = 0.446, p = 0*).

4. Those who expect they will experience many problems will not be confident in their ability to teach well using eLearning tools and facilities (*r = 0.356, p = 0.002*).

5. Anxiety about using eLearning tools is associated with being worried about making mistakes when using them (*r = 0.356, p = 0.002*).

6. Participants who enjoy using eLearning tools find learning to be an eTeacher is easy (*r = 0.316, p = 0.005*).

3.2.2.1 Personal Efficacy Using Computer Technologies

In this section of the questionnaire, participants were asked to answer a series of nine questions about their personal confidence and feelings about using computer technologies (Table D-1, Appendix D). For example, questions about confidence in their ability to teach well using computer technologies, anxiety about using eLearning tools and concern about the impact on teaching.

Most notably, academic staff felt at ease learning about computer technologies (83%), and confident about their ability to teach well using them (77%). For 80%, the thought of using eLearning methods was uncomfortable and 69% felt anxious about using eLearning tools. Frequencies for the responses to other aspects of personal efficacy and feelings can be seen in Table D-1 (Appendix D). The mean efficacy score for l*earning how to be an eTeacher is easy* was the lowest for all the questions at 2.8, which means that most participants lacked confidence in this area. The full range of efficacy scores is illustrated in Figure 4 below.

Figure 4: Mean Efficacy scores for Personal Efficacy (n=82)
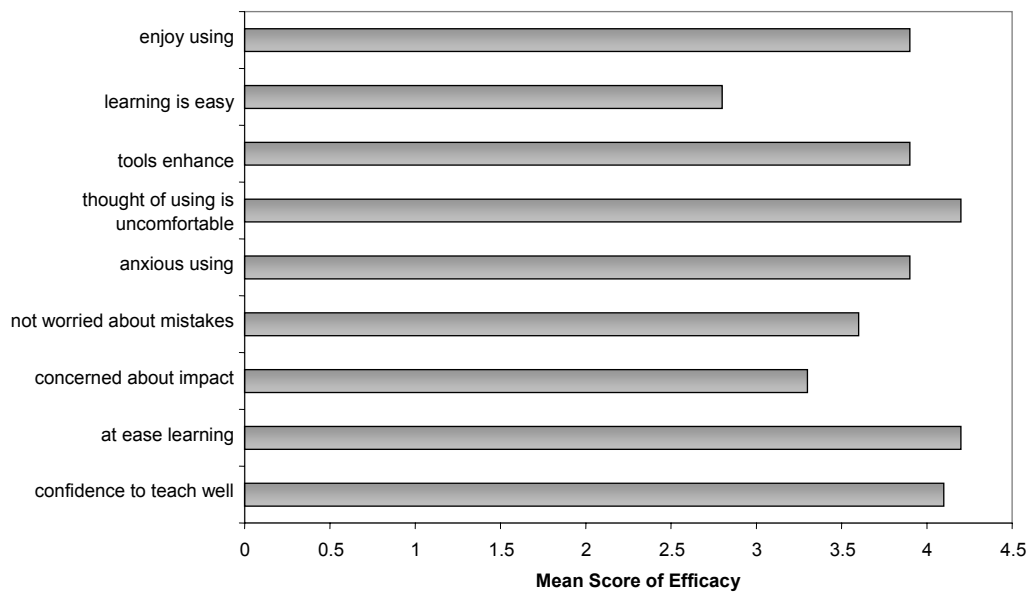
3.2.2.2 Confidence using eLearning Tools

A range of eLearning tools was listed for participants to choose from, and Table D-1 (Appendix D) indicates the responses regarding how confident they felt using them. Most participants had a high level of confidence using email (82%), PowerPoint (77%) and text-based materials (75%), and 62% were confident using learning management systems and discussion boards, and 50% were confident with chat. The tools where participants were least confident were web pages (38%) and video streaming (35%). There were a small number of other tools used such as: PDF files, interactive tutorials, email lists, providing material via CD, DVD and Video, library journals and information databases.

Mean efficacy scores for using fourteen specific kinds of eLearning tools ranged from 1.6 for audio, 2.6 for quizzes to 4.0 for email (see Figure 5).When efficacy levels were scored, frequencies were adjusted to account for the tools not used.

Figure 5: Average Efficacy Score for Using eLearning Tools (n=82)
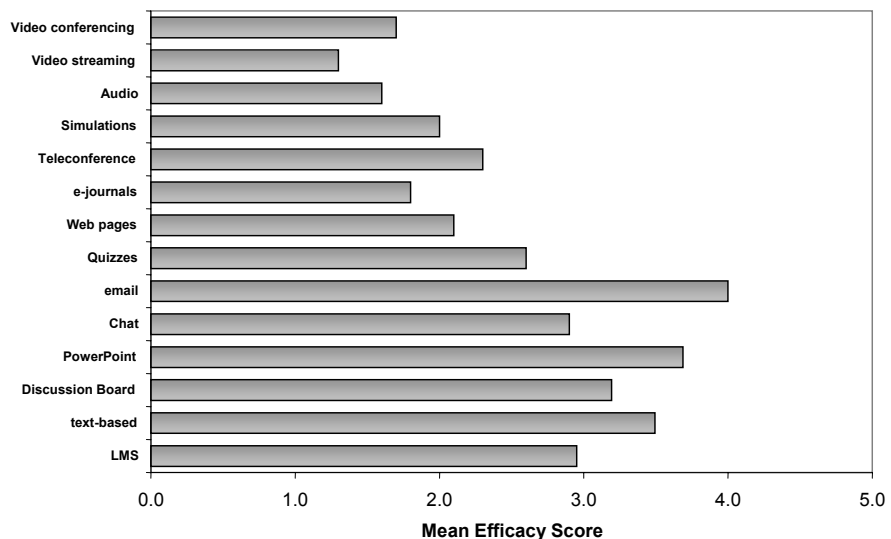
3.2.2.3 Confidence for Setting up a Course for Online Delivery

In this section participants were asked to "imagine you are given a project to set up your course for online delivery" and to indicate how confident they felt in a series of situations (see questionnaire, Appendix B). The types of assistance which provided the highest levels of confidence, included the following:

- *Having a lot of time* (85%).
- *Being able to call someone for help (82%).*
- *Help getting started* (79%).
- *Having step by step instructions to complete the project (70%).*

When *there was no one around to tell them what to do as they went* and *they had only an instruction manual,* confidence levels were much lower at (36%) and (43%) respectively. The lowest mean efficacy score was 2.9 and related to *no help as you go*

and the highest was 4.3 for having a lot of time to complete the project. The complete range of efficacy scores is depicted in Figure 6.

Figure 6: Average Efficacy Score for Setting up an Online Course (n=82)
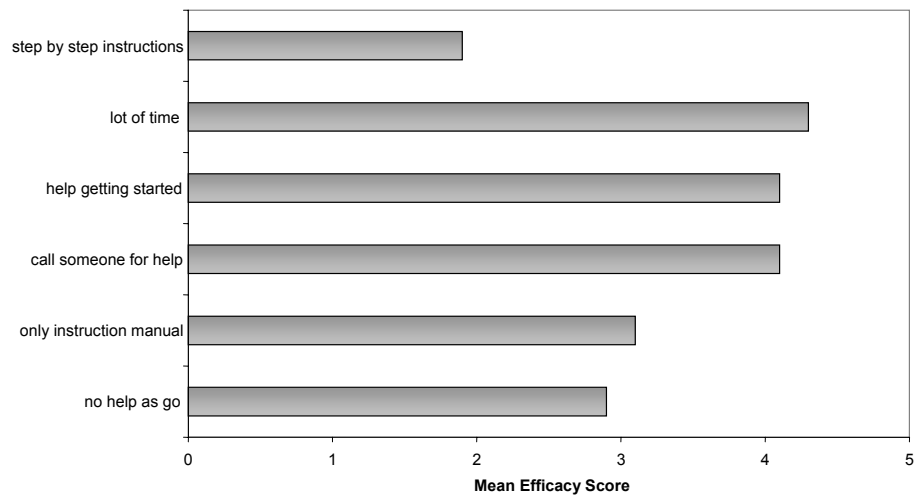
3.2.2.4 Characteristics of Efficacy

In this section of the questionnaire, participants were asked about their characteristics associated with either learning new software or using eLearning tools and facilities. Table D-1 (Appendix D) displays the percentage frequency of responses to each question.

The participants (n = 82) had two characteristics which stood out when learning new software or using eLearning tools and facilities. They did *spend extra time trying to understand what to do* (83%), *put a lot of effort into getting it right* (83%) and did *try and persist on their own if it doesn't work* (60%). On the other hand, a small number (9%) *give up quickly if it doesn't work,* 17% *doubt their ability to solve the problems that may arise,* and 16% *get someone else to do it for them or fix it.*

To determine efficacy, questionnaire responses which implied low efficacy e.g. question one – *expect that I will experience many problems* - were reversed when scoring the efficacy levels for each participant. Additionally, responses to the last question, *get frustrated and annoyed at lack of progress*, were removed prior to scoring efficacy levels because it is not specifically related to confidence. The lowest mean efficacy score in this section was 2.5 for *need to ask others for help* indicating a characteristic related to low efficacy. On the other hand, a mean efficacy of 4.1 for *put a lot of effort into getting it right* was a characteristic indicating high efficacy. (See Figure 7)

Figure 7: Average Efficacy Score for Personal Characteristics (n=82)

Average Efficacy Score for Personal Characteristics (n=82)
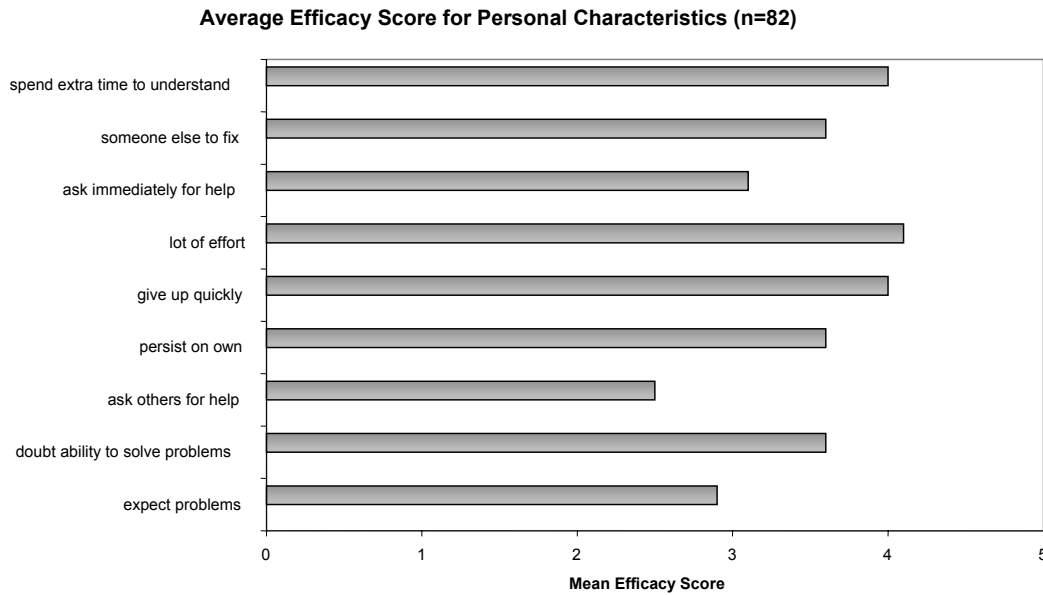
3.2.2.5 Overview of Comments from Self-efficacy Section

Participants mentioned a small number of challenges associated with eLearning, for example, some saw it as "an exciting challenge" and others regarded it as stressful. Seventeen participants alluded to time as an issue with comments such as: "tricky getting back on the horse - especially when there isn't a heap of time available to fully understand" and "I'd like to develop this area faster, but am limited by time and other duties." Also the following comments were very revealing: "time makes the difference. Without time it just can't be done well (or at all). I have the skills - but without time I am as useless as a complete novice", and "yes the time factor is a big one".

The potential for eLearning was regarded as both a positive change and a dubious one. Some people could see the benefits such as better communication and class participation, but others were sceptical about the use of technology for learning. When people had experienced eLearning tools, they felt it "demystified" the process somewhat. Most were realistic, however, that the degree of difficulty depended on the way in which technology was put to use. For example, "creating good e-learning resources is more difficult unless your conception of teaching is simply knowledge transfer (i.e. a focus on low level cognitive skills)." Also, the level of support provided impacted on people's perceptions and experiences of eLearning.

For some, their concern lay with the reliability of technology rather than their lack of skill, whereas, for a small minority who had never used or learned about eLearning tools and methods, the prospect of what lay ahead was unknown. Some people liked to work with an expert who could help them turn ideas into practice, others liked to experiment. The following quote was amusing, and highlighted the wide range of opinion: "Step by step instructions make me nervous....who knows what fun you could be having otherwise".

Support was a major theme and mentioned by twenty participants. For example, some had access to very good and adequate support for technology and course development, others did not; some wanted support to enable them to teach autonomously, e.g. "the kind of help I want is someone who can work alongside me to enable me to put my pedagogy into place online". Others wanted someone to put their course materials online for them, and others wanted time to experiment and explore themselves. Also there were people who indicated they would try more adventurous tools and methods if they had the time and support. A few participants worried about being able to provide adequate learning and technical support for students. In general, it was evident that the infrastructure in the different institutions varied regarding the type of technical and staff development support offered.

There were some interesting perceptions about eLearning, for example: "I am still a fence sitter about the whole e-learning thing and cautiously optimistic about my ability to manage the new environment", and "using eTools is easy if you have a reason to use them, anyone can learn if given the motivation to do so". Also, "it is better to receive a little guidance and then explore for yourself and learn", and "frustration & inter-collegial support are built into all learning".

Generally, access to the relevant hardware and software and technological tools for teaching and learning and adequate support were most important, because without them they couldn't expand their repertoire and develop their potential, or the potential of what was offered to students. In the following section, the findings about staff development and learning strategies are reported.

3.2.3 Staff Development Section of Questionnaire

The results for this section include data relating to both formal and informal methods of staff development as well as learning strategies and applications of staff development to eTeaching. Participants were asked about the types of staff development they had undertaken in preparation for eLearning over the last 10 years. Definitions were provided for formal and informal staff development.

Definition of formal staff development: Courses/workshops as well as staff development that might occur through mentoring or facilitating. The type of staff development included here is formally recognised, part of your workload, remunerated possibly and may or may not be driven by Staff Developers.

Definition of informal staff development: Informal learning is any learning that takes place outside of structured or contracted learning situations. It is not formally recognised, may not be a recognised part of workload, is not remunerated, and may or may not be driven by Head of School/Department, Dean or Staff Developers.

Results are presented as frequencies of the different types of staff development undertaken using graphs of percentage frequency. Relationships between different pairs of data were tested using Pearson's correlation statistics.

3.2.3.1 Formal Staff Development

Participant responses for this section related to the number of sessions they had undertaken in four different categories of formal staff development at both their own and other institutions:

1.   General computing instruction e.g. Microsoft Office, email, Internet

2.   Online teaching and learning guidance/instruction – *technical* (e.g. how to set up resources on Blackboard)

3.   Online teaching and learning guidance/instruction – *pedagogical* (e.g. how to facilitate teaching and learning)

4.   Specialist software instruction e.g. Blackboard, Flash, Dreamweaver

Participants most frequently attended courses at their own institution and they covered online teaching and learning instruction – technical, followed by general computing instruction, then online teaching and learning instruction – pedagogical and lastly specialist software instruction.

Participants were given a choice of delivery modes to choose from: Online, face-to-face, one-on-one, mixed mode and mentoring. An example of the frequency of responses for a particular type of staff development in several modes is illustrated in Figure 8 below. Further data and all graphs can be found in Appendix D. As illustrated in Figure 8, for pedagogical online teaching and learning instruction, face-to-face workshops were most frequently attended by followed by online.

Figure 8: Frequency of Pedagogical Online Teaching and Learning Instruction (n=82)
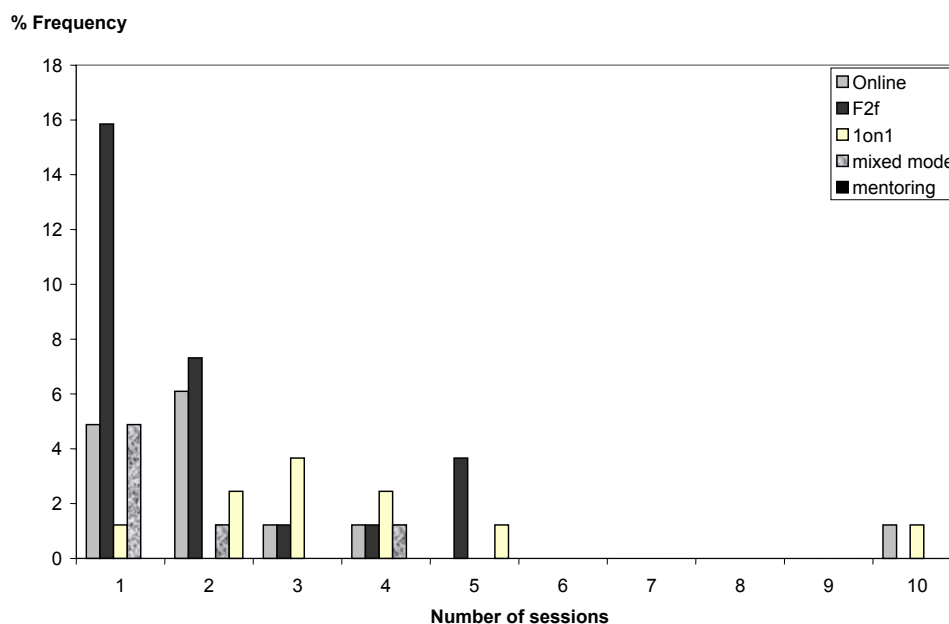
For all types of formal staff development the most common mode was face-to-face followed by online and one-on-one modes, and one or two sessions of formal staff development were most common overall (see graphs in Appendix D).

3.2.3.2.1 Own Institution and Other Institution

Regardless of where staff development was undertaken, the highest number of participants had engaged in one to five sessions, and the number of staff development sessions at other institutions was 42% less frequent, than at the home institution.
It is evident in Figure 9 that 30% of participants undertook one to five sessions of formal staff development at their own institution compared to 24% taking them at another institution. 15% undertook no formal staff development at their own institution and 53% did not pursue staff development at another institution. 10% and 12%

undertook six-to-ten and eleven-to-fifteen sessions at their own institution and 12% and 3% took sessions in that range at other institutions.

Figure 9: Frequency of Formal Staff Development at Own and Other Institutions (n=82)
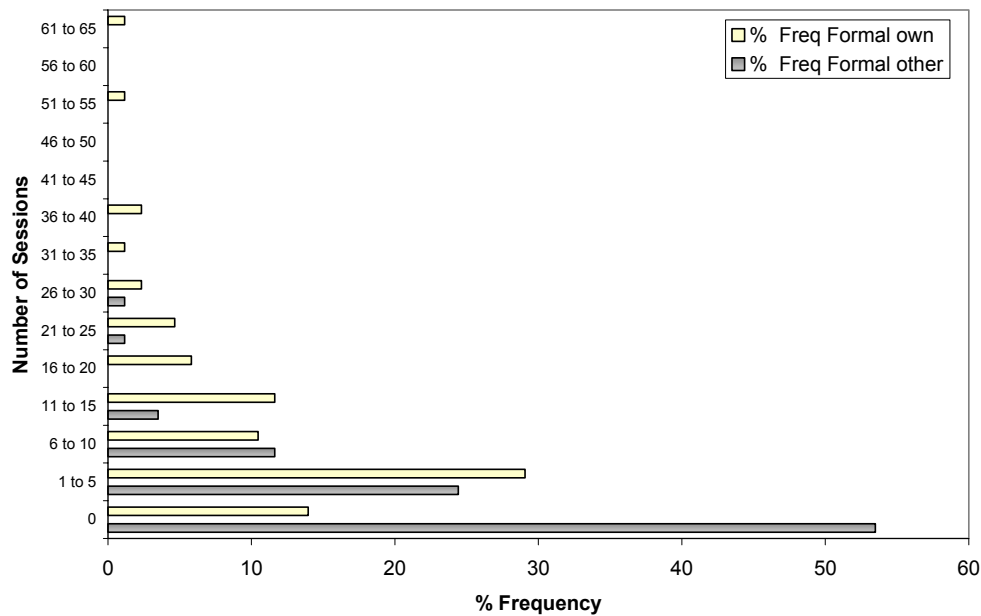
An examination of the mean, standard deviation for the number of formal and informal staff development sessions gives a clearer representation of the similarities (Table 6).

Number of Sessions	Formal SD			Informal SD
	Own Institution	Other Institution	Total SD	Total SD
mean	7.3	8.7	11.2	7.7
SD	12.5	5.0	13.7	3.6
No correlation between formal and informal SD			$r = 0.14, p = 0.2$	
No correlation between formal SD and overall efficacy scores			$r = 0.05, p = 0.689$	
No correlation between formal SD and overall efficacy scores			$r = 0.04, p = 0.712$	

Table 6: Mean and standard deviation and correlation between the number of formal and informal staff development sessions.

As can be seen in Table 6, there was no relationship between numbers of types of formal and informal staff development undertaken. There was also no relationship between the number of sessions undertaken in formal staff development or informal staff development and efficacy scores for overall confidence with eLearning tools and methods.

3.2.3.1.2 Comments about Formal Staff Development

Some participants found it difficult to estimate all the staff development sessions they had undertaken formally for staff development either because they had studied a full qualification or individual papers as part of a qualification. Others could not see where projects they had undertaken would fit with the questions asked, although they believed

they came under the definition of formal staff development. Several participants had undertaken formal study in eLearning, distance or open learning as part of a Masters degree or other postgraduate programme. One contributor suggested that examples of best practice from other institutions and a training needs analysis was useful before embarking on any interventions for formal staff development.

3.2.3.2 Informal Staff Development

Participants were given a list of options to choose from for informal staff development related to eLearning and also given the opportunity to add their own items. The full list of responses can be seen in Figure 10 and Table D-4, Appendix D. The top four choices were: General internet use (75%), reading/websites/ personal resources (73%), discussion with peers (71%) and working with early adopters/peers (63%).

The four least favoured choices in order were: Blogs (weblogs) (10%), special interest groups (27%), drop in sessions (34%) and friends/whanau (35%).

Choices favoured by the majority, i.e. above the median of 48%, but not in the top four, were: Exploration of software (59%), involvement in projects (54%), observation of others' online courses (51%) and workshops/seminars (49%). Conferences (47%), email lists (46%) and "how to do it" resources (43%) were just below the median in popularity. Newsletters (30%) were not particularly engaged with staff development.

Whether this was because newsletters were not regarded as useful by participants, or because they weren't available is not clear.

Figure 10: Frequency of Informal Staff Development (n = 82)
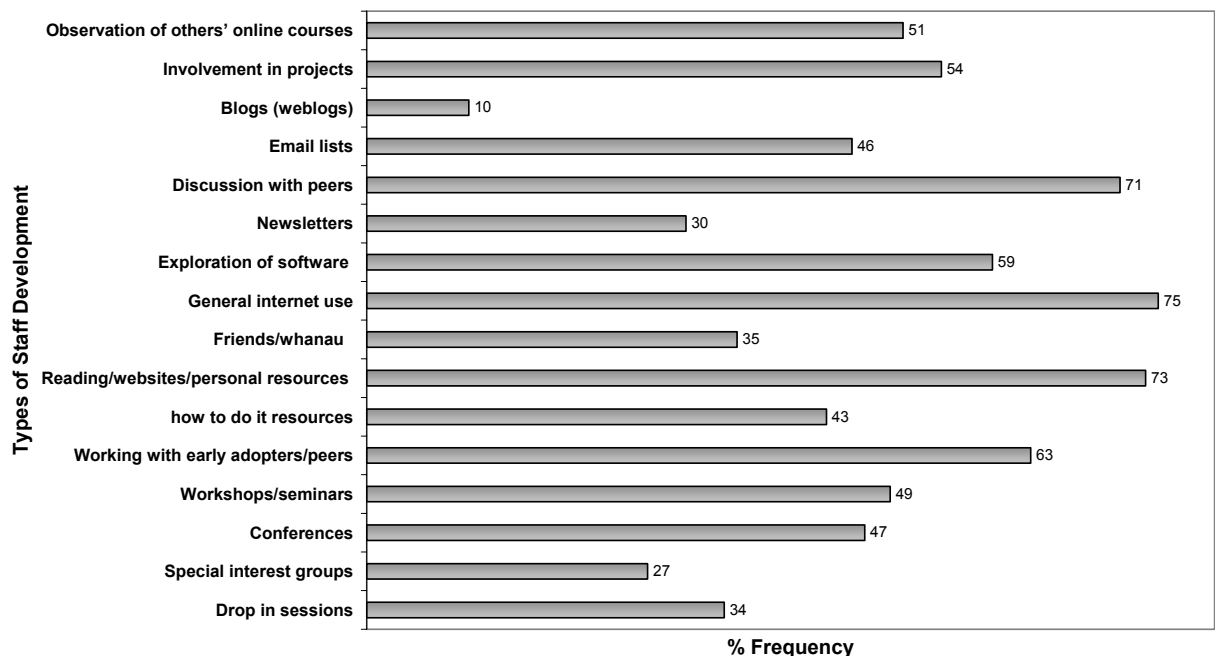
3.2.3.2.1 Overview of Comments about Informal Staff Development

Several participants have found that informal staff development opportunities were often the only option available to them either because formal training was not in place or due to a lack of support from managers or a workload which prevented time for up-skilling. Some found the observation of others' online courses to be very useful, particularly when examples of exemplary work were made available, but some hadn't had the opportunity or were at the same stage or slightly ahead of their peers. Many were self-taught when using new software e.g Macromedia Flash, 3D and Director, though there was mention of demonstrations by companies as useful. Some participants found email instructions, "just-in-time" help, trial and error, peer assistance and a mentor useful.

3.2.3.3 Learning Strategies used to Develop Skills for eLearning

Participants were asked to choose from a list of learning strategies (Table D-5, Appendix D) to answer the following scenario:

Your manager has said that you must learn how to use a new eLearning method and develop expertise in the method to aid your students' learning. What learning strategies would you use to familiarise yourself with the method and to make sure you are a confident and competent practitioner?

As can be seen in Figure 11, the most commonly chosen strategies academic staff used to learn how to use a new eLearning method were:

1. Communicate with an existing practitioner (78%),
2. utilise a trial and error approach (72%) and
3. access web-based resources (71%).

Other strategies above the median frequency of 48 were: Apply the method in a real situation and engage in staff development activities (66%). Strategies such as: Observe someone else (59%) and undertake a tutorial (59%) were both on the median of choice and to seek the help of a mentor (50%) was less favoured. The least frequently used strategies were: Engage in a web-log (blogging) (5%), compile a portfolio (9%) and maintain a reflective journal (13%).

Figure 11: Learning Strategies used by Academic Staff to Develop Skills for e-Learning (n=82)
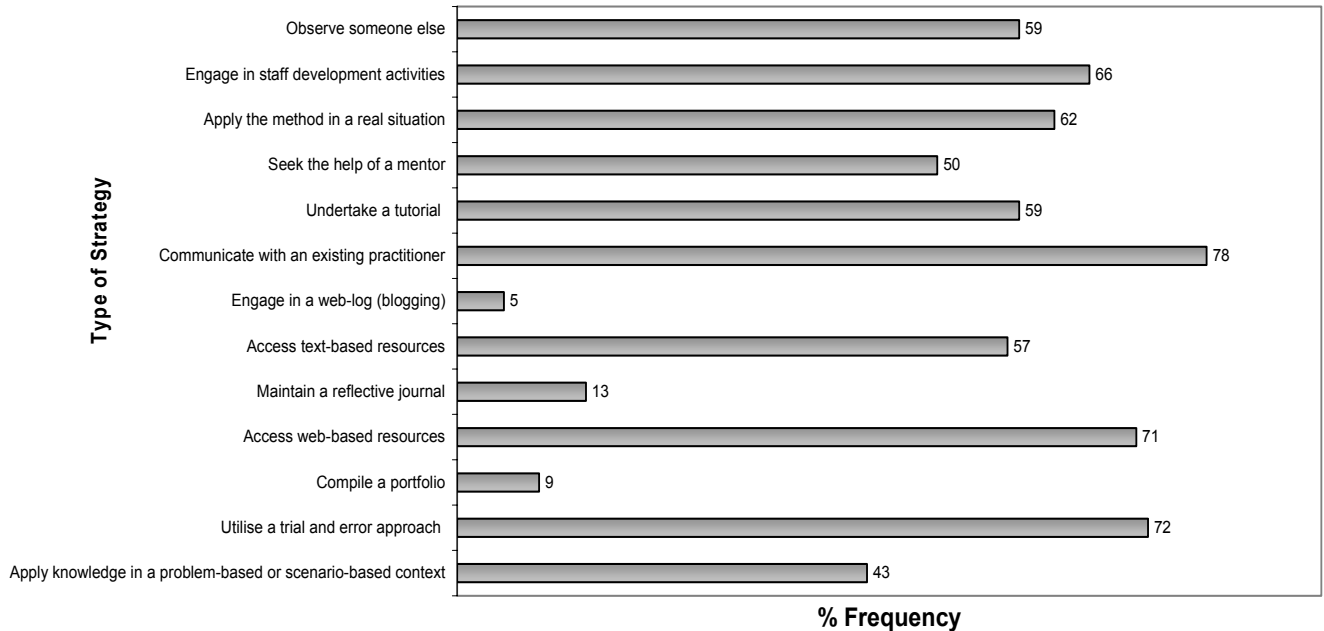
3.2.3.3.1 Overview of Comments about Learning Strategies

There were several comments made and the general theme was people liked to try a bit of this and that, and learn skills as they were required, either by finding out information themselves, being involved in projects or by going to courses. Most liked to have a go and seek assistance as needed, which in some cases involved one-on-one or the help of a mentor. Courses run by technical personnel with no understanding of the pressures teachers worked under were not regarded as particularly useful for academic staff. Some felt their managers would not require them to do anything in particular to up-skill.

3.2.3.4 Application of Staff Development to eTeaching

In this section, participants were asked to describe one or two examples of how formal and/or informal staff development had shaped their eTeaching.

3.2.3.4.1 Responses re Formal Staff Development:

Twenty-seven participants referred to formal workshops as helpful for eTeaching because they provided confidence for them to get started, as well as showing them what was possible and how to cater for different learning styles. Showcase presentations by colleagues were regarded as very useful especially for staff who regarded themselves as kinaesthetic learners. Formal staff development opportunities also helped participants realise what the needs and expectations of learners might be in an eLearning environment. Structured workshops also helped staff to clarify what they were doing and gave them different strategies to improve their teaching online. The possibilities for using the Internet to enhance courses were welcomed rather than staff feeling they had to put everything totally online.

Structured courses were described as either one-off workshops or workshops organised as part of an institutional drive for online teaching and learning as well as courses taken as part of formal qualifications. In some cases, staff were given the directive by their managers to put their courses online, which precipitated their pursuit of formal options for staff development. In other cases staff did most of their learning while building their courses on the proprietary Learning Management Systems e.g Blackboard or Web-CT used by their institution. It appears that the timing of workshops was important, that is, when staff needed to put courses online and could see the relevance of the skills offered therein, they tended to make more effort and got more out of them.

There were a number of descriptions which stood out about how formal staff development had shaped eTeaching. In one case, where a staff member needed to update subject knowledge, informal staff development was preferred to develop eTeaching skills. For another participant, "the biggest influence was as a student on eLearning courses….. I got a real understanding of being a student and learnt the importance of communication ..." Another example was "attending a workshop on pedagogy (scenario-based learning) has enabled me to make contacts with others interested in this area… workshops and these contacts have given me ideas."

Several responses related to alternative means of obtaining formal staff development. For example, attending workshops at conferences or "research, membership of related professional bodies, hosting online discussions ". Another participant found that having to teach a tutorial helped with skill enhancement and was a good challenge. Another example was "being involved in the development of videos/CD ROMS for teaching purposes" and one person found that having "time with an advisor was invaluable …. combined with discussion with an expert colleague, and with gathering resources and then problem-solving when needed".

Responses regarding formal staff development were primarily in the affirmative, but there were twelve negative examples. Either courses were not available at all, or were held when the staff member was not involved in eLearning, and the learning was forgotten by the time they came to need the skills. This meant there was a need to find "informal means of supplementing the information". In some cases, the courses were not relevant or useful, or presented concepts the staff member was unable to understand at the time. One response referred to inhibiting factors such as the need to study for a

professional qualification and pressure to undertake research. Additionally, comment was made about the time factor associated with setting up eLearning environments which were not just repositories of knowledge and required more development time e.g. scenario-based learning. Some participants were not enamoured with the proprietary learning management system they were required to use or there was a lack of support in using it. There were also some cases of "experts" providing advice which was unhelpful or not fully supported.

Overall, formal staff development was regarded as useful in shaping eTeaching for the majority of participants. Twenty-nine participants, however, did not respond to the question. Some of these people were interviewed and would have been asked to clarify how formal staff development shaped their eTeaching and how they have applied formal learning to their courses.

3.2.3.4.1 Responses re Informal Staff Development:

Participants made twenty-four references to the way informal support by colleagues had contributed to their learning either through being shown what others were doing, or through discussions with peers about practical ways to undertake eLearning development and use relevant pedagogy for the online environment. For example,

- "Working in an office with someone who is keen and also competent with Blackboard, and observing their uses of it has positively influenced my participation and use"

- "Seeing other people's quizzes has affected the way I use quizzes in the course."

- "Discussions about pedagogy has affected the structure and format of the course."

Other responses related to a variety of ways in which informal staff development had helped them with eTeaching. These included how involvement in small project teams and resource development had helped some participants with eLearning, and one participant found that continual problem-solving helped to consolidate skills previously learned through formal staff development. One person thought more formal training was a good idea rather than just relying on a trial and error approach. There were a number of people who preferred just-in-time learning when they felt they were ready for it or needed it, because then it was meaningful. There were a number of comments about different informal ways of gaining skills for eLearning. Methods such as reading books, research, lunch-time drop in sessions, specific problem-solving and sharing resources with other lecturers. Some key comments about different ways of learning included the following:

- "Having a sound knowledge of technology and pegagogy assisted as one could focus on learning the eTeaching tools and eTeaching methodology."
- "Many years of participation in e-lists, discussion forums and chat has shaped my understanding of on-line communities."

- "I have learned a lot from working informally with an on-line group at a UK university as a 'visitor' to the site."

- "Helped to develop relationships which may not have been forged so easily."

A few people also made mention of experts as helpful for practical assistance, and two people had positive experiences as students in online discussions which helped them as

lecturers. There were five statements referring specifically to the usefulness of informal staff development i.e. the "best way to learn". A couple of statements mentioned family and friends as support agents and influences, and two people referred to time as a factor inhibiting informal exploration. One participant mentioned the importance of having someone specifically employed to assist with eLearning pedagogy as helpdesk staff were not equipped to assist with teaching and learning problems. Additionally, student feedback was regarded by two participants as a good way to find out where to make changes to the way online courses were structured.

Seven responses referred to specific ways in which knowledge that was gained informally had been applied to courses. Participants described the use of email discussion groups for communicating with students, also the allocation of marks for online discussions and the benefits of posting clear instructions on the LMS. One person tried to incorporate new approaches into any courses being developed for the online environment, and another had developed a website which had attracted overseas interest. There was also the use of "animations and tutorials provided with text books" and the use of art work in PowerPoint presentations mentioned. In some cases, lecturers bought equipment they needed themselves to be innovative as it was not easily obtained in their institutions.

Overall, informal staff development was also regarded as useful in shaping eTeaching, however, twenty-four people did not respond to the question and only some of these participants were interviewed to follow up their questionnaire data.

3.2.4 Summary

This first section of the results for the online questionnaire established some base line information about demographics and important aspects of efficacy for eLearning and eTeaching. The relationship between efficacy for eLearning and eTeaching and the type of staff development undertaken was covered in the second section investigating types of staff development.

Of the 82 participants surveyed 24% were studying for qualifications related to eLearning, and 23% had already obtained qualifications in eLearning. The average number of years participants had been eTeaching was 3.49, but overall they had experience in eTeaching ranging from zero to twenty years. Several relationships between self-efficacy variables were revealed from an analysis of questionnaire data using Pearson's tests of correlation. For example, there was a moderate relationship between the percentage of courses taught using eLearning tools in 2004 and scores for overall efficacy i.e. the higher the percentage of courses taught in 2004, the higher their confidence for eTeaching.

Additionally, two significant findings were related to learning about computer technology for teaching. The research discovered that if participants feel at ease learning about computer technology they would not be worried about making mistakes when using it for teaching, and if they enjoyed using eLearning tools they found learning to be an eTeacher was easy.

Interestingly, however, there was no relationship between overall efficacy for using eLearning tools and methods and years eTeaching which might be expected.
For the five aspects of efficacy selected (personal efficacy, confidence using eLearning tools, confidence setting up an online course, personal characteristics and overall

confidence) total efficacy scores for each aspect were generally high or very high (Figure 2). Hence the majority of participants sampled were generally confident using eLearning tools and methods and eTeaching. This result may be because the type of participants who chose to respond to the questionnaire generally had some experience or interest in eLearning. For example, 77% were confident about their ability to teach well using elearning tools and methods.

On the other hand, however, some specific characteristics emerged such as 80% finding the thought of using eLearning methods uncomfortable and 69% feeling anxious about using eLearning tools. For specific tools, email was used most confidently (82%) followed by learning management systems (62%) and discussion boards (62%). Characteristics of note were that the majority of participants did spend extra time trying to understand what to do (83%), and put a lot of effort into getting it right (83%), and these were characteristics associated with high efficacy for eLearning. On the other hand, people who needed to ask others for help tended to have low efficacy for eLearning.

In the staff development section of the questionnaire, a number of interesting findings were made. Face-to-face workshops for eLearning training were the most common delivery mode, followed by online and one-on-one modes. Also the highest percentage of people had taken one or two sessions of formal staff development, and most people undertook formal staff development at their own institutions. Where people had studied for a qualification, numbers of staff development sessions became difficult to extricate. The amount of formal staff development undertaken had no influence on informal staff development or vice versa. Nor was there any relationship between the number of sessions undertaken in formal staff development and overall confidence with eLearning tools and methods.

As far as informal staff development went, the highest numbers of people chose items such as general internet use, reading/websites/ personal resources, discussion with peers and working with early adopters/peers as their most preferred methods for learning informally. Methods which were often the only means available them for up-skilling for eTeaching. The most commonly chosen strategies were to communicate with an existing practitioner, utilise a trial and error approach and access web-based resources.

Metacognitive type strategies such as blogging, portfolio development and reflective journaling were not popular. Overall people liked to experiment and use just-in-time methods to learn as well as engaging in projects and courses.
For most participants. both formal and informal staff development was regarded as useful in shaping eTeaching.

3.3 Interviews

Twenty-seven participants who had volunteered their contact details for interview were selected to ensure those interviewed represented a range of experience with eLearning and eTeaching. Each participant was interviewed using a standard list of questions as well as questions specific to each participant's situation regarding eLearning and their questionnaire responses (see Appendix C). One participant only was recruited for interview from one of the institutions.

The data from the interviews has been used along with the questionnaire data to formulate both individual case studies (chapter four) and a case study depicting staff development and self-efficacy across the six institutions (chapter five).

Chapter Four: Case Studies Of Individuals

The six individual case studies presented in this section were selected from the 27 participants who had volunteered for a follow-up individual interview. The six profiles were selected to ensure a balance across areas such as number of years eTeaching, the percentage of teaching delivered online, employing institution, and gender. Other criteria used included ensuring that the six included participants with high and low self-efficacy scores, along with high and low levels of confidence and who had engaged in predominantly formal staff development, informal staff development or a mixture of both. To create the profiles, the participants questionnaire results were combined with their interview using the research questions as the framework to draw out the key information. The research questions were:

1. How do staff development models prepare academic staff for eLearning?
   - Are staff experiences of eLearning and levels of self-efficacy related to the type of staff development provided:
2. Why are some staff development models more effective than others?
   - Does the use of metacognitive strategies in professional development have an effect on self-efficacy levels of learners?
   - Does the level of self-effiacy influence staff experiences of eLearning and how they apply their knowledge to courses using online delivery?

4.1 - Participant 2

An example of a lecturer with little experience using eLearning is Participant 2. Participant 2 has taught vocational courses using traditional methods for the last 9 years, but as at the time of completing the online survey, no programmes or courses were being supported by eLearning in his school/department. Given that this participant has had minimal experience in using eLearning tools in his teaching, it is not surprising that this participant stated that overall he was neither confident nor unconfident in using eLearning tools and methods in his teaching (mean efficacy score = 3). This score was below the mean efficacy score of 3.8 for the study group, indicating that overall he was relatively less confident than the majority of participants.

The first question to consider is how Participant 2's experiences of eLearning and levels of self-efficacy relate to the type of staff development he has engaged in. Participant 2 has engaged in a number of formal courses which have been delivered both online and face to face and is currently studying towards a graduate certificate in eLearning. In addition to studying for a qualification, Participant 2 has also developed knowledge and skills in general computing and in specialist software such as Blackboard, Flash and Dreamweaver, with all formal learning being completed within his employing institution. It would appear that Participant 2 has engaged in a range of formal learning opportunities, but these have not necessarily had an impact on his self-efficacy. Indeed, it would appear that Participant 2 has probably not been able to capitalise on these learning experiences much given that at the time he completed the online survey he had had little opportunity to apply his new learning in his own school.

In the post survey interview, Participant 2 identified some of the barriers to implementation of eLearning in his school which included poor access to the necessary hardware (including PC's for all staff and digital cameras). Participant 2 mentioned that

staff in his area had been trained in the "chalk and talk" environment and were more likely to be resistant to change *"...the staff are not particularly computer friendly because they've always been trained in a chalk and talk environment so that finding leverage to take it on is exceedingly difficult."* He also mentioned that purchases of required hardware and software had occurred recently and were helping the school make progress with eLearning. Finally, his institution did not support ongoing learning – ie he would not be supported for any further study once he had gained his graduate certificate, as lecturer/tutors needed to only be one level higher than the students they taught.

It would appear that Participant 2 is poised at the beginning of the process of moving from the 'chalk and talk' environment of his current school/department into utilising technology to support the learning of his students. In his interview Participant 2 described himself using language consistent with that used by 'early adopters' e.g. Participant 2 stated that he is ahead of most of his peers in his school/department. This self-perception clearly links with the response in his online survey that he strongly agreed that eLearning tools can enhance his teaching, and also in his interview where he described the ways in which he felt the use of graphics to help students become familiar with a range of products used in their industry would really aid their learning.

Although Participant 2 had engaged in formal courses, and appeared to have a range of strategies for dealing with technological issues, the most significant event that had helped him develop more confidence in using technology to support learning occurred while he was teaching overseas *"..so you come here and you chalk and talk but you go over there and you're pretty much expected to be competent with the data show"*. In this teaching Participant 2 had been required to use certain eLearning tools such as data projectors and document readers, and adjust to having his performance videoed in face to face situations. Participant 2 said that this way of learning appeared to have been very successful, and because he had been expected to use the technologies he had mastered them.

On a personal efficacy level, although Participant 2 indicated some anxiety about using computer technologies, was worried about making mistakes and did not find learning to be an eTeacher easy, he did enjoy using eLearning tools and believed they would help his teaching. One of the courses he has been studying in the graduate certificate had also helped with learning about technologies appropriate for his area of teaching. As a result of both the formal staff development and his sojourn teaching overseas, Participant 2 is experimenting with creating some resources. He is currently engaged in developing video clips, and a library of digital photos to use for teaching, and is well supported by central facilities provided by the institution. Hence although he has some reservations on a personal level about using technologies, he is making a real effort to develop his capability in eLearning.

This outcome for Participant 2 also fits with the types of informal staff development that he has engaged in. Participant 2 picks up ideas through the observation of others, discussion with peers, and exploration of software. He also likes working with early adopters/peers which is clearly what occurred for him when he was expected to utilise technologies while teaching off shore.

It would appear for Participant 2 that while his experiences of formal and informal staff development had been positive, such that he wanted to continue with formal programmes at a higher level, it was not until he was required to utilise technology in

his teaching that his confidence grew. In addition, although he had undertaken formal development, he had not been able to implement this in his teaching due to the constraints on availability of technology, institutional support for ongoing formal learning, and the perceptions of Participant 2 in relation to what students wanted. Participant 2 is an 'early adopter' in his school/department, and with support from his manager (ie purchase of PC's, and other digital hardware), he has been able to start the development work for a new set of courses that will be delivered in a blended way in the second year of their programme.

The next set of research questions posed was related to the notion that metacognitive strategies may have an effect on self-efficacy. The level of self-efficacy was also hypothesized to have an influence on how staff apply the knowledge they gain through staff development to the courses they teach.

Participant 2 had put his learning from the graduate certificate programme to good use, applying the learning when developing proposals for his senior managers to support the purchase of new technologies needed in the school/department *"this* [the course] *was really cool because I could use the final project and I submitted it to the boss as a proposal"*. He also had found ways of encouraging his teaching staff to learn about new technologies by making their attendance at a course about technology in teaching compulsory.

It was not clear whether metacognitive strategies had been a part of the courses that Participant 2 had attended, however, he was in the process of applying what he had learned to his teaching. In the online survey Participant 2 stated that he utilised a problem solving approach, and encouraged his staff to learn in this way as well *"I think one they play with the tools, it's like teaching a kid, let him play with the blocks first and once he gets really keen on the tools then you've got him hooked in"*.. Participant 2 also found manuals helpful and would ask others if he was "stuck". He also felt very confident if he had someone to help him get started and if he had a lot of time to spend on the project.

This confidence was mirrored in his response when asked about what he was more likely to do when learning new software. Participant 2 expected to experience many problems, but interestingly given his overall neutral self-efficacy score, did not doubt his ability to solve the problems that would arise. Confidence in one's ability to solve problems is generally associated with high self-efficacy. He would both ask others for help (and his interview discussed how he emailed a family member for the assistance he required), and persist alone when learning to use new software or when using eLearning tools or methods. He also tended to put a lot of effort into trying to understand what to do and into getting it right, both characteristics associated with self-efficacy. Additionally, Participant 2 was in a position to work with peers as an "early adopter", and because peer interaction was two-way, each learning from the other, this was another strategy which would help him develop his capability for eLearning,

All these different strategies and characteristics are congruent with the behaviours of early adopters who often have few people in their own area to rely on to enable their own learning. They learn about the possibilities in both formal and informal ways, and then seek ways of introducing the new technologies in their own work situation. The level of self-efficacy was also hypothesized to have an influence on how staff apply the knowledge they gain through staff development to the courses they teach, and

participant 2 was clearly using his new found skills to improve the range of resources available for his teaching.

In summary to determine if the level of self-efficacy has influenced how Participant 2 has applied the knowledge gained through both formal and informal staff development, the overall scores for the online survey were compared. From Participant 2's perspective, overall he is neither confident nor unconfident in using e-learning tools and methods in his teaching. This is in part explained by the lack of opportunity he has had to introduce eLearning tools and methods in his current school/department. Where needed he has been able to master eLearning tools, and his confidence level has risen since his experiences teaching offshore. This is not surprising given that Participant 2 had the ability to manage this new situation as he had demonstrated personal characteristics congruent with high self-efficacy for learning new software. Participant 2 expects problems, but he does utilise others for assistance and persists until the technology works correctly. These characteristics of self-efficacy assist him to be confident in his ability to incorporate eLearning into his traditional courses, and this was demonstrated in his discussion with the interviewer of the new images he is creating for new courses to be offered next year.

4.2 - Participant 13

Participant 13 has been a lecturer in the subject of design for seven years, and has utilised eLearning tools for three years. In the online survey Participant 13 stated that he was confident in using technology to support his learning, believing that the use of eLearning tools enhanced his teaching. He is at ease learning about computer technology and enjoys using the tools. Participant 13 has a high level of self-efficacy.

The first question to consider is how Participant 13's experiences of formal or informal staff development have contributed to his high level of self-efficacy. An analysis of Participant 13's online survey showed that he has engaged in minimal formal staff development. This finding was supported in the interview where Participant 13 described the formal staff development he had completed to date. Participant 13 has attended one introductory course on Blackboard in his own institution and several courses on specialist software at another institution. While Participant 13 found the introductory workshop helpful, it would appear that the type of school (creative arts) in which he teaches has contributed more to his learning. This is because in this school, using technology is part of the student learning.

Participant 13 described a number of informal staff development opportunities that had contributed to his learning. He found it helpful to attend workshops/seminars by visiting experts as he felt these promoted the concept of eLearning and that these helped people to feel more comfortable with the possibilities offered through eLearning. Participant 13 also listed other opportunities such as observations of others' online courses, general internet use, exploration of software and involvement in projects, as well as self-learning.
The informal opportunities allowed Participant 13 to see what was possible and to consider what he could do in his own courses. He stated that for him the best way of learning was to look at what had been done already by others. Participant 13 also talked about the learning that occurred from observing what other lecturers in his design school were doing. He described this as "hi-tech stuff" which was developed by individuals to overcome some of the limitations they had found in Blackboard. As other participants had stated, time was of the essence and Participant 13 felt that he missed

opportunities to expand his thinking because he didn't have time to look at what others were doing as much as he would like *"I tend to look for the easy way out where I can. I'd certainly like to go into situations where you could probably push more boundaries than what I've done and I just simply don't do it due to time limit...it's just easier and so you do it just because of the time restrictions imposed.* Participant 13 noted that much of his learning had occurred in weekends and holidays.

It would appear that most of Participant 13's learning has come through informal staff development, and from his interview that most of his learning has come through his own efforts. This fits not only with a high personal self-efficacy but also a high efficacy score in relation to the setting up a course for online delivery. Participant 13 rated himself as being either confident or extremely confident, especially if he had someone to help him get started and if he had a lot of time to complete the project. Interestingly, despite stating that he was self-taught, he also circled the response that he would be extremely confident if he had someone there to give him step by step instructions. This may refer to his response in the interview that he would find it helpful to have an eLearning unit in his institution with experts that would build the resources for him. He said *"I just don't have time to fix things myself even if I know how to do it. I've got better things to do ....its like taking your car to a mechanic"*.

Linked with his high level of confidence, Participant 13 scored highly on a number of characteristics that fit with being self-taught and his chosen learning strategies of utilising a trial and error approach, applying knowledge to a specific scenario, accessing resources, communicating and observing others and undertaking a tutorial. In learning new software, Participant 13 prefers to try and persist on his own, and to put a lot of effort to both understand what needs to happen and then to get it right. Participant 13 appears to have a high frustration tolerance which enables him to persevere until he feels confident with the software. Participant 13 also stated that he was not worried about making mistakes when learning how to use new technologies. Participant 13 describes himself as a risk-taker and would like to be more innovative, however consistent with what other participants also stated, time limitations mean that he often falls back on simpler or more traditional solutions. He sees others in his school being more creative or innovative, but cites time as the biggest restraint for him.

It is difficult to determine from either Participant 13's responses to the questionnaire or his interview as to whether he has engaged in any professional development that has focused specifically on the use of metacognitive strategies. Additionally, he had not used eLearning tools such as e-journals, e-portfolios or blogs, tools often associated with reflection and metacognition. Therefore it is not possible to determine whether metacognitive strategies have had a direct effect on the Participant 13's self-efficacy levels. However it does appear that Participant 13's high level of self-efficacy has enabled him to experiment with what he could develop for his students. This in itself points to a certain level of adaptability when learning about technology, and the use of strategies which would be part of a "metacognitive computer learning process" (Phelps, 2002). Additionally, Participant 13 also scored a high level of efficacy on his ability to solve problems, and it is known that metacognitive processes are required for problem-solving (Phelps, 2002).

A number of factors appear to have contributed to Participant 13's high levels of confidence in learning software, in putting a course online and his overall self-efficacy. Participant 13 is aware of what enables his learning – informal staff development appears to be of most value to him. Participant 13 is in a school/department that teaches

creative arts and this knowledge flows through to the design of learning environments for eLearning. As Participant 13 also appears to have been successful in what he has developed, he is sure of which learning strategies work for him. An awareness of how one learns and the level of capability is a key part of metacognition. As stated in his interview *"it's just a matter of playing through the programme and working out what you need when you need it really"*.

4.3 - Participant 76

Participant 76 has taught for 11 years, and at the time of completing the questionnaire and interview was about to commence her first online course, which would constitute 50% of her workload. Participant 76 stated that she was not confident in using eLearning tools and methods in her teaching. She wrote *"I can see the potential for e-learning, and have a vision of how I would like to do it and where I'd like to take it but my frustration with my technical capability, and the potential time this involves is a real disincentive to bringing more papers online"*.

In the follow up interview, Participant 76 explained that she had prepared her first online course with the assistance of support staff at her institution. However, it was not due to start until the second semester and she expressed some apprehensiveness about the management of the course as she had not taught this way before *"...I don't feel technically competent, really there is that concern that I hope this is going to work alright"*.

Participant 76's lack of confidence in her ability to teach online may be linked to the fact that although she had engaged with some formal staff development, she had no experience as an eTeacher. Participant 76 has completed five online courses on general computing instruction as well as several courses in online learning pedagogy, which were delivered in a mixture of online as well as face to face methods. Some of these courses were part of an 'in-house' certificate in eLearning. Participant 76 noted that while she did gain some skills in using a Learning Management System as part of the eLearning certificate, she needed also to learn more than just the technical skills *"...why do e-teaching, and what works and what doesn't work.. and they covered a bit of that, as well as the specific techniques of doing it"*. It is therefore not surprising that Participant 76 rated herself as being unconfident in her ability to teach well in a course, or that learning to be an eTeacher has not been easy for her. She was also ambivalent about her feelings in relation to enjoying using eLearning tools, or around her feelings about making mistakes when using computer technologies. Participant 76 was also unsure about the impact that computer technology would have on her teaching. She did believe that using eLearning tools would enhance her teaching, and that she felt at ease learning about computer technologies. Having a course developed, but not yet at the point of delivering may also explain some of Participant 76's ambivalent responses. Overall she has high self-efficacy, but there are areas of specific concern for her.

Participant 76 selected four means of informal staff development which included general internet use, accessing resources, discussion with peers and being part of email lists. Being part of an email list (web users) had been helpful as she had been able to see the issues that had occurred at the beginning of the first semester in other courses *"I was aware of all this happening....but I didn't actually have to deal with it myself, but it does make you apprehensive about what might happen this semester. I have looked at things and attempted to change some of the systems...so that it doesn't happen again...and if something does crash, it gets dealt with quicker this time"*.

Participant 76 is at an early stage of adopting eLearning and it is not surprising to see that she rated herself as very unconfident in the use of Learning Management Systems or in placing material online and creating web pages. She included other tools but also ranked herself as unconfident in using these. This lack of confidence is possibly linked to the fact that Participant 76 is unfamiliar with using the tools for teaching. Participant 76 ranked herself more highly on Powerpoint and email – presumably tools she is using regularly in her face to face teaching.

When asked about how confident she would feel in developing an online course, Participant 76 was clear that she would only be confident if she had someone to call on for help, if someone else had helped her get started and if she had a lot of time to complete the project, and if there was someone there to give her step by step instructions. Participant 76 scored a low level of self-efficacy for setting up a course due to her need to rely on others to assist her. This has been her actual experience in her school/department where others had put her course online. *"I struggle*[d] *with it more with the HTML editors and doing our own web pages…I found that really frustrating because I couldn't get stuff to go where I wanted it to go"*. Participant 76 was clear that putting her course online was time intensive and that it was better to have someone to come along and set up her course leaving her more time to develop the actual content of the course as well as manage her teaching and research, however her self-efficacy for setting up a course was low as a result. *".. if there is someone who can do it more effectively, then maybe that would be helpful to have a person who could do that…then you just manage it…its not quite such a big task"*.

Participant 76's approach to drawing on support for the technical side of developing an online course was represented in her responses to how she feels when she is learning new software. Participant 76 expects to experience problems, and to doubt her ability to solve problems that may arise resulting in her needing to ask others for help. Participant 76 will persist and put a lot of effort into getting it right, and to try and understand what to do. This was evident in her choice of learning strategies when she talked about how she would prefer to have someone show her how to do things, but that she will also consult online help, and complete online tutorials where these are available *"I like to work through the stuff myself, but its good to have …the guidance there from someone who knows what they're doing .. at the same time"*. Participant 76 was clear that having insufficient support, did affect her for example, *"with my limited experience I have found mounting material on the web both time consuming and frustrating, fears which are compounded by a lack of assistance and ...* [not knowing] *who deals with what"*.

Has formal and/or informal staff development for Participant 76 increased her self-efficacy? It would appear that Participant 76 is aware of how she learns best, and goes about aiming to have her needs met. In developing her first online course, she was aware of the need to explore pedagogical issues of online learning, but felt that this was not well addressed in the 'inhouse' certificate course that she completed. When asked if she could source this learning outside of the institution, Participant 76 was clear that this would be difficult as time, as noted by the other participants, was limited. She had many demands on her time: *"It's managing the time you have available to do what you need to do and to get some research done"*. Participant 76 was also apprehensive as although she had been supported to put her course online, she was yet to teach the course and was unsure of the problems she might have to face. This made her apprehensive especially as she felt unsure about the support she could access once the course was underway.

It is difficult to know whether the certificate she had completed had included metacognitive strategies, but as stated earlier, Participant 76 was clear about the types of learning strategies that worked well for her. From her descriptions and ratings on the questionnaire, it is clear that she needs 'just-in-time' support, having someone available to assist her in problem-solving issues as they arise. Also of importance was the ability to 'see' what other staff had developed: *"I think it would be brilliant to be able to log into other people's courses, but just to see what's been done, and how they've been managed …being able to draw on other lecturers who have done that… would be really really helpful"*. Participant 76 was aware of her knowledge gaps in relation to pedagogy, but had not been able to find time to address these. She was also concerned about the future. The support to develop her course appeared to be something that occurred only once *"the worry is what happens in the future, when it gets updated, and again that's not clear whether they'll do yearly updates, or who will do them …sill I have to go and get some more skills to be able to do that?"*

Participant 76 is a new user of eLearning tools with identifiable knowledge and skill gaps, and no experience of eTeaching. She has undergone some formal staff development in the form of a qualification and short courses, and engaged with some informal staff development actitivites in preparation for eTeaching. Participant 76 could be classified as someone in the late majority, or positioned between the examiner and modifier categories in relation to her adoption of eLearning (Mitchell, Clayton, Gower, Barr and Bright, 2005). Overall, Participant 76 has low self-efficacy in relation to online learning, but does score high self-efficacy for the personal characteristics needed for eLearning: *"And so until I've done it the once, I'm not going to feel totally confident about how this is going to go. Because it is unknown territory for me and that's probably simply because it is new. And it involves me doing stuff that I haven't done before…"*

In light of these characteristics, it is very likely that Participant 76 will continue to develop her competency and capability for eLearning, the outcome of which will depend on a range of factors that may inhibit or motivate her progress.

4.4 - Participant 91

Participant 91 has been an eTeacher for eight years of her 30 years teaching. Unlike the other participants selected for the case studies, Participant 91's teaching in 2004 and 2005 is 100% online. It is therefore not surprising that Participant 91 described herself in her questionnaire as *"quite confident in what I know and use"*, giving herself a high rating for her overall confidence in the use of eLearning tools and methods in her teaching. Participant 91 is confident in her ability to teach well in courses using computer technology, and is at ease learning about computer technology. She strongly agrees with the statement that eLearning tools enhances her teaching and she finds learning how to be an eTeacher easy. Given her overall high self-efficacy about the use of computer technology in teaching it was interesting to note that Participant 91 was neutral in relation to the statements about the impact of technology on her teaching and anxiety in the use of eLearning tools. This statement from Participant 91's questionnaire provides some clarification – *"I am well aware there are more options for me to explore but I am cautious in my approach"*.

Given Participant 91's high level of self-efficacy in the use of computer technologies, and the number of years she has been an eTeacher it is interesting to consider how her

experiences of formal and informal staff development may have contributed to her levels of confidence. Participant 91 has completed a certificate in online learning from an international institution. She has also attended 10 courses in face to face mode from her own institution that covered both technical skills and pedagogical knowledge, and one course focused on pedagogical knowledge from outside her institution. It was the external course that Participant 91 completed first with the intention to prepare for developing her institution's first online course eight years ago. *"So I took a course from another institution…to learn how to be an online teacher really and then I was an online student and that was a really valuable experience. You find out the frustrations and what have you, and that things that kinda, yeah, I suppose I was anxious a bit then and a bit nervous about it"*. Participant 91 stated that this first course helped set her up for both developing the first online course in her institution and also for supporting other people to teach online.

Along with her years of experience teaching online, another factor that has potentially influenced Participant 91's confidence in eTeaching is her strong identification with being a distance educator. Participant 91 stated that she has been a distance educator from way back, and before that *"way, way back after finishing teachers college in those days as it was, I pretty soon became a distance student"*. She talked about being committed to distance education and making a conscious choice to teach distance students, this commitment is evident in Participant 91's statement *"I have always felt pretty at ease with the idea that I could learn by distance and that other people can, I mean the technology has come along and made a huge impact on that"*. This quote from Participant 91 illustrates one of the metacognitive constructs identified by Phelps, Ellis and Hase (2001) which is positive attitudes and interest. Participant 91 said *"you are talking to a convert really as I say who is committed to this* [online learning]*"*.

Participant 91 has also taken the opportunity to attend workshops and seminars offered by the training and development unit of her institution. Participant 91 finds these of interest and attends as she finds these help to keep her up to date. However, she is also motivated to develop her knowledge of what is available, as Participant 91 is not only an eTeacher but also has overall responsibility for several undergraduate programmes in her school/department. Interestingly she sees this as being *"in a privileged position…you have to keep in touch and you have to know what's available, even if you're not using it personally yourself"*.

Attendance at these formal staff development opportunities, along with ongoing use in her 100% distance based courses would appear to have contributed to Participant 91's confidence in the use of a few (when compared to other participants) eLearning tools. The tools that Participant 91 ranked herself as confident to use were a Learning Management System, text based information or material online, and Discussion Boards. While this may appear to be few, it was clear that this was all that was needed for the type of learning that Participant 91 wanted for her postgraduate courses *"I have decided at the moment …to concentrate on building an online community and engendering discussion and participation. I use the tools that allow me to do that"*. She went on to say that course readings were not put online as *"it's something I personally feel really strongly about and won't do"*. Participant 91 has considered developing multimedia to support the print based resources but stated that there were probably several factors that had prevented her from doing this. The first was that the postgraduate courses were new and would continue to be developed over time. As with other participants time is a factor which impinges on the ability of the participant to develop new teaching resources. Participant 91 was also clear that technology was there to support the

students learning, as she went on to say *"there is not place at the moment that is saying to me I need to add something like that in those courses"*. It was clear that Participant 91 in making this comment was also stating that with her understandings of pedagogy, it is this knowledge that drives the design and development of her courses rather than what tools are available for the students to use.

Informal staff development would also appear to have contributed to Participant 91's high self-efficacy scores. Participant 91 listed informal staff development as conferences, support from friends/whanau, observations of others' online courses and discussion with peers. Participant 91 also utilised working with early adopters/peers and involvement with projects as other types of informal staff development to further develop her knowledge and skills. This was evident in her interview when she described how she worked with a peer to develop the first online course eight years ago *"...there was two of us ...the other person was much more skilled in the use of computer base* [sic] *sort of technology ...we actually had to start before that by using email lists...and then we moved into ...*[a proprietary Learning Management System]*"*

Participant 91's awareness of her lack of technical skills appears to underpin her low confidence rating in relation to starting a new online course. Participant 91 would only feel confident if she has assistance from someone else to get her started, to call on if help is needed, and to provide step by step instructions. This need for technical assistance also came through in the interview *"I don't have strong technological skills. I've not got any kind of computer background at all and I've not fascinated by how computers work and I don't actually want to now and I don't want to spend my time playing around…I'm not the least bit interested in that..*

It would appear that most of Participant 91's learning has come equally through formal and informal staff development, along with a number of years experience. Participant 91 is clear that she has a sound understanding of pedagogy and she utilises this well to plan her courses. She is interested in knowing what is technologically possible but is clear that this is not her field of her expertise, utilising the technical experts to support her *"..I do believe that if I really want to do something then I have the support to make it happen"*.

This statement was supported by Participant 91's low ranking on her confidence in learning new software. Participant 91 expects to experience problems and to need to ask others for help straight away. It is unlike her to spend extra time trying to understand what to do, preferring to utilise support immediately. Hence it is not surprising that her confidence to build courses is low, but once they are developed she is confident to use the technology to support her students' learning, and will put a lot of effort into getting it right. Knowing who can help, came through clearly in Participant 91's choice of learning strategies in her questionnaire. Participant 91 stated that she does use a trial and error approach, but she would also communicate with others, see help from a mentor and observe others. She also likes to engage in staff development activities.

Finally Participant 91 did not openly state whether the use of metacognitive strategies had an effect on her self-efficacy levels. It was not clear whether any of the formal or informal staff development she has completed has focussed on metacognitive strategies. However, like Participant 13, Participant 91 clearly understood how she learnt best and in what areas she learnt best. Participant 91 was clear that she did not need to become a technological expert in order to utilise eLearning. However she was confident in her

knowledge of pedagogy and how to utilise this to design an online course. Participant 91 was positive about the value of computer technology to support the learning of her students, and has continued to use eLearning to support the learning of distance students. She is definitely an early adopter and has experimented, but this has occurred only because she had the technical support she required. As Phelps, Hase and Ellis (2005) noted, computer capability is less about technical knowledge and more about having a sound ability to learn. Participant 91 has applied her knowledge of pedagogy but has made a conscious decision not to develop her technical knowledge. Although Participant 91 appears to have lower confidence for learning new tools, and for setting up a course for online delivery, she clearly is confident in her use of eLearning to support her students learning, and is aware of the possibilities that the technology can offer her.

4.5 - Participant 49

Participant 49 is an example of a lecturer with a number of years teaching both in traditional ways (14 years) and eTeaching (four years). Participant 49 teaches educational graduate students using fully online courses that include teachers studying from elsewhere in the world. Participant 49 is extremely confident using eLearning tools and methods stating that she believes it has "great scope for thoughtful, interactive ongoing discussion and deep thinking – [allowing for] co-construction of ideas". Participant 49's overall efficacy score in relation to her ability to use technology to support eLearning was very high.

The first question to consider is how Participant 49's experiences of eLearning and high levels of self-efficacy relate to the type of staff development she has engaged in? Like Participant 13, Participant 49 has engaged in a small amount of formal staff development. In her own institution, Participant 49 has engaged in face-to-face general computing instruction courses, and one online teaching/learning course that had a focus on technical skills. Additionally, she took three courses from other institutions, and these had a focus on pedagogical aspects of online teaching/learning. In her interview Participant 49 was very clear that she did not find formal staff development that useful ".. going to a course , sitting at all these desks, I don't like that". It was clear that this was not a useful way for Participant 49 to gain knowledge and skills related to eLearning. She has found the courses useful only in that they expand her ideas of what could be done. The reasons stated by Participant 49 were because she found it difficult to retain what she has learnt at a course unless she could practice the skills, and as she couldn't easily access someone for assistance, tended not to put the learning from courses in to practice. By contrast, Participant 49 found the courses on online pedagogy very useful.

This is not a surprising outcome given that Participant 49 was clear about how she utilised online learning to enable the learning of her students. Participant 49 aimed to develop her online courses to be as inclusive as possible. A guiding principle for her was that the online component of the course needed to be simplistic to ensure that students could easily get to the information, to open this and that was quick to download. "What I want is simple and inclusive".

Participant 49 has focused on gaining the learning she needed through informal staff development. For Participant 49 conferences were very important as they exposed her to what others are doing and "sort of expands your horizons". Participant 49 stated that she found conferences useful as the presenters covered a range of topics and she could

select the presentations that had a pedagogical focus, rather than those where people showed others how to use the software. Participant 49 also values conference attendance as participants and presenters are passionate about the topic which is motivating. Presentations at the institution where she works tend to be less useful as some of the people attending can be negative about the potential applications. "You need to get out in a body of people who are enthusiastic about and can show what they are doing". Participant 49 goes on to say "doing it in a forum with someone to walk you through the steps doesn't excite enthusiasm. It gives you some tools…" family member

Similar to Participant 2, Participant 49 also relied on a member of her family for support. In Participant 49's case, she was clear that without that support she would not have been able to do as much as she had, as she initially felt anxious when developing her first online course. "I would never have followed this through without family help". Participant 49 describes how conference attendance exposes her to a range of ideas, which she then discusses with her family member and together they try and recreate the ideas she had seen for her own online courses. Other strategies Participant 49 uses include communicating with existing practitioners, accessing web-based resources, apply the method in a real situation, and observing someone else.

Overall, Participant 49 was clear that there were two types of staff development that worked well for her. These were attending conferences, selecting ideas to discuss with her relative and trialling these within the Blackboard system. It could be surmised that it is through this process that Participant 49's confidence has grown given her early anxieties about developing online courses, and therefore her capability was more highly developed as a result.

The second set of questions relates to how the use of metacognitive strategies have affected the self-efficacy levels of Participant 49. It was not clear whether Participant 49 has explicitly utilised metacognitive strategies to further her knowledge and skills for eTeaching. There was evidence, however, to suggest that Participant 49 was using a metacognitive approach to her own eLearning development. She had identified what she needed to learn so she could teach in the way she had chosen, and she had set up her own support system, and put a lot of thought in to finding and using strategies which suited her needs. For example, Participant 49 was clear that she didn't have a good understanding of the technological aspects of online learning, in fact, preferring to leave this side of her course to her family member who supported and mentored her. Participant 49 was clearly interested in the pedagogical aspects of online learning – how she could ensure good learning for her students which meant ensuring that the website was inclusive of all, and simplistic. Participant 49 was also clear that she wanted to retain the control of the development of the online learning environment. Just as she wouldn't expect someone to come in and arrange her classroom for her, she didn't want outsiders arranging her online learning environment. Participant 49 stated that it was her responsibility to design the environment, and to source people to assist her with the technological aspects that she is less interested in. I like to work with an expert in computer technology who can help me put my ideas into practice and who can predict the consequences of certain design features"

Given Participant 49's clear focus it is not surprising that she has scored highly on a number of the questions in the questionnaire. In Participant 49's case, it would appear her high level of self-efficacy has influenced how she approaches the development and delivery of her online courses. Participant 49 had a high efficacy in relation to her confidence to use computer technology in her teaching. She was not anxious about

using eLearning, and strongly agreed that she enjoys using eLearning tools, and that these in fact enhance her teaching. As she has designed her online courses herself, based on clear principles and sound pedagogical theory, it is not surprising that she feels confident to teach well in a course that utilises computer technology.

This confidence is evident in her use of eLearning tools. Participant 49 does not use a wide range of eLearning tools (in line with her notion of simplicity) but she stated that she was very confident or extremely confident with those she did use. These included Blackboard, text-based information, discussion boards, chats, email, teleconferences and video streaming. It would appear because she is confident in the use of these tools, she is highly confident in her ability to set up a course for online delivery. As with other participants, time to complete the project was considered to be important, as was the ability to contact someone else for assistance if she got stuck. This was congruent with Participant 49's response to the section which asked for her characteristic responses to the learning of new software in that it was most like her to ask others for help (they need to share her educational philosophy), and to put a lot of effort into getting it right. Participant 49 was likely to persevere, and she did not expect to experience many problems. It would appear that Participant 49's experiences of eLearning over a number of years with a mentor beside her available when she needed help, has shaped how she develops her online courses, and that because these have been successful she has a high level of self-efficacy and capability for eTeaching.

4.6 - Participant 81

Participant 81 has also taught for a number of years (25), and stated that he had 10 years experience in eTeaching. Participant is in a unique role of having both a senior academic/administrative position within his school/department as well as continuing to teach one course a year. This course (which he is offering for the second time this year) is delivered in mixed mode alternating between face to face classes and online delivery. Participant 81 was clear that he did not feel well prepared to be an eTeacher, but because of his position, he needed to become an eTeacher: *"...partly because I* [needed] *some sense of what was involved and partly because… if you're going to ask the troops to go to battle then you need to be prepared to go to battle yourself"*. Despite this being his second year of using mixed mode teaching, Participant 81 still rated himself overall as not being confident in using eLearning tools and methods in his teaching.

The reasons for Participant 81's overall low rating become more apparent in his interview. Participant 81 stated *"Last year is my first year I'd done it* [offer mixed mode course] *and I was kind of fumbling with it myself to some extent particularly earlier on... but got more fluent with it as time went on.."*. He went on to state that one of the key reasons for picking mixed mode was because he was very unsure of how it was going to work as it was all new to him: *"I wasn't absolutely sure how well it would work, if it would work at all. And so I've got a fall back if things don't work.."*.

Participant 81's low rating did not appear to fit with his self-efficacy in relation to eTeaching. Participant 81 rated himself as being very confident to teach well and confident in learning to use computer technology. This fitted with the fact that he was not worried about making mistakes when using computer technologies, and felt that eLearning tools enhance his learning. However, Participant 81 presents a contrasting picture as he was also concerned about the impact of technology on his teaching, and was anxious about using eLearning tools. He also felt uncomfortable about using eLearning methods, and did not necessarily enjoy using eLearning tools. When

questioned about this apparent confusion in his interview Participant 81 sated that he was fairly comfortable with the technical skills required to develop his website using the Learning Management System, although he clearly stated that he *"wouldn't pretend to be a whiz-kid at it by any stretch of the imagination"*. Participant 81's concerns occurred because he felt that he still had a lot to learn especially how to use eLearning most effectively… *"as a learning tool"*. The question to investigate in relation to Participant 81's overall self-efficacy is has his high self-efficacy, but lack of knowledge about pedagogy been influenced by the type of staff development he has engaged in?

Unlike the other participants selected for indepth case study, Participant 81 has not completed any qualifications in eLearning. He has attended both face to face and one on one courses to develop his technical knowledge of the Learning Management System used in his institution. Participant 81 has completed fewer courses on pedagogy – one of these was face to face, the other three were with one on one instruction. It would appear from Participant 81's interview that one on one instruction is via the institutional 'expert' person using either phone or face to face meetings. Interestingly, Participant 81 has only been an online student for general computing instruction, with the majority of his formal learning being in this area of technical skills.

It would appear that Participant 81's confidence is low due to the lack of formal staff development that he has engaged in. He rated himself as low in confidence for any eLearning tools specific to a Learning Management System ie discussion board, chats or quizzes, and much higher in the tools used regularly for his role or face to face teaching such as Powerpoint and email. Overall his confidence was low in the use of eLearning tools, with a corresponding match in how he would feel about setting up an online course. Participant 81 was confident that he could so if he had time to complete the project and extremely confident if there was someone to give him step by step instructions. It is not surprising that he rated himself as not confident if there was no one around to tell him what to do or unconfident if he only had an instruction manual for reference.

Participant 81 was clear as to the reasons that had inhibited his engagement in formal staff development. While being aware that these courses existed, *"I haven't done it only because I haven't had time"*. He was also clear that he wanted to complete any formal courses offered by his institution before completing anything external. It was important to him to explore more fully what was offered internally.

In line with his desire to ensure that he has explored all that is offered internally, informal learning has been very important for Participant 91 with a key strategy being to source others either within the school/department or within the institution *"one or two of my colleagues in the school here* [*who*] *are much more adept at it than I am and I've used one or two of them sort of dealing with any sort of immediate kind of issues..."*. Accessing peers or more knowledgeable others appears to a key informal staff development strategy for Participant 81. He identified having accessed early adopters, peers, discussion with peers, friends and whanau, email lists and drop in sessions as the informal professional development that he had engaged in along with personal resources, newsletters and generally internet use. In his survey Participant 81 noted that *"time with institutional advisor has been invaluable. I have combined that with discussion with an expert colleague and with gathering resources"*. Informal learning was valuable as it provided him with validation i.e. that what he was doing was the right way. Informal learning also provided him not only with additional ideas of how to

organise learning for the students, but also enabled informal links into other kinds of sources and resources.

In his interview Participant 81 noted that he had collected a number of resources the previous year and these had been reasonably useful for ideas and for problem solving. He went on to say that *"if we're really serious about the elearning.. it needs probably a more active kind of focus on a number of different levels"*. In his interview, Participant 81 was able to define what the different levels meant to him. The first level is having an expert within the institution to access as a starting point. The second is having a range of teaching resources which he can access, and the third being that of support as and when required *"when you are in the middle of something, where-do-I-go-for somebody to give me some help...who can I talk to who'd already be doing these things.. that knows their way around the territory.."*. Participant 81 went on to say that this could be either formally in that the person has a formal role to provide this support, or informal being colleagues who he *"knows uses the stuff and know their way around it"*. Participant 81 went on to say that these strategies had worked well for him to get the course underway but that he was still aware that he needed to develop his knowledge of the pedagogy that would enable good course design. Participant 81 had attended a seminar or workshop on this topic which he had found useful to both challenge and focus his thinking. However, the workshop in itself was not quite enough with Participant 81 going on to state that it would have been good to attend a workshop where staff would come together with *"others who are also doing it, where you're thinking about some of the sort of pedagogical dimensions"*. This description is suggestive of a community of practice.

The second question to ask in this case study is has the informal and formal staff development that Participant 81 has engaged in had a focus on metacognitive strategies. As with the other participants, it would appear that Participant 81 has not considered whether metacognitive strategies could be used to enable his learning about eTeaching. Participant 81 is clear that he expects to experience problems and to doubt his ability to problem solve. However, he will persevere and spend extra time trying to understand what to do, asking others for help where he has been unable to solve the problem himself. He is not confident to develop new courses unless he has others he can call to assist him, which links with his lack of confidence in utilising eLearning tools that are part of a Learning Management System. Despite this lack of confidence he is overall confident in his ability to manage the technical aspects of eLearning, but is aware the he is lacking knowledge of pedagogy. It is this awareness that influences his self-efficacy, and while Participant 81 has a number of useful informal learning strategies, he is aware that these have not helped him to feel more confident about pedagogy. He could enrol in formal courses to address this lack of knowledge but cites a lack of time, but also acknowledges that having an institutional support person has meant that he doesn't need to address his knowledge gap immediately.

The trends that have emerged in these six individual profiles are discussed in more depth in Chapter Six which has a focus on self-efficacy and staff development informed by the data collected from all interviews, the questionnaire and the focus groups.

Chapter Five: Case Studies Of Efficacy And Staff Development

Data collected from interviews, the questionnaire and focus groups has provided information for this case study. The case study is representative of the group of participants sampled. Several themes were investigated in line with the research questions and others emerged from the content analysis. There are six main themes and several sub-themes relating to eLearning and eTeaching presented in the case study:

1. Self-efficacy for eLearning
   - Self-efficacy trends

2. eLearning tools and methods
   - User confidence
   - User preparedness
   - Institutional support
   - Challenge and how handled
   - Challenge and possible help
   - Summary

3. Staff development.
   - Formal
   - Informal
   - Summary

4. Learning strategies for teachers.
   - User experience
   - Issues/problems
   - Summary

5. Application of staff development and eTeaching methods
   - Types of Courses
   - Limitations
   - Application of Staff Development
   - eTeaching
   - Summary

6. Suggestions from participants

5.1 Self-efficacy for eLearning

In this section a number of areas relating to self-efficacy trends for eLearning will be highlighted. Statistical findings from the analysis of the questionnaire will be included where necessary to endorse the trends being reported.

Self-efficacy trends

The majority of participants in the study (70%) rated themselves as having high or very high confidence for using eLearning tools and methods in their teaching. On average participants had been eTeaching for 3.5 years (median 2 yrs), therefore, overall the participants who were sampled had some experience and had tried a range of methods. Four participants had 10 – 20 years eTeaching experience. Based on Bandura's (1994) work; people with high self-efficacy i.e. high belief in their capabilities will approach difficult tasks with confidence.

Statistical measurements of correlation found no relationship between the number of years participants had been eTeaching, and the efficacy score for overall confidence with eLearning tools and methods, but there was a correlation ($r = 0.358$, $p = 0.001$) between the percentage of courses participants had taught in 2004 using eLearning methods, and overall efficacy. The latter result indicates that previous experience with eTeaching may influence self-efficacy, however further investigation of this factor is

needed. The information provided in the case study will reveal how this group of participants managed the challenges imposed by eLearning.

Four participants stated they had never used eLearning tools and methods at all, so they didn't know whether they would be enjoyable or easy to use or how confident they would be. The following quote illustrates the experience of one participant.

- A lot of these are things I have no experience of even as a student, so the prospect of using them as teacher is not even on the horizon.

Thirteen people indicated on the questionnaire that they had no experience eTeaching, however, six of them had undertaken or were engaged in study using eLearning methods. Two were studying specifically for eLearning qualifications e.g. Graduate Certificate in Applied eLearning, Graduate Diploma in eLearning. This group of thirteen participants had a mean efficacy score of 3.08 for their overall confidence with eLearning tools and methods, compared to 3.8 for all participants in the study. The result reiterates the findings mentioned previously, and suggests that where participants had some experience with eTeaching, their overall confidence for eLearning was greater.

As well as asking participants to indicate their overall confidence with using eLearning Tools and methods, the questionnaire also asked them to respond to a series of questions about the following aspects of self-efficacy.

i. Personal efficacy using computer technology/eLearning tools and methods for teaching.
ii. Confidence using eLearning tools.
iii. Confidence when undertaking a project to set up an online course.
iv. Personal characteristics when learning new software or using eLearning tools and facilities.

The most notable findings from the questionnaire for each aspect will be discussed in the following sections.

i. Personal efficacy for eLearning

Two types of personal efficacy were highlighted in the results. The majority of participants felt at ease learning about computer technologies (83%, mean efficacy score = 4.2), and confident about their ability to teach well using them (77%, mean efficacy score = 4.1). The results also demonstrated that if participants were confident about their ability to teach well in a course that required them to use computer technology, they would also feel they were overall confident in using eLearning tools and methods in their teaching ($r = 0.879, p = 0$). The majority of lecturers participating in this study *did* feel overall confident for eLearning. Additionally, most of the participants neither felt uncomfortable, or anxious when learning computer technologies, they believed eLearning tools enhanced their teaching and enjoyed using the tools (see mean efficacy scores, Table D-1, Appendix D).

What was most interesting, however, was that although most participants felt at ease learning about computer technologies, only 19% of the participants felt that learning to be an eTeacher was easy (mean efficacy score = 2.8), the element of personal efficacy participants had most difficulty with. This result leads to speculation about the reasons participants found it challenging learning to be eTeachers. The information presented further on may help to solve this question.

ii. Confidence using eLearning tools

email was the tool favoured by the majority of participants (82%, mean efficacy score = 4) and Powerpoint was a close second choice (77%, mean efficacy score = 3.7). Interestingly, tools such as text-based material (75%), Discussion Board (62%) and LMS (62%) were ranked 3rd, 4th and 5th respectively regarding the confidence participants had for using the tools.

More sophisticated eLearning tools such as web pages and video streaming were used by 38% (mean efficacy score = 2.1) and 35% (mean efficacy score = 1.3) of the participants.

These results indicate that the majority of the group sampled appear to be using eLearning tools and methods at a reasonably basic level, possibly to match the requirements of the institutions in which they were teaching. More information about this observation may become apparent in the case study as it unfolds.

iii. Confidence setting up an online course

When participants were involved in setting up an online course they were most confident in the following situations: had a lot of time to complete a project (85%, mean efficacy score = 4.3), were able to call someone for help (82%, mean efficacy score = 4.1) and had help getting started (79%, mean efficacy score = 4.1). When given only an instruction manual for support only 43% of the participants felt confident (mean efficacy score = 3.1), and if they had no help as they set up the course, only 36% were confident (mean efficacy score = 2.9).

Hence time and assistance from another person were factors impacting on the confidence of this group of participants when developing an online course. The type of support participants had access to when setting up online courses varied and is discussed further on in the report.

iv. Personal characteristics for eLearning

As previously stated, if individuals believe they can do something (high self-efficacy) they will feel confident in their ability to solve problems. Inevitably, eLearning methods challenge the approaches used in traditional modes of teaching, and require teachers to learn a raft of new skills. The success with which teachers approach the changes brought by eLearning may depend on the characteristics they have for learning new software or using eLearning tools and facilities. In other words, the higher their self-efficacy the easier and more successful the adoption of eLearning may be.
This group of participants had been teaching traditionally for 2 to 45 years (mean=16.8, SD=9.8, median=15), and eTeaching for 0 to 20 years (mean=3.49, SD=4.1, median=2). These figures indicate that this group of participants had a range of experience in both traditional and electronic teaching methods.

Participants in general put a lot of effort into using eLearning tools correctly (83%, mean efficacy score = 4.1) and tended to spend extra time trying to understand what they needed to do (83%, mean efficacy score = 4.0). They were confident in their ability to solve problems (64%, mean efficacy score = 3.6) and were able to persist on their own until the tools or facilities worked correctly (61%, mean efficacy score = 3.6). There was no relationship found, however, between overall efficacy for eLearning and confidence in their ability to solve problems. All these characteristics are indicators that the majority of the participants were confident to tackle the challenges that eLearning

imposed. Further evidence associated with the characteristics of the study group will be described in ensuing sections of the case study.

The following sections refer to the main themes which emerged from analysis of the interview transcripts.

5.2 eLearning Tools and Methods

There were varying reactions to online teaching and learning and technology in general. Some participants believed that using eLearning tools was interesting and promoted active learning especially in classes where students were very "hands on". Others blended face-to-face tutorials with online interaction using a LMS for lecture notes because online notes provided colour and animations which couldn't be achieved in hard copies of lecture notes. Some people had started their eTeaching experience using an LMS whereas others had been early adopters and started with developing their own web pages or by creating videos. Some saw eLearning as a good thing and a challenge, and others were not so welcoming. The following statements depict a range of opinion around eLearning.

Positive

- An exciting challenge that enhances our links to new ways of learning.
- I love online teaching/learning. It has great scope for thoughtful, interactive ongoing discussion and deep thinking - co-construction of ideas
- I have activities and stuff set up that I believe encourage depth of reflection and deeper discussion on the concepts on the papers.
- I love learning about new software etc if it has relevance to my work, my students and teachng programmes....I love the way communications can be opened up internationally this way too.
- eLearning has the potential for good communication between teachers and learners, if the teacher is prepared to do things differently i.e. be willing to learn new ways to 'teach'.
- …in my courses I have decided .. to concentrate on building an online community and engendering discussion and participation …I use the tools that allow me to do that.

Negative

- The little anxiety/discomfort I feel about eTool/method use arises from my more critical stance on the impact and value of technology.
- There are many eLearning tools that I have little experience of at this stage.
- Computers are right up there with divorce or death of a loved one in terms of stress/emotional toll if there are problems.
- With my limited experience I have found mounting material on the web both time consuming and frustration.
- Principle problem is that existing online tools are quite frankly useless and not user friendly.
- …. to think that teaching process orientated subjects which engage the body and seek people to generate more than one correct answer can be done through the computer...I have a real concern for experiencing life totally through a screen and electronic impulses.
- You can only use what your budget allows you to use.

From the questionnaire, efficacy scores for using different eLearning tools were highest for email, PowerPoint, text-based material online, Discussion Board and LMS in that order (Table D-1, Appendix D). This was also reflected in the interviews. A number of people commented about their confidence in using technology.

- Confident with what I have tried, apprehensive with new stuff which carries the risk of a very public whoopsie (and could waste student time).
- I am confident in what I do and willing to learn.
- Depends on the tool/method.
- I feel confident about setting up a course for online delivery as I do now, however if I had to set up a course with a greater expectation of incorporating [other] features, I would have a totally different perspective.
- I am comfortable in using eLearning methods once they have been set up.
- Each time I use a new tool it demystifies the process and I tend to feel more confident, the hardest thing is not knowing everything and what to do if it doesn't work!
- Confident for video, not at all for web.
- I'm like a person that drives a car, you know, I don't know how many CCs it has,…. I know how to turn on the key and drive it…and I'm not interested in the motor, or what kind of petrol it has, or whether it's internal combustion or external combustion…

These comments indicate that although participants were willing to learn, they did have some reservations about using eLearning tools and methods. The following section describes how participants were using Learning Management Systems.

Use of LMS

All six institutions involved in the research study were using a proprietary Learning Management System (LMS) of some kind, either Blackboard or Web-CT, and some were trialling an open source product called Moodle. The majority of participants interviewed were using a LMS for their teaching, and the majority stated they were confident (62%), however, the mean efficacy score of 3 for confidence with using a LMS, indicates some ambivalence .

For some lecturers it was their first time using a LMS, whereas for others they were dealing with changing to another LMS. For many, the LMS was pivotal for their eTeaching, but there were many who used a blended approach (face-to-face and technology) where they combined the use of online methods using an LMS with a variety of other technologies (data projection, CDRom, teleconference, videos). LMS tools were used in a variety of ways, and there were different reactions and opinions associated with using their LMS. Some went all out to learn to use the institutional LMS and others took it slowly. Others felt like they had their "arms twisted" either by students or the institution to use the system. One participant felt that the LMS was nothing more than a way to deliver files. The following statements illustrate the outlook of some participants.

- Some [tools] I have tried and grasped, some I hate, some I have not tried yet.
- I'd love the chance to investigate the stuff that I am not currently using. I do use online assessment and gradebooks. Can be fantastic, but needs to be more integrated with administration tools.

- I would use a quiz as a teaching tool, I think it could be a very effective teaching tool.

Several people commented on an open source LMS called Moodle. In one institution Moodle was being trialled to see if there were benefits over systems such as Blackboard which had expensive licensing. A course was chosen where it wouldn't matter if the LMS didn't work adequately, however, the trial was very useful and indicated that Moodle would be worth considering more closely.

For others, however, the transition to a new LMS was not so smooth and they had difficulty getting used to Moodle. They felt it was a step backwards in light of their skills, as they had to learn new ways of putting things online. Also if a course was "content rich", the discussion features in Moodle were irrelevant. On the other side of the debate, others found it interesting to try out new software such as Moodle, and found Moodle easier to learn to use than Web-CT. Regardless of peoples' perceptions, most were willing to find out more about it.

Other comments related to Blackboard and Web-CT. A small number of people found Blackboard "cumbersome" and others were positive about both types of LMS. The following statements give an overview of opinion.

- Blackboard is not easy to use. You've got to spend a bit of time hunting around it and…it's not as drag and drop as it could be so I've found what I've needed to do to make it work and run the way I want it to… that wouldn't be as easy for other people.
- I currently use Blackboard as a communication tool with students and find this very useful and easy to use.
- Web-CT: gave us everything that we needed to know. …. the ability to see which students were engaging at a deep level and which students weren't and how many people had done more than you knew .

The following section describes some of the specific tools people were using via a LMS.

LMS Tools

LMS were used in many different ways to provide a variety of learning experiences for students. For example, the LMS allowed one lecturer to create a more interesting grammar course, because examples of good and bad grammar could be posted online, and students could work at their own pace. The lecturer thought the LMS was a reasonable compromise even though she had originally wanted to develop a grammar game.

Several LMS tools were used by academic staff at varying levels of confidence (see Figure 5). Some of the tools highlighted in the interviews and questionnaire included: email (82%), discussions (62%), quizzes (50%), chat (50%), electronic journaling (21%), as well as grades, and links to websites which helped students with their assignments, and to find more information on the topics under study. One participant commented that the LMS chat facility was not particularly intuitive to use. Although 50% used quizzes and 50% used chat, the mean efficacy score for these tools was low at 2.6 and 2.9 respectively, indicating that most participants were not confident using these tools, compared to high efficacy scores for Discussion Board and email, 3.2 and 4, respectively. There were different aspects of the LMS which appealed to people. For

example, one lecturer liked being able to track how often students had entered in to specific areas, and how long they'd spent there, because it gave an overview of how they were using the eLearning tools and how they learned using them.

As well as tools, a range of learning materials and strategies were mentioned. These included text-based resources which 75% of the study group were confident using such as "PDF handouts and tutorials, guides, lectures, questionnaires", as well as resources in a digital format e.g. online newsletter and readings to supplement library resources. PowerPoint was used by 82% of the participants and 77% stated they were confident using it. The mean efficacy score for using PowerPoint was 3.7, the second highest for eLearning tools. A comment was made about plans to extend the use of PowerPoint.

- I would like to do Powerpoint with voice-overs in the near future.

Some people used the LMS for students to work on projects together, and to facilitate electronic marking of assignments. Students could send their assignments in and get electronic feedback from the lecturer and Microsoft Word was mentioned as helpful for that. On the other hand, some lecturers did not like having to rely on proprietary products e.g. Microsoft or agree with students having to spend a lot of time downloading files. For example,

- In my own online teaching I aim for inclusiveness. I prefer not to include features that students will need to spend a long time downloading if they have old computers. I also aim for my courses not to depend on or favour students working Microsoft.

Quizzes were regarded as particularly useful enabling students to do work out of class by way of formative assessments. In one case, a lecturer was concerned that the "quiz mentality" i.e. prescriptive or by rote form of learning that quizzes encouraged, would affect how students did in exams at the end of the course because they didn't learn how to think.

Not all lecturers had positive experiences with using a LMS. One lecturer who had put a lot of work during vacation time into developing content and putting it on the proprietary Learning Management System, found that students preferred to access study materials from an institutional network rather than from the web. This was mainly due to the fact that the majority of their lecture material for other courses was on the network, and it was extra hassle to try and access content for one course from the web.

In most cases, however, a LMS facility such as a Discussion Board was popular because it enabled interaction. This tool is described in more detail in the following section.

Discussion Board

Discussion Board facilities were used by 78% of the participants, and the majority were confident using them. People who were interviewed provided several examples of how Discussion Boards were used. In one case, the Discussion Board was used for a planning assignment to ensure that all students were told the same things, and to encourage them to post comments and questions for everyone to see. Some teachers used discussion activities mainly with distance-based post-graduate students, whereas others used them so students could stay in contact with each other and with the lecturer, when in clinical placements e.g. nursing. There was also an example where a guest lecturer, an overseas expert nurse, was invited to interact with students about a paper he had published.

One lecturer really liked using the Discussion Board because she had students who contributed prolifically and in a lot of depth.

- It is a really neat way of building on ideas. Because if you are in a classroom sometimes you forget what the last person said, here it is all up there. And they can take control. I run it so each tutorial has one student leading it…rather than give them a lot of marks for contribution we …try to build .. a community ….

There were other positive comments about using Discussion Boards.

- I use a Discussion Board as, not only a means of keeping in touch, but also as part of their assessment. I expect students to get on there and upload images of where their xxx projects are at, and put some comments about why they've chosen to design things in a certain way, and other students are then able to log on to their threads and put comments and give them feedback as to what's working, what's not working, stuff like that. "
- .. the best thing is when the students post questions, ….a number of responses from different fellow classmates, and quite often they solve the problem themselves and I haven't had to do anything.
- I value the discussion and participation I can engender.
- … students have been very willing and very prepared and very keen to explore what's on offer.

There was one negative comment mentioned which came from a student's perspective.

- "When I finish my shift the last thing I want to do is get online and try and battle with the computer to try and put some reflection on."

Also a revelation from a lecturer who had believed the Discussion Board was working well, only to find out her perceptions were incorrect. The teacher found out by chance that all was not what it seemed:

- They were going through the motions to keep me happy but they weren't particularly learning anything from it.

Additionally there were people who found it hard to find time to facilitate online discussions for on-campus classes and tended not to use them, preferring to retain discussions only for distance students. Generally the facilities provided by a LMS, permitted students to spend more time in a self-directed manner, and to communicate with their lecturer and other students, and ask questions which was regarded as positive overall. As well as LMS tools, participants described a range of other tools they used for teaching and these are outlined in the next section.

Different Tools and Methods

All the tools described in this section were used independent of a LMS, and include: Audio, CDRom, DVD, chat, VHS video, digital video, video conferencing, teleconferencing and data projectors.

Audiotapes were used in a counselling course to send out actual interviews that took place overseas. Also MSN chat, which one lecturer told students was on all the time if they wanted to make contact, however, they rarely did. The use of VHS video was

popular and copies were sent to students to demonstrate skills such as hypnosis, as discussion starters, and to add content, in subjects such as animal behaviour and family therapy. Additionally, several people were experimenting with creating video, some buying their own video equipment so they could demonstrate practical skills to students, and others to address a gap e.g. the use of video clips in e-books for delivery on CDRom or DVD.

As well as VHS video and video clips, interactive class sessions were conducted using video conferencing. In one case, the technology was being used because students might have to use video conferencing in business. By being exposed to the technique as students, they could find out if they really liked using it and found it useful, which they did. Lecturers found they needed to plan differently for using video conferencing and as it was more intuitive to teach with than an LMS.

Another technology in common use was teleconferencing (telephone conferences) which was used for providing tutorial assistance, alongside email and discussion forums, therefore, mirroring a classroom situation. One comment compared eLearning systems to teleconferencing.

- ..[LMS] duplicates most things that I would do apart from a telephone conference where …… I actually like be able to hear somebody speaking, I like to know there's a real person somewhere out there.

Additionally, there were other technologies used in face-to-face classrooms. For example, one lecturer used a data projector to demonstrate a website and got students to use laptops in class to explore the site. This was followed up with a live demonstration of important features and points relating to the site. In another case, scrap booking using a range of media (scanning, voice production, photographs of work) was done to create e-portfolios. Additionally, some lecturers used online activities during face-to-face computing classes. As well as people using technologies which were an adjunct to online tools, there was also a small group of teachers grappling with more sophisticated tools and these are outlined in the next section.

Specialist Software

A number of participants described how they were using specialist software. For example, one participant who used a lot of visual material in e-books, had found some software which allowed an e-book to be compressed down to a small file which could then easily be sent by e-mail and used on a LMS with a reader.

Another type of software called Hot Potatoes was being used to create crossword puzzles, drag and drop activities and activities such as match these phrases, for students to learn health science topics e.g. parts of the body or infectious diseases, as an adjunct to face-to-face classroom activities.

Macromedia Flash, Macromedia Dreamweaver, Inspiration Flowchart, Adobe Photoshop and Director were also being used to add some attractive design and context to LMS content, and to produce manageable and innovative resources. For example, Photo-shop enabled images to be prepared for the web so they were as small as possible. In several cases, however, there was no one to assist with creating web pages, so teachers tended to avoid using them. In one case, the adventurous move taken by one lecturer had not been particularly successful due to a lack of infrastructure.

- I did a bunch of work over a term for a web page last year and then found that the institution does not even have the capability of integrating it on the website. I have not looked any further at learning how to do things.

This comment highlights some of the difficulties people were having when trying out new software. Several people commented that they generally taught themselves, and one referred to getting on with it after receiving "five minute instructions", highlighting that for most people the use of specialist software involved a lot of "self-teaching", which brought with it other issues, such as time and support.

- I would like to know more about animations, but I have a 'funny feeling' that would take a lot of my time to learn about and create.
- I would like the opportunity to be mentored through developing and using more sophisticated eLearning tools.

As well as a wide spectrum of technology and software use, there was also a range of reasons for using eLearning methods. Not only was technology used by some lecturers as an adjunct for face-to-face classes, others used eLearning with distance students, and more information about this aspect of eLearning is covered in the next section.

Distance courses

In the case of distance-based courses, there were different approaches. One person found LMS facilities really useful for post-graduate students who could access information such as lecture notes, websites and questions, and web discussions around "focus questions" worked well for others. For one participant teaching by distance was a new experience and he felt more comfortable transferring traditional classroom practices e.g. lectures to the web. Through the addition of extra touches (audio, video) provided by, for example, Microsoft Producer, the lecturer was able to provide more interesting lectures.

Others used a blended approach to accommodate practical skills. For example, one programme used online resources combined with face-to-face practical sessions at centres of excellence located throughout New Zealand. eLearning was used for the theoretical aspects of the programme and students attended their local centre to undertake the practical elements. The coordinator of the programme found it was complicated trying to get the right balance to ensure students got enough feedback and support. The programme was essentially a practical course with the majority of teaching and learning occurring online. Content was presented as questions and answers and there were projects for the students to get involved with. Even though practical instruction occurred with local artists at the centres, there was some caution expressed. For example,
- We are treading the tight rope if you like …. a practical subject with the majority ..serviced online.

Also, teaching methods were still being experimented with, and the design of one course would probably change. For example, feedback for projects was delayed because they didn't have to hand in their portfolios until they had finished ten projects.

Regardless of the mode of delivery or systems in use, many participants were positive about the benefits of online learning for students.

Benefits of Online Learning

Participants believed that students could get a broader range of information, and web-based systems allowed students to read lecture material in their own time, rather than being restricted to 50 minute lectures. Another benefit was the ability to invite experts to 'talk' to students and to be in email contact, opportunities which couldn't normally happen in any other way because of time differences and costs.

- [Discussion Board] creates more of a community feeling. It definitely opens up lines of communication for students that don't feel comfortable talking in class.
- A really good way of engaging the students and meeting them part way with the technology.
- When it comes to teaching a….course and making material available to students, making grades available … it just makes sense to use it online.

The use of participation and collaboration online was regarded as beneficial for students for several reasons as illustrated by the following quote.

- I wouldn't ask the students to come here because it's very expensive for them, it's difficult for some people to take time out from work, .. often .. people can't come at the time the course is running … so I made a very deliberate decision not to ask for [face-to-face sessions]..

One person was really enthusiastic about the benefits of online learning for students, and another, although frightened about chat, found out it was helpful for students.

- I have so much better access to so much more information, I'm able to take them all over the world so long as I've actually done the preparation... I can actually get them onto sites here there and everywhere... I can show them things that I could never have shown them before, I can get them to have all sorts of experiences.
- They can talk to other people and chat … I was really frightened, but ..… I don't know what it does, it reassures distance students that makes them feel better, makes them feel not alone…. I'm not sure what it does, but it works.

Another teacher, however, thought technology could be an intrusion with regard to learning even though he was very familiar with it, and wanted to use it as fully as possible. These examples illustrate the varying viewpoints and some of the issues facing academic staff entering the world of eLearning. The following section provides an overview of user confidence as portrayed by the teaching staff sampled in this study.

5.2.1 User Confidence

Participants ranged from having very little confidence in either technology per se or in their ability to design online courses and teach using technology, to being very confident overall with eLearning, however, the majority were confident overall. The following comments illustrate the range.

- ..you start talking to your colleagues and they're all saying the same things. We're all struggling at the moment with this online paper and people are quite scared about doing it. You're sitting here hoping you won't have any students which isn't very good for the institutions, is it?
- Technology wise, I have confidence to address the issues. I am less confident at being able to address the educational issues.
- I've still got a lot to learn, I think about how to use it most effectively, as a learning tool.
- Quite confident with what I know and regularly use.
- I don't feel like I've got a sort of full knowledge of how to use the software, I know the bits that I know and then I can just add on the rest.
- I'm really confident on the day-to-day running of the system…. accessing it, putting up the information, orientating the students towards using the discussion, or using the chatroom, that kind of thing. What I'm probably not so confident about is actually some of the design principles behind it.
- I can teach well using this, students love it, I feel as though I get across the information… and it's students collaboration..
- what else makes me feel confident … is just the amount of experience that I've had with it and the fact that I have upskilled myself in areas that I didn't feel that confident in before.
- I'm in control because I've learnt from other people and I get ideas from other people and I know there's always someone behind me if anything goes wrong. So I'm not in isolation using it.

The upskilling that people referred to came from both qualifications and short workshops, and some people liked the idea of doing both, because the latter provided practical advice for everyday use with eLearning and qualifications provided the theoretical foundation. Upskilling was also about trying things out because 'tinkering' and not being frightened of making mistakes helped people to build confidence for computing and appeared to be related in a lot of cases. Some people had no trouble at all with eLearning, but felt neither confident nor unconfident. This was because they were confident with what they were actually doing, but realised they were not that knowledgeable about what was possible, i.e. didn't know what they didn't know and there was always more to learn.

There was no guarantee, however, that people who had set up a course once could do it again confidently, and confidence for some was aided by having a list of instructions and someone to sit in for the first session or so. For others having a comfortable relationship with the support people helped their confidence a great deal, because they weren't scared to say when they didn't know something and needed help. One person thought it was conceited to say she was confident with using eLearning methods as there was still much to learn.

Some people found a team approach very beneficial whether they felt "useless using computers" or not, because being part of a team not only improved confidence but also brought other benefits. For example, one participant who liked following instructions from others, also felt a team approach gave her the opportunity to say, "what would happen if? Why can't we do this? Can we do this?" Also a team approach provided different perspectives and ideas, and people could bring their strengths to the team e.g. design, content expertise.

There was also an example where teachers had learned a lot by visiting other countries to teach and had to use technology as it was the norm there. As a result, they increased their confidence to teach using technology in their courses in New Zealand. In other words, they were more prepared to teach. The following section highlights a theme which came through in the interviews, that of being prepared for eTeaching.

5.2.2 User Preparedness

For some being prepared to be an eTeacher equated to how much preparation they had done towards getting their courses ready for online delivery, their level of experience as an eTeacher and whether they had experience with certain eLearning tools or methods. For example, several people wanted to understand how they could use the LMS better, so they felt better prepared, some wanted to learn how to create animations to enhance their online materials, and one participant mentioned that not being able to understand terminology was a deterrent to feeling prepared. For others it was something they found difficult to express, however most participants were very aware of their strengths and limitations. The following comments illustrate some of these points.

Prepared

- .. my course is up there.. I'm happy it's up there, I can see it, I've checked through all the links, everything is working at the moment….So it's feeling 60% confident…I'm less confident about the management….. how the emailing of the assignments and all that sort of thing is actually going to work in practice… until I've done it the once, I'm not going to feel totally confident about how this is going to go….. it is an unknown territory for me … because it is new. And it involves me doing stuff that I haven't done before.
- I've taught a paper that's completely online. I've taught some hybrid courses and I guess I feel prepared because I've done it before and I wouldn't be fearful of doing either of those again…. When you see what you're doing could be beneficial to people who might not have access to education in any other way, for me that makes me determined to give it a go if that's what we're going to go with.
- Understanding the tool I'm using and understanding why it was made, and how it can encourage the behaviours we want for students…it's not a tool of isolation, it's actually a tool of interaction and that is how I want to use it….understanding that makes me more confident about using it.
- I think I'm well prepared although I probably haven't done any courses in it. I'm one of those people who has an interest in it so I will sit and figure it out.

Unsure or not prepared

- When you talk about video, you know, I'm prepared. Audio, you know, tape recorder, I'm prepared. Writing web pages ... I'm not prepared at all. Now that

I've used [LMS] for a year, you know, I think I know 60% of it. So I'm 60% prepared, to use [LMS].

- I don't feel scared of it or nervous of doing it, but I'm not sure if I'm prepared.
- I don't have strong technological skills. I've not got any kind of computer background at all ..I'm not fascinated by how computers work and I don't actually want to know …I don't want to spend my time playing around …….. I'm not the least bit interested in that.
- I feel woefully unprepared, I mean that's partly my nature, I always feel woefully unprepared for everything and I always think, you know, that sooner or later somebody's going to spot that I'm some huge fraud. Yet when you actually stop and look … no I can't be a fraud because I'm actually trying to do this …. I guess we just all assume that we should be perfect to do things and I haven't been trained.
- I just really enjoy being with students and trying to liaise with them and trying to provide them resources and helping them kind of construct their own knowledge. So I'm not quite sure I know if I feel prepared or what's made me prepared – it's a hard question to answer really. … I feel that I have some skills that help me in my preparation for teaching, but I don't know. It's .. not so straight forward.

Undertaking qualifications in online teaching and learning and workshops helped several feel prepared. They had not only learned new techniques about being an online learner, but had also gained insights about their role as a teacher through working with a skilled facilitator. For example, one lecturer realised after attending a workshop for staff development in eLearning that she didn't have to be a programming expert and graphic designer.

- I should really concentrate on being a data a subject matter expert and yet that has been a compromise because of all the time I have already spent on the technical stuff.

In some cases the level of preparedness for the technological side of eTeaching, impacted on the pedagogical side. For example, staff who didn't understand how the LMS worked tended to use it as an information repository rather than explore the interactive tools. Taking a pedagogical and collaborative approach to eLearning was regarded as really important. One participant believed that teachers needed to look beyond just putting class outlines and lectures onto an LMS and actually think about using different strategies and methods of teaching to engage students who were no longer interacting face-to-face with the lecturer and other students. Working with others as well was important so that people could develop a shared philosophy about how and why they were using eLearning methods. For one lecturer who started teaching online several years ago, the good lead in time and the opportunity to take it step-by-step with a colleague had helped her feel prepared. A comment was also made that using eLearning tools required continual learning and staff development, and over a number of years one would expect to be more prepared even though one might be feeling quite comfortable about it already. And of course, there were those who had access to the tools for eLearning, but were not particularly willing to teach that way, probably because they could not see any advantage over what they were already doing in the classroom.

Other studies have obtained results which indicate that it was not confidence with technology which prevented academics using eLearning tools, but their beliefs that

technology did not improve their teaching (Jacobsen, 1998). There were also a number of comments made about the effect that the level of institutional support had on the adoption of eLearning methods, and these are addressed in the following section.

5.2.3 Institutional Support

There was a mixed bag of opinion about institutional support, ranging from a lack of incentive (time release and funding) and minimal support (technical and staff development) through to excellent support for IT, course development and staff development. One person believed that to get resources for eLearning, it was important for management to see the relevance, otherwise they probably wouldn't be approved. For some, the boundaries and roles of support people were often not clear, and in some cases the approach used to support staff was not particularly coordinated. Overall, there was a mixture of ad hoc and coordinated support for eLearning, and it was a matter of getting the level of complexity right. There were varying degrees of competence to be catered for, and as mentioned by one participant, even if the support was available some of the suggestions for using technologies were "above the heads" of some staff. The following comments express the trends relating to institutional support and some of the associated issues.

Positive
- Now there seems to be plenty of it and there seems to be working well as opposed to when I started when I had to be the subject matter expert and the technical expert and everything else.
- We have support to do anything we like as long as it fits within the curriculum guidelines.
- Really good staff development in place with some really good people which helps a lot.
- Have to search it out but that's not different to any other sort of learning and it is very good.
- Mentor support in relation to Blackboard has been really good, what I'm doing was interesting for those supporting Blackboard, because it was different.
- The team that is there to support people now is a good team .. a very supportive team.
- Also really good IT support and support for Blackboard they've got me over that initial stage of how to do it and what to do.

Negative
- In my eyes they're not prepared to fund it.
- Always the problem is finding the time to learn extra stuff and I wouldn't say that that has ever really been programmed in ..
- You kind of get thrown in at the deep end. As I said, I'd never heard about [LMS]. I went along to see somebody about it, and [got] a bit of help .. it was more the case of, "Here are some manuals and if you work through those, [LMS] can work really well for you." And then, of course, it means you've got to find the time to do that. It would be quite nice if you could actually see some sample sites and we have had a meeting, … with somebody about that, but xx didn't show us any sample sites and it was quite had starting from blank canvas to actually imagine what you could do with [LMS].

- Nowadays you go to a mini-course and people are all at different levels and it's not really focused on your needs. It's more of a global presentation and I think I've learned far more by sitting down with someone who uses it themselves and going with them than going to a course with maybe five, six or eight people in the room.

Support needed

- When you're in the middle of something, where-do-I-go-for somebody to give me some help….who can I go to talk to who'd already doing these things…. that knows their way through the territory…. either talk to them because they have a formal responsibility, like the support person … or informally, because they are colleagues .. who use the stuff and know their way around it.
- I don't think any tutor can teach online if there wasn't that technical support to back them up. We just couldn't do it we just don't know enough about it. And we don't have the time to learn the whole thing in full.
- ..if there was a dedicated person who could pop by..
- When the internet first came out, a number of people wanted to get together and said, right, let's offer [distance courses], over the world, well, of course the [institution] said no, so a lot of people just thought, you know, we'll just scrub that. That was 10 years ago they lost the boat on that, everyone else is getting into it.
- …most institutional information comes on email ..assumes that staff are all computer literate but for staff who are not keen on using email it isn't the most effective way of getting information across.

There was a mix of technical and staff development support provided. For example, in one institution a new position had been created to help staff with online development projects, whereas other institutions did not provide that sort of assistance. Even then there were support people who tried to help anyway, and others who were not particularly helpful with finding alternatives.

In several institutions, courses were run by training and development units and focused on training for using LMS, computer software and sometimes online teaching and learning, but in some cases, there were issues. For example, training on specific software and tools which some staff were interested in using often wasn't covered in the workshops and courses offered, and even where training was provided, it was often out of hours e.g. on a Saturday. Also once training had been given in a particular technology or software, staff were often left unsupported when using the technology or software e.g. data projector, Dreamweaver. On the positive side, people liked workshops where users came in and showed others what they were doing. In some organisations it was possible to request courses for departments as well as attending scheduled workshops.

Attitudes to technology also appeared to affect people's awareness of the support offered, plus there was a belief that if staff did go to what was offered, more courses would be offered. The following comment expresses one view about the issue.

- Quite often I'm not even aware of the support that was out there, that I could have used... I just sort of dive in with both feet .. somebody else who needs the support would have a better idea of what's really offered.

Several institutions in the study also offered formal qualifications in eLearning (see Table 7). In some cases, incentives were provided such as free fees, promotion opportunities and professional development time.

As well as support for developing skills for eLearning, some institutions provided support for staff when they were developing resources in the form of people who actually put materials online as well as preparing audio, video and CDRom resources. Although academic staff prepared the materials, they found it very hard to know how much information should be handed to the web developer and in what format. For example,

- ..because we're so used to having that opportunity to talk to students face-to-face and fill in all the gaps as you go and explain things as you go, and to actually sit back and think….I might not see this person face-to-face. It was quite different. It was a different experience.

There were also some examples where students were employed to do the work, and concerns were voiced by participants about staff being left "high and dry" when their contracts ended, because they did not have the skills to maintain the resources themselves. There were also cases where participants felt that expertise in eLearning was becoming territorial with only support staff "allowed" to tinker and explore new technologies. Lecturers were actively discouraged from exploring, instead being required by time and role constraints to "teach" and carry out research and administration duties; in which case they had to rely on support staff to pass on information about the suitability of different technologies.

One person remembered how difficult it had been in the early days when the people supporting staff to put content online were also learning, so the courses often weren't as well done as they could have been. In some cases when technical things started going wrong some courses never got finished. The situation had changed though and a number of support people were mentioned and regarded with respect: graphic designer, web specialist, instructional designer.

Technical support for just-in-time help varied across institutions. For example, some staff could call on Helpdesk staff for anything to do with computers including software, others tended to contact support people in the institutional eLearning centre, there were departmental technicians in some cases, but some staff just had to rely on the nearest person to help if they wanted instant assistance. For example,

- I use the technicians. Every time I say to them please remind me what I have to do and what is your phone number.
- It would be great if we had some technician support that could pop in … Assuming you know that the problem is there and you've got enough time to call somebody in at short notice.

Institutional support for professional development for eLearning also varied. Some people wanted to take advantage of opportunities outside the institution for their professional development but there wasn't sufficient financial support offered by the institution and they felt really let-down. For example, extra support to attend conferences and undertake qualifications specific to eLearning was sometimes overlooked and staff often had to spend their professional development allocation on studying for qualifications and going to conferences related to their professional

discipline. On the other hand, some people were well supported to undertake qualifications and go to conferences and found them really useful, for example,

- You can see what other people are doing and it sort of expands your horizons.

The next section describes more specific challenges as opposed to those related to institutional support.

5.2.4 Challenge and how Handled

As mentioned previously, the level of self-efficacy determined the extent to which people approached a challenge. There were several examples of how participants had dealt with the challenges which arose with eLearning. In general most rose to the challenge and kept on trying until they found a solution, but there were a small number who didn't for various reasons, for example,

- My frustration with my technical capability, and the potential time this involves is a real disincentive to bringing more papers online.

In the early days, eLearning hadn't been supported particularly well by some institutions, so early adopters had ended up putting in a lot of effort in isolation and basically had taught themselves. They had persevered because they believed it was worth pushing boundaries for a method they believed in. Where there was an element of support it was often less than ideal. As one person stated,

- It was like the blind leading the blind.

Some lecturers new to eLearning preferred to alternate the use of web resources and face-to-face teaching in case the online aspects didn't work very well. And even though people who believed they were good at face-to-face teaching found eLearning a bit scary, it was a challenge to think of innovative ways to get the content across using flexible methods. For example,

- If I can get them to make a model of DNA out of lollies ….they can do it at home.
- I've just learned the hard way, I suppose, in terms of how you get your information on there, your different materials and where it should best sit.
- Can't show phonetic fonts so when we're trying to talk about the actual sounds that other people are hearing.
- I teach syntax, so I'm trying to get them to draw synthetic trees, … quite complex diagrams and… once I worked out how you could use chat and whiteboard at the same time, that solved that issue completely. So that was one example of where [LMS] did come through.
- …what I would like to actually use more of are some of the things around putting audio onto [LMS] ….Where you are explaining concepts… or explaining diagrams … so that they have that extra thing that just looking at the screen doesn't give you.

In many instances, time was the challenge, for example,

- You could probably push more boundaries than what I've done and I just simply don't do it due to time limit. I'll find a simpler way of getting around it,

sometimes reverting back to something that's traditional. It's just easier and so you do it just because of the time restrictions imposed.

A full section will be devoted to the challenges imposed by time as it impacted on all areas of eLearning, and was a very strong theme in both the interviews and questionnaire. Challenges were not only about staff competency, but also about student access and competency. Some lecturers arranged for support staff to come to an initial class to orientate students to the LMS i.e. help them log on, tell them how to get help and show them how to access the resources online, another developed a resource for the purpose. That helped ease students' anxieties about managing it and getting on with it. For example,

- How many students are missing out because they haven't got access to online teaching and learning … I mean I have a lot of mature students I deal with who are not confident in using computers… so I've developed a couple of courses on teaching students how to use LMS.

Once online courses got underway there were also challenges with participation. In situations where students didn't engage with the course material and participate in discussion groups, online teachers either gave up using them, or found ways to motivate students to participate e.g. using structured activities such as giving a few students the lead in summarising work and leading the discussion and reflection and also by allocating a percentage of the marks to the activities. In another example, a lecturer tried a blogging approach rather than a Discussion Board for students to contribute their questions, and although they were "resolutely uninterested" in it, was determined to try again with another group of students. There were also hurdles to get over regarding the design of online materials. One participant believed that the design of an online course had to be different to just reading a book. If the online material was linear rather than layered there was no point using technology. The use of links or layers helped students move between the content they wanted to look at more easily. The hurdle was not so much about the design ideas but about the implementation of those ideas, as they took skill and time and often needed support from an expert.

Challenges not only arose with participation and access and design of materials, they were also about ongoing technical problems which ended up impacting on teaching time. For example, there was a difficult situation where a student who was not very computer literate and had lots of problems with access and finding content, used the teleconferences to get help with technical problems which the lecturer couldn't help with. This situation led to the lecturer feeling ineffectual as a teacher because he/she couldn't teach during the teleconference or sort out the technical problems.

Generally the challenges which arose, tended to occur as a result of technical or software problems. The following examples describe a range of situations which participants recounted. In one institution, the firewall was blocking access to web links so a lot of the links a lecturer had put up in a course wouldn't work, therefore the lecturer could only access them from home but not at the institution. There were also problems with downloading material and the work PC would crash all the time. Additionally, PowerPoint files containing a lot of graphics couldn't be opened and crashed the work computer so the lecturer had to put them on CDRom for students. There was a bureaucratic difficulty in getting a CD Writer until the person's manager had the same problems.

Another example described was a problem which occurred during a face-to-face class session where the lecturer wanted to demonstrate some online portfolios using a data projector, however, the one in the room was locked and the class lost 30 minutes while the lecturer tried several others to get one going. To add to that the data projector and the VDU would not talk to each other and the class ended up gathering around the computer and looking over the lecturer's shoulder to see the e-portfolios. Luckily it was a relatively small class.

Another challenge was solved by some software called Virtual PC which allowed distance students who were learning about operating systems to destroy and rebuild a virtual computer, rather than a real one as their counterparts had been encouraged to do previously in a in a traditional class room. Unfortunately the support to use Virtual PC was non-existent and the lecturer had to help himself learn to use it. Another participant also mentioned having to "get on with it". The lecturer found it really hard to find suitable quizzes that enabled students to be independent, and at the same time be able to practice skills like writing. To do that the LMS needed facilities where students could write, then check their spelling, but they weren't available. Consequently, an open source product was found and used to develop the resources. These examples illustrate how staff who couldn't get someone to help them with specialised learning tools, had to find ways themselves to do it using simple tools.

These examples illustrate the lengths some lecturers go to so they are well prepared for teaching. Another participant commented that it paid to be prepared well in advance if demonstrating online materials in real time, as it could be challenging when the search facilities didn't work or there weren't any search facilities. In another situation, lecturers had to adapt their approach to workplace visits for students because of changes to regulations. Rather than cancelling the experience all together, they got someone to go in with a video camera and they created a virtual tour for students to use with structured tasks, which was as close to the real experience as they could get.

All these examples illustrate how challenges for eLearning can be solved. Another theme which arose was around the type of help participants thought would be useful when challenges arose and this is covered in the next section.

5.2.4 Challenge and Possible Help

Some of the solutions suggested by participants related to preventative measures. For example, if skills and technical requirements for online learning were identified before people came onto a course, e.g. levels of literacy, or computer specifications, how to manage firewalls etc. that would help prevent problems. Another way to prevent problems was if equipment was checked before starting, to make sure the correct software was available and everything was working. Also it would help if technician support was available on an on-call basis. For another participant more support provided locally would have helped her feel involved in the decision making about online teaching and learning for her distance students.

Other comments related to staff development, both formal and informal. For example, having someone to come and help and sit beside them, or send a list of what to do by email, and be available to answer questions was regarded as really helpful, but wasn't always available. Another suggestion was made to have training which would help staff to problem solve, and to have it at regular intervals e.g. how to setup a data projector.

The following comments relate to some of the solutions that could be provided by relevant support.

- ..you might use them for three or four months and then not use them again for nine months .. in the mean time you might forget .. key points.
- We seem to employ people who've never had distance, or eLearning experience before. So I think there's a very steep learning curve for them and that we really should be trying to support them and also….there should be a flow on of knowledge. If somebody knows how to do something, it would be great if they could teach everyone. So if we could get together, maybe once a month.
- It's minor things that can cause frustration. And it's so easily solved by somebody who's more in the know.
- It isn't just about knowing the right buttons...

There was also the case of a staff member who was making an effort to find out more about eLearning and using role modelling as a way to get his staff interested. For example,

- ..if you're going to ask the troops to go to battle then you need to be prepared to go to battle yourself.

These examples demonstrate the importance, participants in this study placed on support, not only technical but support provided by adequate staff development. The findings surrounding self-efficacy and eLearning are summarised in the following section.

5.2.5 Summary

There was a mix of opinion both for and against eLearning. For some it was an exciting challenge which they really enjoyed and which they persisted with, but for others eLearning provoked anxiety, it was time consuming and they couldn't see the potential. Overall, the majority of participants realised they needed to learn more and they were interested enough to do so, however, even the enthusiastic eTeachers expressed some uncertainty about the changes brought to education by eLearning.

Based on the types of eLearning tools and methods most frequently in use, participants in the study group had reached a reasonable level of aptitude with some of the basic eLearning tools e.g. email, PowerPoint and Learning Management Systems. Participants in the study group were taken from six large government-funded tertiary institutions across New Zealand, and as such were representative of national trends. Three main types of LMS were in use across the six institutions, Blackboard, Moodle and Web-CT, and some who were currently using a proprietary LMS were exploring the open source product, Moodle, as a possible alternative.

The most commonly used LMS tools were email, quizzes and discussion boards. There were some who found online discussions a really good way to interact with students, and others who found them of no use at all because students wouldn't engage with them. As well as LMS tools, a small number of participants referred to the use of other tools e.g. audiotapes, CDRoms, DVDs, MSN chat, blogging, scanning, VHS video, digital video, video conferencing, teleconferencing, e-portfolios and data projectors. As well as these tools, a small number of people were using specialist software to create materials such as e-books, web pages, quizzes and flow charts.

eLearning methods were being used as both an adjunct for on-campus courses, for blended modes of teaching and learning and for distance courses. Approaches varied with some participants transferring traditional lecture approaches to the LMS, whilst others used a lot of online interaction e.g. discussions. There was one example where local centres around New Zealand were used for the practical aspects of a course, and theoretical components were offered via LMS facilities. Regardless of the mode of teaching and learning, the majority of participants believed there were benefits for students in using eLearning approaches.

User confidence and user preparedness were two strong themes which emerged from the data. In some cases people felt confident with what they were doing, but realised there was more they needed to learn. For some being confident and prepared depended on the support they had available e.g. expert colleagues, staff development, project team approaches. Some people admitted to being scared and anxious and unsure about the potential of eLearning, and worried about the impact on their teaching. There were also people who were very experienced traditional teachers and were unsure about appropriate pedagogies for online learning or which type of technologies could be used to support quality teaching and learning. In addition to all these concerns, there was a raft of feeling about developing materials for the eLearning environment and the dilemmas surrounding good design and support for innovation.

Institutional support varied across the six institutions. There was definitely a feeling that both technical and academic support for eLearning had improved since the "early adopter" days. Some participants felt very directed and not particularly supported. Others felt well supported by eLearning personnel and peers but limited by time. Hence they were unable to take full advantage of the support on offer. The need for just-in-time support as well as the opportunity to go to courses was regarded as important. As well as support and time being challenges for participants, there were also challenges with some of the teaching methods they had tried e.g. blogging, because of the non-receptiveness of students to the innovation, or difficulties with technology. Some suggestions were made about how challenges could be managed which all related to having adequate technical and staff development support.

The next two sections deal with staff experiences and views about formal and informal staff development.

5.3 Staff development

Most people were in favour of having some sort of support to help them prepare for eTeaching, whether it was in the form of formal staff development e.g. courses or mentoring, or informal e.g. peer support, conferences etc.. As mentioned previously, most participants felt comfortable learning about computer technologies, but also realised that learning to be an eTeacher was difficult. Some participants had taken a number of courses over several years in preparation for eTeaching, as well as being engaged in a variety of informal staff development activities. In this study, the findings about courses and study for qualifications have been categorised as formal staff development, and all other strategies are classed as informal. Additionally, strategies such as working in teams and/or on projects (informal with colleagues and formal with institutional support personnel) to develop eLearning resources and courses, are mentioned in the section on informal staff development.

There was a minority who hadn't undertaken much in the way of staff development as illustrated by the following statements.

- I ignore courses and dive in with both feet and have a crack at it.
- I certainly didn't go on a course so I learnt as I was producing the actual project.

Although 91.5% of the participants engaged in some type of formal staff development and 98.8% undertook both formal and informal staff development, there was no correlation measured between formal and informal SD, nor between formal SD and overall efficacy scores as might be expected. It is the minority who appear to stand out and are worthy of some discussion.

There were six participants who had undertaken no formal staff development at all, but engaged in informal activities. Another four participants had undertaken formal staff development only at another institution, and some informal staff development. What was interesting is that all ten respondents who had not engaged in formal staff development at their own institutions, rated their overall confidence for using eLearning tools and methods as high or very high. When their responses to the other self-efficacy aspects of the questionnaire (see Results section ?) were scored, however, some were showing low efficacy for some aspects. For example, one participant scored low efficacy for every aspect, six had low efficacy scores for using eLearning tools, and three had low scores for setting up an online course, and one had personal characteristics which indicated low efficacy for eLearning e.g. *give up quickly if it doesn't work; did not put a lot of effort into getting it right*.

One participant who had high scores for all aspects of efficacy tested by the questionnaire, indicated one type of formal staff development at "another institution" on the questionnaire (an online teaching qualification taken online) and used eleven different informal methods. This participant had been eTeaching for nine years so would fall in to the early adopter category. The following comments were made by this participant:

- Informal discussions with colleagues have given ideas that have helped me fine-tune my own teaching in particular areas.
- The little anxiety/discomfort I feel about e-tool/method use arises from my more critical stance on the impact and value of technology generally in contrast with the more romantic view that currently exists at policy levels in NZ.

The achievement of a qualification and extensive eTeaching experience may have been the reasons this person did not engage in formal staff development at the institution of employment. This example also illustrates the tendency of some academic staff to pursue qualifications externally and to study them online e.g. Certificate in Online Education and Training (London), a situation which also helped them to find out what it was like to be an online learner.

It appears that for this group of ten participants, perceptions about being confident with eLearning may have influenced decisions about taking formal staff development courses at their own institution. This is an area requiring further investigation. The next section covers formal staff development in some detail.

5.3.1 Formal

The following comments provide an overview of participants' views about formal staff development.

Positive

- There was one session I went to which kind of made me interested and intrigued and then I started.
- The jargon is something that you pick up on the course.
- Important to show others.

Negative

- I use courses or advice when available but often the courses available don't seem to relate to where I'm at in my learning of the topic, so I don't get a good return for time invested.
- Part of the problem is that my other teaching/administrative duties give me little time for formal course attending to upskill myself.
- In one case, there was too much paperwork involved in going to software training, and there was insufficient time to deal with it so the lecturer didn't bother going.
- Open forums seem to be poorly attended.

Alternatives

- *Y*ou don't want to look an idiot and, I think, often you go along to these training things and …everybody knows more than you and you're quite scared to ask the really obvious things and the really stupid things…, they go through really quickly … if it was a one-on-one and I had somebody sitting next to me, I'm sure I could learn a lot more in a couple of hours than I would going on a number of training courses where there's a big group of people.
- Offering alternative dates and times would help.
- Having experts coming in to staff training forums within a department rather than an open forum.

A frustration for some was that although they were taught how to use eLearning tools, there was not much staff development available about how to get eLearning to work for on-campus and distance students. For example,

- Why do eTeaching, and what works and what doesn't work is needed…

In relation to formal staff development, academic staff tended to fit in to some or all of the following categories:

i. Went to as many courses as possible to learn about the institutional LMS and eLearning.
ii. Completed qualifications e.g. Online Teaching and Learning.
iii. Engaged in mentor relationships.
iv. Avoided all formal staff development for several reasons e.g. heavy teaching loads, lack of time, not particularly interested, preferred to teach themselves, already computer literate and able to problem-solve.

There were varying opinions about staff development in general. One person liked the new system in staff development for helping staff with aspects of using software when help was needed with specifics e.g. creating a diagram. Some people were not sure if staff development helped or not. One did as much as she could. Providing feedback as

part of a project team for a flexible eLearning strategy was stated as one form of formal staff development. One participant described how an eLearning module was structured; as participants were learning how to deliver courses online they learned both theory and practice and had the chance to be both students and tutors, because they were creating activities for others in the class to try. Some people felt they missed out by not being "in the know." One person believed that If mentoring was going to be successful the mentor had to share the philosophy of the person being mentored. In the next section, further views are reported and these relate to staff development courses.

Courses

In the questionnaire, participants were asked about the number of formal staff development courses they had undertaken, the type and the delivery mode. The highest number of courses taken by participants was one to five courses at their own institution, and the most popular modes of delivery were face-to-face, online and one-on-one in that order of preference (see Table D-3, Appendix D). The courses most frequently taken, related to online teaching and learning instruction – technical, followed by general computing instruction, then online teaching and learning instruction – pedagogical and lastly specialist software instruction.

Many found going to courses useful particularly if someone was available to help afterwards with specifics as they arose. One person found that courses were often full, and with teaching commitments, it was sometimes difficult to attend courses at set times, which got frustrating so they had to find other ways to learn what they needed to know. Some centres offered "packages of courses on a regular basis". One opinion was to have formal SD when starting out in eLearning, and to try and get to courses and workshops outside your own institution because it helped people become part of a wider community of people with similar interests in education.

One teacher took a course from another institution overseas "to learn how to be an online teacher" when her institution was in the early days of eLearning. Her experience as an online student was really valuable, and she learned a lot about what caused frustration as a learner. Although initially, she was both anxious and a bit nervous about participating in online groups she learned a lot from the experience which she then applied to help her own and others' teaching. Having a course online with experts giving pointers and problem-solving and using chat for particular topics was good. Some people were quite specific about what they wanted out of courses, and online tutorials as part of a course were regarded as helpful. For example,

- ..courses on SPSS, because it's so .. hard to use. And nobody can use it... anyway…"
- xxx course around web teaching... which we did online.
- It's often quite hard to get to those sessions and I don't find it useful unless I can sit there and do it while someone talks me through it.
- I've been going to a lot of these tinkering with technology sessions that have been offered.
- Internet for Educators.
- Web design, Blackboard courses.
- Moodle training.
- Seminars, lunchtime Blackboard show and tell sessions.
- Workshops on e-portfolio.
- Powerpoint.

- Library courses on using online learning resources for staff and students.

Most participants (88%), had taken courses of some kind, and according to comments from the questionnaire around 12% of all participants did not find formal courses particularly useful. In the next section, information about formal qualifications for eLearning is recorded.

Qualifications

There were a number of qualifications on offer at the institutions sampled, some had been completed by participants, some of the participants were in the process of studying for them and for others, qualifications had been taken externally.

Formal Qualifications at Institutions in the Study	Qualifications Completed by Participants
• Advanced Certificate in Adult Teaching (ACAT) • Certificate in Adult Learning and Teaching (CALT) • Certificate in eTeaching • Certificate in Educational Technology • Certificate in eLearning • Certificate in Teaching and Information and Communication Technology • Diploma in Learning & Teaching • Diploma in Computer Education • Graduate Certificate in Applied eLearning • Graduate Certificate of Information Technology in Education • Graduate Certificate in Information Technology in Education - Applied eLearning • Graduate Diploma of Information Technology in Education • Online Learning and Teaching Certificate	• Certificate of Adult Learning and Teaching • Certificate in Educational Technology[9] Certificate in eLearning • Certificate on Online Education and Training • Diploma in Computer Education • Graduate Diploma in Information Technology in Education • MEd - Computers in Education • MA in Open and Distance Education • PGDA (education)

Table 7: Formal qualifications completed by participants and on offer by institutions participating in the study.

Twenty participants (24%) indicated they had obtained an eLearning qualification of some kind, and apart from one person all stated they had high overall efficacy for eLearning tools and methods. Twenty participants (24%) were in the process of studying for a qualification which either related directly to eLearning or used eLearning methods, and out of this group of twenty, four were neither confident nor unconfident overall and two had low overall efficacy scores. For eight out of the twenty participants that was their second qualification involving eLearning. One participant who was neither confident nor unconfident overall made the following comment:

- I am confident in what I do and willing to learn, but there are many eLearning tools that I have little experience of at this stage.

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[9] Internal and external to study institutions.

Another participant, clearly wasn't interested in gaining qualifications. For example,

- I wasn't really interested in you know, acquiring some kind of qualification. I just wanted to know, how-do-I-do-this, how-do-I-do-that. More just-in-time…

An opposite view was held by another participant who advised others to do formal courses e.g. Certificate in Adult Teaching, and another who believed eLearning had to be an integral part of teaching qualifications. There was a tendency overall for staff to only find time to go and do courses that they had chosen themselves and needed at that particular time. The reason was because it took a long time to undertake qualifications in eLearning and if nobody required them to undertake formal qualifications, they generally didn't bother. Plus of course there were other pressures such as studying for professional qualifications in the discipline they were lecturing in, and undertaking compulsory teaching qualifications. Another motivation to engage in qualifications was whether fees were paid by the institution.

As well as formal staff development in the form of courses, workshops and qualifications, the majority of participants engaged in activities of an informal nature. Their experiences are outlined in the next section.

5.3.2 Informal

The types of informal staff development most favoured by participants were general Internet use (75%), reading/websites/personal resources (73%), discussion with peers (71%) and working with early adopters/peers (63%). Support from colleagues was a strong theme which emerged from the interviews. Participants who were interviewed referred to four main categories of informal staff development:

1. Collegial support– individuals, special interest groups and mentoring.
2. Collaborative projects.
3. Seminars and conferences – 'show and tell', visiting experts.
4. Just-in-time support.

Collegial Support

Collegial support was a popular choice for informal staff development, and ranged from help from individuals as it was needed through to special interest groups where enthusiasts met on a regular basis to discuss ideas and share innovations. For example, one person learned how to use the survey component on the LMS from a colleague, and another found out by talking to others that he was doing something quite unique. Responses from the questionnaire indicated that a high percentage were involved with peers (discussion with - 71%, and working with - 63%) or observed others online courses (51%), and 27% were involved in special interest groups. Items such as email lists and blogs could also provide collegial support, and were selected by 46% and 10% respectively. There were a number of positive comments about peer support.

One-on-one
- ..discussions about what do you use, you know, why do you use that?
- Open office plan where I work and I certainly talk to other lecturers to find out what works for them.
- Talking to colleagues to try and find things that worked simply, .. things that I can make work without having to go through a huge learning curve.

- Working with a colleague to develop online activities for each week was really helpful.
- ..two heads doing things like that you can spot things that aren't currently best practice better than thinking oh I got all this stuff to do I better do it bam bam bam.
- Other's help is always easier than trial and error.
- One or two of my colleagues in the school here who are much more adept at it than I am and I've used one or two of them sort of dealing with any sort of immediate kind of issues…

Groups
- ..meet guys from the trades doing stuff with eLearning and .. talk about what we're doing and …sort of cross pollinate.
- If somebody knows how to do something, it would be great if they could teach everyone. So if we could get together, maybe once a month.
- I like to bounce experiences off other people and would benefit from an online community with ideas and things to try.
- I think go and see others..go and talk to somebody who has done it. .. Not necessarily in the same field as you.. to find out what the problems are..that kind of support group possibly within each school.

Mentoring
- ..on a one-to-one small group kind of, xxx what do you think of this, I want to do this, is this a good thing to do?
- ..for people like that that is the only way they are going to do it. You know the formal courses would scare them until they have some practice.
- .. meeting people online and talking to them about their research and their literature, inviting them to speak to my students has created a mentorship I think both ways.

For some participants, however, collegial support was not always useful or appropriate in the long term. For example, one participant mentioned a group where a lot of "techno-buffs" got together which didn't help much as that person was more interested in the teaching and learning side of things. There were other views about peer support.

- I'm not entirely convinced that listening to what other people do is necessarily the way.
- That's the culture of [institution] ... Generally, .. I've found people really helpful and you do feel that with colleagues you can just go around and say, "Hey, have you ever tried this before?" and "How did you do it?" That's okay. But, again, you can only do that to a certain extent. These people are working pretty hard and if that's not their dedicated job, you can't keep going and asking them questions.

Support from peers also extended to collaborative projects.

Collaborative projects

Involvement in projects was selected by 54% of the questionnaire respondents as a choice for informal staff development. Some participants spoke in the interviews about using this method. Some of their statements are listed below.

- We had a meeting which was mainly problem-solving on how use how do we get voiceover over scan images and pictures. And that was co-collaboration because none of us knew anymore than anybody else and we had terrible microphones.
- ..a relationship or friendship with other people in other departments, those friendships also bring collaboration.
- Working as a team is better than doing it on your own even if the team is only you and someone from [support centre] but it is really good if there was someone who teaches on the programme with you.

It should be noted that collaborative projects for some were a more formal arrangement with eLearning teams, for the production of resources and development online courses. Statements from participants about teams are mentioned below:

- Providing feedback is what I've been doing and it's going to be part of either project leader or team leader or team member for our flexible eLearning strategy.
- I've got a great support group in terms of the team that I'm working with. They know I'm happy with the content and its going to be quite exciting..
- Actually a team approach and we'd like to think that everybody had the skills but there are people who naturally are reluctant as so we've tied in with the appraisal rounds and during the appraisal rounds we would set a common target that has to be achieved by everybody at a particular time.
- I'm part of a much bigger group .. I'm doing content report writing. ..the support e.g. instructional designer etc…lets me talk to people and I can say it doesn't feel right to me then they can say you're way too wordy... I like the idea of being part of a team process...
- It's just not me developing because it's a team approach it would be various skills that come into place. .. I take some kind of leadership role in some of that..

Being part of a team was definitely regarded as a helpful process for informal staff development for eLearning, and it was common practice at some of the institutions for staff to be involved as subject matter experts in project teams, working alongside instructional designers, graphic designers and web developers. Seminars and conferences were also perceived favourably by some. Another tactic regarded as useful for informal staff development was peer support and mentorship from the point of view of the experts who provided the support. Research has shown that two-way benefits ensued from mentorship relationships and peer support, because the exchange of information and knowledge building which occurred enhanced the capability of both parties (Phelps, Hase & Ellis, 2005).

Seminars and Conferences

Workshops and seminars were chosen by 49% of the participants as an informal staff development method and conferences by 47%. Seminars with visiting experts were mentioned by several participants who were interviewed and found to be useful in both

face-to-face and online settings. For example, the use of guest speakers and computer conferencing allowed lecturers to observe others teaching online, and other techniques such as voice-over technologies enabled them to interact online and ask questions. The following statement illustrates how useful some participants regarded these informal staff development methods.

- The more eLearning is promoted through seminars and visiting lecturers, the more acceptable it becomes and the more people feel comfortable with moving there because it's just a natural flow and more freely available.
- ..nursing conferences I've been to with the other nursing tutors about what works for them online..
- I have very little practical experience. I had been to a few conferences.
- At a conference you usually find .. a multitude of different things going on and often I will choose a particular line, .. I need pedagogy, I want to see what they are doing with all this stuff. I am not actually that interested in going and sitting and someone telling me to push this button to do this, because when I am ready to do that, that's when I have to know which button to push.

Another informal staff development method which was mentioned frequently in interviews was just-in-time support.

Just-in-Time Support

Just-in-time support was covered in the questionnaire by selections such as: How to do it resources, drop in sessions and friends/whanau, and these were chosen by 43%, 34% and 35% of the participants, respectively. In the interviews participants tended to describe how they got help, rather than the type of help.

In some institutions there were lots of people to call on for just-in-time support when using LMS and other technologies, either one-on-one or small group support. There were a variety of ways they sought assistance. Participants could phone and get someone from the Staff Development Centre to come and see them to provide help.

They could also get online support or drop into the Staff Development Centre. In some places, technicians supported staff by providing hands-on practice in the use of eLearning tools. Some staff actually initiated staff development by asking support staff to teach them how to do particular things, or to put them in to online courses to see what others were doing. For example,

- I get my confidence in the fact that if I get anything wrong I know that xxx is at the end of the phone.

As can be seen a range of informal staff development methods were in use by participants in the study, and the benefits of all these methods are illustrated by the following statement:

- having showcases… lunch time lectures .. where you can go and .. just see working examples and .. mentors in the department, or if in a group of twenty people there's one person ..…some of their time is directed to online development and online learning and they can pass on that information and help out others …. …a team working together and they've got their specialist areas. You're getting content that's intelligently translated into an online environment,

rather than just plonked, and then you've got a technician who really knows how to make it work effectively for the students.

As illustrated by the above statement, the outcome of effective staff development provided informally was more likely to result in a better quality product. A summary of the findings for both formal and informal staff development follows in the next section.

5.3.3 Summary

The majority of participants had taken part in both formal and informal staff development. There were four groupings of staff who engaged in formal staff development: Some staff went to as many courses as possible; A minority had eLearning qualifications or were studying either about eLearning or using electronic methods; less than half the participants had engaged in mentorships and a small percentage avoided all formal staff development. The latter group were mainly early adopters who had undertaken more informal staff development than formal, and for some it was time rather than confidence which prevented them attending formal training. There was a general feeling that just learning about the technical "which buttons to push" was not sufficient and more attention needed to be paid to pedagogy and design for eLearning.

Across the six institutions a wide range of eLearning qualifications were offered, and where staff had already gained an eLearning qualification, some had studied at an institution external to the one they were currently employed in.

Informal staff development which involved self-directed activities e.g. reading, exploring websites, using personal resources and peer support were the most popular forms participants undertook. One-on-one interactions and mentoring as well as involvement in interest groups were popular. Participants generally liked to find out what others were doing and several mentioned how helpful collaborative projects were for upskilling. Seminars or conferences were used by just under 50%, and regarded as useful. Just-in-time activities such as "how to do it resources, drop in sessions and friends/whanau" were also used but most just-in-time support was provided informally by peers or eLearning support personnel.

Although there was no statistical relationship found between formal and informal SD, nor between formal SD and overall efficacy scores the majority of participants were enthusiastic about utilising the training on offer and engaged in a wide range of informal activities to "keep ahead". Additionally, the variety of formal and informal methods in use for staff development indicates that there was no one overarching model for staff development that worked. Perhaps the model is exactly that, a mix and match approach based on the needs of each academic staff member, and related to the situation in which they were teaching. Another interesting finding was the realisation that peer support and mentoring had the potential to develop capability in both the recipients and the providers of the support.

Further investigation is needed to determine the role of informal techniques in assisting or influencing academic staff to develop high quality eLearning experiences and resources for their students.

Another area which influences how prepared academic staff are for eLearning relates to the learning strategies they adopt to develop skills for eTeaching. This topic is addressed in the next section.

5.4 Learning Strategies for Teachers

In this section, strategies are described which participants in the study engaged in when learning about a new eLearning method. Results from the questionnaire indicate that the four most popular strategies were: To communicate with an existing practitioner (79%), utilise a trial and error approach (73%), access web-based resources (72%), and engage in staff development activities (67%). Learning techniques regarded as metacognitive strategies were the least favoured e.g. maintain a reflective journal, compile a portfolio and engage in blogging, by 14%, 9% and 5% of the participants respectively. As well as a description about some of the strategies participants used when learning how to be eTeachers, findings about users' experiences with eLearning and eTeaching is reported, as well as some of the issues and problems that participants highlighted.

Types of strategies

The following statements depict some of the trends extracted from the data about the type of learning strategies participants were using. For example, one-on-one and trial and error approaches and feedback from students were used by participants.

One-on-one

- I'm no good with sitting in a class room and someone giving me a handout and saying, This is how you do it. Go away and do it. I'm much better to sit at the computer and do it and someone talks me through it .. doesn't matter if they're sitting next to me or whether it's over a telephone or whether it's a thing telling me on the screen.
- Some of the lecturers I've been working with have been absolutely a mine of information.
- It's really useful to have a mentor who can help you from a theoretical perspective,.. somebody who's actually been there and done that before.

Trial and error

- We should be encouraged to risk, and try things, and go out there and not just do the basics.
- When I need to do something I will sit there and work it out or ring the Helpdesk.
- I guess the ability to be able to slip away and explore outside the frame so been prepared to do trial and error stuff on the computer and not be scared of the equipment.
- The way I learn to do things online, the way I discover things, is through experimentation. And not everybody's got time to do that. And I wouldn't have time to do that if I was running my own course.

Student feedback

- If you are going to try an online learning technique .. a quiz ..you need student feedback .. to know whether it's actually going to be effective and which parts of

the quiz work, and which parts don't. .. to find out whether something is actually going to work, you eventually do have to try it in a real life situation.

It can be seen from these statements that people found one-on-one, trial and error approaches and the use of student feedback of some use. There were others who preferred to use other techniques for self-directed study, and these are outlined in the following section.

Self-directed study and metacognitive strategies

There were some interesting self-directed study strategies. For example, one person wrote down notes about progress right from the beginning and kept a notebook about what worked and what didn't. Another kept a folder with a variety of resources about managing the technology and the pedagogy. A small number of participants used metacognitive strategies such as journaling, blogging and portfolios, and their comments are as follows:

- *..a*nything I do with eLearning or any feedback that I get, any letters that I write … I usually keep a copy for my portfolio.
- The thing that annoys me with web logs is sometimes you have to put in passwords so I think it didn't get me anywhere ..
- Reflective journal is another one I use because it helps me to go back and think I've written that down now why did I write that down? It's because it didn't work or this one did work and it worked well. It's the quickest way or it was most effective and throughout the week you can go back and think to yourself well I wrote that down and I haven't done it and this needs to be done for the next time and if I do reflect on something, this went well, why did it go well.

The previous statement comes from Participant 21 who was one of the few people to use a journal for learning. This person was neither confident or unconfident overall using eLearning tools and stated the following:

- Initially I taught myself how to develop most of my materials with only 1hr instruction from our IT support person.

PowerPoint and email were the methods, participant 21 was confident with and efficacy scores for all aspects of efficacy were high apart from overall confidence. Interestingly, this person was well above the median for formal staff development sessions at *own institution*, and on the median for *other institution*. This participant had not undertaken any study for qualifications related to eLearning. The types of informal staff development this participant engaged in were also above the median, depicting a person who was very actively seeking ways to learn about eLearning methods for teaching.

As well as metacognitive strategies such as journaling for self-directed study, some participants liked using manuals. Their views are reported on in the next section.

Use of manuals

Some statements from a number of people who learned by using manuals are listed below:

- These are some of the ways I like to learn but I tend to learn text. I'm a text learner. I tend to learn from a manual.
- I read the manual first then I pull it to pieces then I apply it to a problem and that teaches me basically what the variables are so I can figure out what can go wrong. Establish a way of dealing with the problem if it occurs and then if I get

stuck I basically go and find somebody else who knows what to do or undertake a tutorial.

- I find the manual first when I open the box. Yeah, I'm that sort of learner.
- The problem that I have is that I find step by step instructions actually um quite frustrating at times because I actually like having something that I can refer /to/ so that's why I like having a manual there or something like that
- I've sat down with my manuals from the course that I did last year and gone through the pages… yeah, and attempted to do it myself because while you do it in a classroom situation, we're talking x months on since I actually did that series of courses, so you forget stuff so yes, nothing like having to do it yourself to get a grasp on things and to make you feel confident to be able to do it.
- ..that sort of thing would have saved me time if I had a manual. I didn't have one.

Manuals also had a role in helping participants to problem-solve. Generally, when participants understood the way computers worked, their learning strategies were problem-based and they believed their knowledge could easily be transferred to other contexts. This style of learning is regarded as essential for education (Jonassen, 2005). Some participants found that helping others with specific problems, working alongside others and using logic to solve problems was a good strategy for learning more about how to be an eTeacher and for using eLearning tools, particularly if they had the help of a mentor. Also keeping a record of what had worked and what hadn't helped with solving problems. Some examples of what participants said:

- … expect that it's not going to go smoothly [students need to know this too]…. part of getting to know something is experiencing the problems and coming to terms with it.
- ..go back ….to look for ideas… and sort of problem-solving that's been reasonably useful.

Along with problem-solving comes the ability to apply learning to real situations, and this is illustrated by the following comments:

- I need a context for me as a learner.
- Looking at examples of what had already been done was very helpful.
- I spent hours and hours and hours accessing web-based resources particularly in my field.
- ..you kind of get thrown in at the deep end. ..it was quite hard starting from blank canvas to actually imagine what you could do.

Other strategies mentioned by interviewees included looking at a lot of books, magazines and journals; having someone there to get them started, try things out for themselves and being able to contact someone if more help was needed. In some cases it was helpful for staff to have people to go to for help who were friends first and experts second, because they felt more comfortable admitting to needing help. It was also about getting over hurdles such as knowing what the problems were and how to ask for help. The following comment illustrates the dilemma some people found themselves in, and the range of strategies mentioned previously demonstrates that there was no "magic bullet".

- I'm very technically competent in all sorts of things…. but haven't had the time or the inclination to sit down and teach myself to type and [learn other

computing skills], I've done it in bursts, and I've tried it, and I've gone to courses to try to do it.

In the next section, some examples of what users were experiencing with eLearning are outlined.

5.4.1 User experience

A number of people described their experiences using eLearning tools and methods. There was a certain level of stress and frustration for some but they kept coming back to try again. In one person's opinion there was no point in putting something online if it didn't improve the course and you had to be really prepared because students had an expectation. For another participant, an understanding of background technologies and basic web page design gained through the person's employment and from friends was good experience as it all helped with confidence for eLearning. The experience of another participant who was studying with another institution which was using online methods, found on comparison that she used the LMS much more effectively with her own students. She described her experience as follows:

- You just go into your xxxxx site … you'll read a couple of Word documents with some questions at the end. That's it. … there's the discussion board which we have to go in and talk to each other about things that we do, but…if people are busy and no-one goes into it, it doesn't work. I find it very, very difficult to use xxxx the way .. its set up.

Although, another participant's experience using discussions when taking distance courses online for professional development, had helped him see the relevance of discussions, he felt the method wasn't quite as applicable in the courses he taught. ... Other people recounted their learning experiences using software and developing courses.

- ..so I probably use all the software wrong, but I have made it work for me, so I'm quite independent in that and I just have to go with the fact that it takes me a lot more time to do things than if I had skilled personnel around me, or I had the skills...
- The mistake I made last year ..I .. put too much stuff on the website .. .. readings .. the students complained a bit, justifiably to some extent … about the amount of reading they had to do.
- I came into tertiary education by developing a computer assisted learning course with people with disabilities and it has grown from there and I've seen that people who have failed with pen and paper can actually do stuff with computers they couldn't do [before].
- ..I'm not going use [LMS] at this point in time because I don't think it's enhancing the experience of the students.
- Learning has been easier because of the one-on-one support received from the [support] staff - having a mentor.
- I've done the course twice now and still don't feel that I've got any great grasp of it. .. I kind of assume that if somebody as intelligent as myself couldn't manage it, it has to be something wrong with the software, because these things are supposed to be sort of point and click and intuitive.

The experiences of users were an important facet of eLearning, and there were a range of them. It is worth noting that where teachers had experienced eLearning as students themselves, they were able to apply some of the learning they had gained to their own

teaching. In the following section, some of the issues and problems encountered by participants are described, and there were a lot of them.

5.4.2 Issues/problems

There were several types of issues and problems and they have been placed in five categories:

i. Workload
ii. Staff development and support
iii. Online materials
iv. Teaching and learning
v. Time

i.   Workload

People were working long hours. Some people mentioned that eLearning increased workloads because it took more time when emailing and giving feedback to students on an individual basis. Also for some subjects, small online tutorials had to be repeated for several groups to keep the numbers manageable when using the collaboration tools and online whiteboard, which increased the workload of the lecturer considerably and wasn't acknowledged by the institution. Consequently, people were reluctant to get too involved if their already heavy workloads were going to increase. The following statements illustrate some of the issues.

- ..distance learning is seen … in a lot of places in xxxx as very second tier to teaching … face-to-face teaching and research…. in the workloads kind of analysis … they don't recognise [distance] teaching as time consuming…. They think, you just look at the discussion board and that's that.
- There was usually no time to evaluate courses before going live, therefore students were the "guinea pigs"….we just have to run with it and hope their learning doesn't suffer.
- It's fun sometimes learning everything yourself and solving those problems, but it comes down to a time restriction factor.
- ..to be an eTeacher means you're going to have to have designated time to actually answer the emails and to be online with them and that is not actually worked into your workload …You answer all the questions outside class hours or in your lunch break.
- I would like more time to do it. They expect you to … eLearning on your course ..they want you to do it on top of everything else that you do.

In another case, some resources were developed in the hope of reducing workload, but they didn't, especially because fewer people than expected used them, and still wanted to be shown skills in a face-to-face setting. Some worried about the amount of time they were spending trying to learn to create eLearning products that others could probably develop much more quickly and of better quality. They also regarded it as not particularly cost effective especially as they would probably not develop enough products to become really confident, and resource development impacted on their workloads. Another example of technology not doing what it was supposed to do was in relation to a class where participants were shown how to put slideshows online. Students, however, were unable to download the slide shows the lecturer posted on the LMS, so it ended up being a lot of extra work sending stuff out on email to individuals.

As well can be seen from these examples, technology which didn't work had an impact, but another problem arose from the use of new technologies. For example, a new LMS meant one lecturer couldn't do a lot of things, which she found quite frustrating, because she needed to find the time and stamina to be able to work on it.

People also recognised their priorities concerning teaching and the impact of eLearning on workloads. One lecturer mentioned that even though she was happy with where she had got to with eTeaching, she didn't feel there was a lot further she could go as she didn't have the time and expertise, nor was she willing to invest any further effort to do more. For some eLearning was not a high priority as it was a small part of the overall job, and part of the problem was balancing all the time needed to do it, and to still have time to enter into pedagogical and philosophical discussions with others which were an important part of teaching. Others were concerned about pedagogy for the online environment which tended to impact on workloads when it wasn't successful. For example,

- ..one of the reasons the whole thing didn't work was .. we were given these resources ..we were really keen to develop it, but weren't taught how to teach in those methods.
- The whole idea of inclusion, people being able to get on quickly, … if people can't get on something quickly and download it quickly, if they can't get on and talk to each other, if they went to their computer and click on something and it doesn't instantly open, they are going to get so angry and annoyed that I don't want to be a part of it.

Views of participants in relation to staff development and support are outlined in the next section.

ii.   Staff Development and Support

Problems associated with staff development and support varied between technical support and support for developing materials and teaching techniques. The following statements illustrate how some were feeling. For example, one person thought there were some strengths in not having support close by because staff would then be forced to try and work it out, however there was the risk of:

- "bumbling around, wasting time.. and then either abandoning it altogether, or not.. or getting there by accident and not knowing how you managed to get there".

Other statements also regarded aspects of eLearning as problematic.

- We're all expected to upskill ourselves and get on with it sort of thing.
- I don't see how anyone can be comfortable…. At the forefront of eLearning,… it's just changing so much, .. I've been using computers since the 60s….and you know, I'm really struggling…. You know, with new, with new technology and new flash things, you know… it's just so hard unless you're an expert and I'm trying to keep up in other areas.
- We've lost …xx .. and I think the funding got dropped … I can't do it on my own ..I don't really have the resources and the knowledge to do that.
- [LMS] ...building new things or changing things, … not as helpful as I would like. .. not as explanatory.

In another example, technical support when working from home late in the evenings, had to wait until the next day and effected both staff and students, and some held back from using technology in their teaching because of logistical considerations e.g. moving and setting up equipment, booking computer labs.

A problem for some regarding staff development is depicted in the following comment:

- Sometimes the staff development courses were at a totally different time from when you needed them.

The development of materials also had some issues. For example, in one institution where resources were developed by an external company, staff were not clear what would happen when the material needed updating or what would happen in the future. There was always the worry that they'd have to create the resources in the future and wouldn't know how, so would need to upskill. For some things e.g. a questionnaire that needed to go online, teachers wanted someone else to put it on, because they didn't want to learn how to do it due to the time it would take to learn how to do it. They felt their time would be better used on activities they were already good at, and some didn't have that level of support. Finally, there wasn't any support for helping teachers with some aspects of teaching, e.g. constructing a community of practice online as the support centre provided mainly technical support. In the following section, some problems which occurred with online materials are outlined.

iii. Online Materials

The issues around online materials were mainly to do with text, quizzes, LMS and errors. For example, participants stated:

- Online resources are no better than reading a book because there is mainly text and very little interaction and activities.
- The screen when using a LMS often has very little space for text due to the menus.

For another participant, eLearning posed a problem with the type of content which that person perceived could be taught i.e. text-based, facts, and for others what was on display was important. The reason was that students expected high quality and if there were spelling and grammatical errors and links which didn't work properly, that did not "look good". However, as one participant pointed out, in a grammar course typos were an opportunity for students to show they had learnt something, and errors weren't so critical as in some courses.

For others, quizzes in LMSs caused problems, because the computer would mark some of the answers the students gave as wrong, when they were actually grammatically correct, simply because the student's answer didn't fit in with the options provided in the quiz. Also transferring to Moodle from Web-CT was not straightforward. For example, quizzes had to be put in again, and although it was done by somebody else the quizzes couldn't be placed where the lecturer wanted them in the course.

To follow on from problems surrounding online materials, there were several issues associated with teaching online.

iv.   Teaching and learning

Technology was mentioned as an issue from both the teachers' and the learners' perspectives. Teachers who wanted to introduce good quality teaching were sometimes hindered by the technology and attitudes towards it. For example, one lecturer wanted to use real scenarios which students could be guided through, there were problems because he/she didn't have enough knowledge about the technology which would enable the use of scenarios. Also one teacher believed it was difficult to transfer classroom teaching e.g. whiteboard and PowerPoint into stand-alone resources which could be sent off to students. Another example illustrates some frustration with how students were engaging with eLearning.

- A lot of the students that I teach face-to-face, they'll complain and say, "Why don't you… Can we have everything on Blackboard?" But all they seem to want to use Blackboard for is to download the notes. ….. they don't seem that willing to get too involved in the site.

Other examples recounted issues for students. In one case, some older students had trouble accessing their course materials using a LMS and using the discussion board to post assignments so had to submit hard copies rather than online. In another situation, there were problems with retention in online courses due to students having different needs for socialisation. For example, Pacific and Maori students liked face-to-face interaction, and international students wanted social interaction in the form of organised activities such as sport, which wasn't possible online.

Some academic staff had no problem using it themselves, but wanted to be sure it was helpful for their students otherwise they ended up "putting an awful lot of work into something that wasn't getting any return." Additionally, it was felt that support for the scholarship of teaching was often neglected in favour of technology. For example, there was some concern by a participant that some people were more interested in the technology side of eLearning, rather than the social and psychological aspects of learning using computers, and the issues associated with being a distance learner. These colleagues didn't appear to be interested in the student's perspective.

As well as issues associated with workload, staff development and support, online materials and teaching, there was a very big issue with time for a large number of participants, and the following section provides an overview of some of the problems they encountered.

v.   Time

Another factor which came up a lot in the present study, and which is also mentioned in several other studies (Mitchell, Clayton, Gower, Barr & Bright, 2005; Hyland, 2004; Shannon & Doube, 2004; Foster, Bowskill, Lally, McConnell,1999; Jacobsen, 1998) and in previous sections (learning strategies, user experience, workload, staff development and support), is time. Time was an issue for a lot of participants regarding access to staff development, and to practice skills they had learned, as well as to develop courses for online delivery. Also once courses were online, there was often insufficient time allocated for facilitating the online class. The following statements illustrate some of the issues:

- I'm reasonably confident with computers and teaching myself…. It's just sometimes I just need the time, and the introductory material.
- Once I have an idea, what are the potentials, the possibilities, things that don't take too much time but at the same time also provide an added benefit for the students. Because I don't want to waste my time because there's lots of other things I could be doing.
- My site at the moment is not very interactive and I'd like it to be a lot more interactive, but then again I haven't got three or four weeks just to sit around and play with it. I do think if I had a bit more time it could be a lot better.
- I would like to have time to really understand that I'm weaving it in to add value for the students and not just changing one resource into an online resource.
- It's the initial time. To put this course on well with the eLearning component in it .. need a good five weeks. ..need a week to just get your head around thinking about the ideas and researching them and in the next four weeks to get everything set up in conjunction with the people who have the knowledge from the … centre. ..you need to actually to immerse in it as opposed to it being slung on you with everything else you're doing.
- To have more time to actually plan and deliver [courses online] would have helped… time is the thing... quite a few courses I'm running at the moment are seat of the pants stuff...
- The other strategies would be to be given time to attend staff development sessions because the more you see, the more variety, it's like reading books you get more ideas.'

As can be seen by the previous statements, time impacted on a number of areas. In the next section, topics such as time for experimentation and development are dealt with more fully.

Experimentation and development

Being able to instigate the development of new resources took more time than many staff could devote to it even when there were support people who would "do it for them", so innovations were often not undertaken. For some priorities on their time did not include trying out new software or technologies as stated by one participant, "I don't want to spend my time playing around..", therefore they were unable to experiment and apply new learning to developing course materials. And even if staff did take time to develop materials, they were often interrupted by students so there was "no time continuum to look for resources or develop skills". Two participants made suggestions regarding time and development:

- Before you start a project you should be given a decent time set aside every day to work on it … it should be a structured time. I think doing it in pairs is really good because you learn from each other even if it's a different discipline…
- A week to develop things while students were having exams was ideal.

As well as time to experiment and develop materials, staff also had issues around having sufficient time to be an eTeacher, and they are outlined in the next section.

Teaching

People really wanted management to support eLearning by putting funding towards it so they could do it really well. Otherwise teachers were doing eLearning on top of their 24+ hours a week in the classroom, study for professional qualifications and senior

responsibilities. They found it very hard to upskill and develop courses if there was no time release from teaching. For example, some had no time to even learn how to use the institutional LMS properly, and there was often not a lot of time for big discussions with colleagues; people tended to comment in passing about what they were doing, or learn from overhearing conversations about what others were doing with their eTeaching.

Finally, there were concerns that if lecturers were more available, students would want responses quicker which would potentially increase teaching time and impact on time for upskilling including the time needed to look for courses and external activities. Time for research would also be affected. One person believed eLearning only enhanced teaching if teachers had the time to make sure it did. In the next section, the impact of too little time on staff development and support is reported.

Staff development and support

Time was also wasted when lecturers didn't have adequate support. For example, one teacher spent a lot of time developing a video clip to introduce the course to students, but due to bandwidth problems it didn't work, and a lot of time was wasted trying to access it and get it to work. In that case, advice from an expert in eLearning would have saved a lot of time and frustration.

The type of staff development people chose related to the time they had for it. For many a four day workshop was not possible in which case, brief episodes of staff development suited, and if there was more time people chose qualifications, or courses with assessment because being assessed forced them to an extra level of understanding. Also it was also an issue between working on teaching skills, or working on qualifications related to the professional discipline.

The following comments illustrate some of the opinions around time and staff development:

- I try to keep current but a lot of time you have to do it in your own time.
- Show and tell sessions are good but took time to do and to go to.
- If I have the time then I'd rather do [SD], it's easier to do that than to try and figure it out yourself.
- People often say they don't have time for eLearning so staff development has to be structured so their work load is not doubled.

The suggestion made by the previous quote was also re-iterated by another participant who believed that building in a time allowance for people to get skills and use eLearning was a priority:

- It's important to tie the whole thing in with your staff appraisals and the professional development that goes together with that rather than leave it up to chance.

One person started taking a course but dropped out due to lack of time.

- Time is just the hugest thing.

For some, there was a lack of time to even being able to attend courses at their own institution, let alone search further a-field for different options. For example, one participant wanted to go to a web design course offered at another institution, but due to

insufficient time in the workday couldn't take the opportunity. Staff development for eLearning was a balance between time and economy for the institution, and it was felt that if people were to have enough time for everything they wanted and needed to do as part of their roles, then staff might end up teaching classes with huge student numbers just so the institution could afford to undertake eLearning. Taking time out from teaching was a sticking point for many. For example, one person said,

- The speakers are there and you really want to go and you've made a commitment as a department to do 10% of your course work going online by the end of the year and it's like the impossible dream going to any outside lectures.

Also learning to use an LMS when lecturers had time without teaching was problematic, because often the trainers were on leave, which left insufficient time for lecturers to get the skills they needed to develop content for online teaching prior to the academic year starting. Additionally, even if support like one-on-one was available it was a question of getting the time to take advantage of it especially when it hadn't been allowed for in workloads. Even for informal staff development opportunities, time was an issue, for example, sharing ideas with colleagues had to fit in with teaching times and it depended how far away colleagues were situated, whether they were on another campus or not.

As can be seen, time has a very important impact on several aspects of eLearning for academic staff. Time affects their ability to undertake staff development to upskill, their ability to design and develop good quality resources and their ability to teach effectively. Consequently, time has the potential to impact on self-efficacy for eLearning, because if academic staff are unable to take time to experiment and explore eLearning tools and methods including technologies and pedagogy until they understand what they are doing, and in order to keep up to date, their confidence and capability is not going to either reach or be maintained at the desired level to be able to engage with eLearning effectively. Although it appears from the results of this study that many participants had managed to engage to a certain extent with eLearning, many were not entirely happy with the situation they found themselves in.

The findings associated with learning strategies and the experiences and issues surrounding eLearning are summarised in the next section.

5.4.3 Summary

The majority of participants used learning strategies such as communicating with peers, trial and error, web-based resources and staff development activities rather than metacognitive strategies such as journaling, portfolios and blogging. Feedback from students was also regarded as important for learning whether what they were doing "worked in real life". Not surprising, quite a few people mentioned they used manuals, particularly if they liked to problem-solve themselves. Again, like staff development, there was no one learning strategy which everyone used and which worked, rather a range of approaches.

There were a number of interesting examples provided around user experiences. They related to experiences with staff development, course development, glitches with hardware and software and students. Not surprisingly, experienced teachers who had experienced eLearning methods as students were able to apply strategies they had discovered to their own courses. In the section on issues and problems, participants' experiences with eLearning also emerged.

Top of the list of problems was workload and time. Some lecturers had huge workloads, trying to develop online courses and teach effectively. There were issues with getting adequate resources and support to "do the job properly", and people referred to the need for management to experience or understand the issues before anything ever happened to solve the problems which arose. Problems occurred with software and technology, technical support, and support for using the technology to teach well. In some cases, people wanted more time to explore and experiment so they could develop their own capability rather depending on others all the time. Participants also mentioned how difficult it was to "fit everything in" in their roles as eTeachers; good teaching, research, administration, resource development, staff development. Participants wanted to attend staff development training, seminars and conferences but sometimes found it difficult to extract themselves from their teaching commitments. The general feeling was that the situation needed to change.

In the following sections, an account of how participants have applied their staff development to their eTeaching is recorded along with a number of suggestions they made for improving eLearning and eTeaching.

5.5 Application of Staff Development and eTeaching Methods

Participants were asked how formal and/or informal staff development had shaped their eTeaching, and also how they had applied what they learned to the design and development of their courses. In this section, information such as the types of courses participants were teaching, eLearning limitations, the application of staff development to eTeaching, and eTeaching methods and opinions are covered.

5.5.1 Types of Courses

Participants were involved in teaching in a range of areas e.g. culinary, art, education, health, languages, mathematics, computing etc., and in a variety of courses. These courses are listed in Table 8 below.

Type of Course	Notes
• Online grammar • Ceramics	• Used across four different courses • By distance - glaze, drawing, art history theory, local practical sites supported through eLearning.
• CISCO Information Technology computing • Communication Studies in IT • Work-based training (earn while you learn) • Clinical nursing	• Some class time, but all materials and weekly exams are online. • In online courses • Packages for distance in-house learning. • Discussions to support students in placements. • CDRom resources.
• Philosophy • Languages • Bioscience • Nutrition • Statistics	• Indepth discussions. • Grammar practice. • Innovative resources. • Includes professionals undertaking continuing education. • Offered all round the world.

Table 8: Courses mentioned by participants in the study.

There were some limitations mentioned about using eTeaching and eLearning for courses. Some examples are in the following section.

5.5.2 Limitations

One participant believed that the potential for online grammar learning was limited if only multi-choice was available, because students needed to be able to write sentences correctly as well as identify errors in sentences. Also, some expressed views around flexibility. For example, making students all come online at the same time was not flexible for students who liked to manage their own learning, and online learning had the potential to remove the "any place" aspect of flexible learning. The following statement illustrates this sentiment:

- If you give students a paper copy of something, they can go and sit on a tree, if you force them to sit at a computer……you're forcing them to be somewhere at a particular time and to input information in a certain sort of way.

There were other limitations around staff development. Some participants found that although they had engaged in staff development activities, unless they practised the skills straightaway the learning wasn't applied. Others felt pleased if they could take the information learned from workshops or one-on-one sessions, and be able to use it particularly without help from a support person or manual.

Some of these views are illustrated by the following statements:

- Some of the staff development I have had has been wasted... because it hasn't actually been practiced, so I've actually forgotten, what I was told.
- It doesn't always work. I've been to some staff development on web log and thought that I could probably use some blogging in my classes but it hasn't actually happened. So sometimes it just goes onto the back burner and you hope that you will be able to incorporate that in your teaching.
- Now I have the basics .. they tell me what they want and they give me the basic template and then I can go in each week of each day of each hour I can fiddle with it and change it and respond to what the students need.

eLearning methods people learned were applied in a range of ways, some of which are mentioned in the next section.

5.3.3 Application examples

In one situation, a reflective learning book and online summaries were used so different groups of students could benefit from each others' work. Another example referred to a project done for an assessment in an eLearning course which was used as a proposal for improving the use of technology in his/her own teaching. Other assessment projects in eLearning courses helped lecturers evaluate the quality of their courses or conduct needs analyses to determine the relevance of developing particular resources.

One lecturer undertook a qualification which also allowed her to do the following:

- ..maximise my time … killing two birds with one stone and using a lot of my experiences in obtaining credit for the certificate.

One person couldn't use a lot of what they'd learned as it wasn't "pitched" at the right level, and others mentioned learning about storyboarding and flowcharting and then going on to use the techniques with students. There was a lot more information about how participants in the study were actually eTeaching, and this is described in the next section.

5.3.4 eTeaching

A number of sub-themes emerged in this category such as content, teaching techniques, and deep learning and there were a number of views about eTeaching. One participant liked eLearning overall because it made her a better teacher and stimulated her to use different strategies which kept teaching interesting.

For others there were issues with being told how to do things by the institution e.g. specific file formats for online use, because it felt like someone was coming in to the classroom and telling them how to organise their class, and changing what was working well. One person voiced concern that eLearning was about building up numbers and competition to secure as much money as possible, and not about teaching or learning for students.

In another example, regulations about how to teach online were regarded as very restricting and de-motivating as opposed to attendance at conferences which helped to build enthusiasm and passion. For some lecturers, online teaching was something they had to do because the institution directed it, and for others it was a choice as stated below:

- I'm .. a Distance Educator…. committed to distance education… I choose to teach the distance students.

The following statements depict a range of views about eTeaching. People were adamant about the value of face-to-face teaching and the human component.

- I think it's a really good delivery technique. I don't think it will take over. .. online delivery is not going to take away face-to-face. I just see it as another tool in the belt.
- My pedagogy was that giving them the tools was more useful than giving them the information.
- eTeaching needs to be as excellent as face-to-face teaching.. .….they need to recognise eTeaching is a particular skill .. .. some .. are naturally good … some are not..it's not just about knowing how to stick something on a website.
- There's big, big pressure at the moment in education that things should be, should be available by this format and that standing up and lecturing to people is somehow old fashioned. … I have …really strong feelings that the human contact is really, really important, …what I want to do is try and use the technology as an adjunct and ..make sure the human contact is there in even through the technology. …I don't think, [you should] present people with just, .. a PowerPoint on the internet and say right, there's your class, it would have to have my voice or whatever with it.
- What I am interested in is the teaching and I actually don't like technology and so it needs to be simple and not to interfere with the way I want to teach.
- I'm generally a fairly animated .. teacher. I move around a lot. So especially when I started doing video conferencing .. that was all new to me. So it's good fun. I think it's a challenge. I love it.
- We feel pretty comfortable teaching, we may not have taught online, but we have some pretty clear ideas about teaching what is important and can ask…. How can we enact our principles? How can we do that online?

   As can be seen, the statements clearly represent a group of people who were conscientious about their teaching. As well as the process of teaching, there were comments about the type of content being used by teachers.

- ..a lot of the class content is put up onto the xxxx site so the students can either choose to be in class or not and go through tutorials individually. Also on that site there is some tests to do with assessment ..

- Course readings are sent out in hard copies. I don't put any readings online at all.
- Initially it's time intensive, putting your resources and things together, but in terms of teaching it, I don't see how it would take more time.

Many lecturers looked for web resources such as simulations, demonstrations, models and web pages with relevant information so that links could be put up for students to vary the teaching and resources. It was acknowledged that there were lots and lots of multimedia resources available for teaching information technology subjects. Content was also important for its role in meeting the needs of students, and one participant believed that understanding the culture of the students was the most important thing, and came before understanding the culture of the online environment. Others were also aware of the necessity of catering to the needs of the students. For example,

- I've gone for simplicity now and students are saying how easily they can open stuff and get on to stuff and they don't like anything that's slow….some of them at home have got old, old computers….what I want is simple and inclusive.

Another person could see the relevance of using video clips of teaching experiences to support teacher trainees. There were also opinions about the best approaches to encourage deep learning. For example, holistic assessment approaches were preferred to testing methods which promoted repetition of learnt information back to the tutor even though the latter were easier to mark. In another example, a guest lecturer was asked to act as a client and the class were required to find out about the person's business.

Another learning activity required students to develop a plan for IT security where they had to develop questions suitable for people who were not familiar with IT terminology. This process gave the class real people to work with, and challenged them e.g. if the clients didn't know what the questions meant, the students had to think more broadly and rephrase their questions to get answers.

The use of innovative assessments such as portfolios provided more individualised learning opportunities for students but tended to increase teaching time. For example, marking of portfolio assignments was regarded as one-on-one teaching except there was a delay in feedback. When portfolio assessments were used, creative teaching was required, for example, students need to be coached on aspects such as researching, collecting and presenting material. Another deep learning technique was to get students to refer to real situations from their clinical experiences on the Discussion Board. Online discussion was a good way to get students to reflect on what they were experiencing, and also to think ahead so they could pre-empt situations that might occur.
Some were neither sure about their abilities nor about the potential for eLearning as represented by the next quote.

- I have no idea how to structure a course for online delivery. My (admittedly limited) experience of online courses is that they are used to teach recall type topics, and appear to be effective at that, but are of limited to no use for higher learning levels (Comprehension, Application, Problem-solving).

Finally, some liked to 'teach' rather than facilitate e.g. show students how to find information by clicking on links and showing them websites. This was particularly the

case in courses which were quite prescriptive i.e. "..this is how you do it". Overall, participants made some very perceptive comments about eTeaching and stated some very real concerns.

5.5.5 Summary

Participants were teaching in a range of areas and courses and using eLearning innovatively. There were some comments made about the limitations that eLearning imposed for some areas e.g. flexibility and fitting teaching to technology, and how some things people had learnt about in staff development courses were not particularly appropriate for some classes and in some situations e.g. blogging, online discussions.

Generally, there were very few specific examples of exactly how learning gained from staff development had actually been used for teaching. For example, there was an indirect connection, however, between staff development and what teachers were doing online. For example, if people were going to training courses about LMS and software they were generally using the skills to teach using LMS and to develop materials for use on an LMS.

There were a lot of opinions and comments made about actual eTeaching, for example, eTeaching was a new skill and needed to be recognised as such, and shouldn't be used to replace face-to-face methods but to enhance them because exposure to a "real human" was still important for learning particularly the social aspects. Participants were also careful to ensure that the resources they provided online did not compromise their students e.g. large files which took hours to download, and tried to find optimal solutions. There was discussion around the suitability of LMS facilities for deep learning approaches, and some examples of how deep learning was achieved. Overall, many participants were still unsure about the best ways to approach eTeaching and the design and development of eLearning courses.

In the next section, a number of suggestions from the participants are portrayed.

5.6 Suggestions

A number of suggestions were offered by participants with regard to making the whole process around eLearning and eTeaching more amenable for academic staff.
People thought that having a record of what other people had done would be helpful e.g. use of frequently asked questions, as well as being able to look at others courses. For example,

- It's thinking about the possibilities..using them to their greatest extent and being able to draw on other lecturers who have done that, would be really really helpful…one way to do that is to look at their courses and to see what works for them.

There were also some ideas about what needed to be done to make eLearning work.

- If we're really serious about the eLearning .. it needs .. a more active kind of focus on a number of different levels..
- To harness the creativity, to utilise the creativity,…that's there. There's all these creative people, rather than the direction I see xxx going…which is, like a sausage factory…..

Participants recognised that younger students in particular were becoming increasingly computer literate and knowledgeable about technology and that teachers needed to respond to the flexibility it made possible.

Staff development and other support

There were also suggestions about how staff development and other support could be approached. For example,

- If you're new at this,… the sort of a workshop .. where you're coming together with others who are also doing it, where you're thinking about some of the .. pedagogical dimensions.
- .. having mentors available or having somebody who can showcase the new things every so often, .. presentations so you can go along and see actual examples… You can hunt and find tools and then dream up opportunities and ways to use them, but obviously that takes a heap of time, whereas if we can come as a community, share what we're learning and pass the knowledge on then that's a good thing.
- Setting aside time for workshops and being encouraged to go to them and see what other people are doing is the best way of learning, learning from what's been done in the past.
- … you can't fit in a little bit of learning about eLearning into your already busy day. ..
- it's a type of technology that if you can have 2 hours or half a day away from your desk down in something like an eLearning suite and you can muck around with something that's not live and doesn't actually matter you will get a lot further than if you sit at your desk and spend 10 or 15 minutes once a week trying to comes to terms with a new package.
- It would be ideal to have an eLearning unit with people with the skills because it's like taking your car to a mechanic. I just don't have time to fix things myself even if I know how to do it. I've got better things to do .. You want people with the really good skills who can do a better job than you anyway and faster..
- Do a course first as a student of eLearning…. see what works and what doesn't…then take the stuff that does work and try it out but using mini steps. … don't jump in and try and put a whole course online… do a hybrid or one part of a course.

It is evident in the list of statements about staff development that people thought that the support provided by colleagues was important. Other ideas related to making time to experiment, having a support unit to solve problems as they arose and finding about eLearning by being a student. Another comment was made by a participant who was interested in joining a group to find out about different topics associated with eLearning and about integrating eLearning methods in his/her teaching. Another participant believed there should be support groups or a person in each school as it was preferable to be able to talk to someone external who wasn't immediately involved in the eLearning project. Some other advice was that teachers should go and see what others were doing, to find out if they were having similar problems and what the problems were. It was also advisable to find out how much time was needed to engage with eLearning. In fact there were a few views about mentors. They were seen as people who could be called on informally on an "as needs basis", and would listen and instill confidence as well as suggesting ways of communicating with others for help e.g.

technical teams. It was also believed that tutors could be supported by one-on-one mentoring using funding provided by Government.

Improvements and the future

Suggestions for improving present systems and what the future might hold were also made. For example, a teaching model from the USA was mentioned, where three people were involved in developing and teaching an online course. One was the experienced teacher with content knowledge, another had technology skills, and knew about design and finding resources, and a technician loaded the course on the web. The following statements depict these ideas.

- ..when you compare that to one person who's got a limited knowledge of HTML, who is sussing things out slowly on xxx and trying things, to a team of three working on one course, it's completely different.
- I think that that's where the future's going to be and I think the target's community out there you know you're usually got everything from phones that can take 45 photos in 30 seconds and then email them to 45 recipients which can be captured and used in a ways that we are not actually aware of because there's literally a generational gap there

It was believed that lecturers needed to think outside the square, and realise that the way they had been teaching for twenty years could be enhanced by eLearning methods.

Therefore it was important to make good decisions when developing materials, and some ideas about this factor are covered in the following section.

Development of resources

Sometimes developing resources was problematic and there were a few suggestions for improving the situation. For example, there was an instance where a staff member was slow at typing, and wanted to develop some test-based resources. Although assistance with typing was provided, the exercise became very frustrating, because the person helping didn't understand what the lecturer actually wanted, so it took him as much time to reformat the work to get it right, as it would have if he had typed it himself. It would have worked if the person doing the typing had understood what was needed for the online environment and/or if the lecturer had been able to communicate the requirements better. The following statements highlight some other ideas.

- Guidelines for style sheets when writing for the web would be really good.
- Creating a fun environment … students seem to learn better, .. of course the danger is that they may get so much fun that they're not learning anything at all.
- There were lots of resources for students who read and write I think have heaps of resources, they always have, but oral is hard when you are doing a flexible, so having that, somebody to listen to who's speaking and explaining something rather than just reading the notes off the web, which could be potentially the way that some people use oral or audio on blackboard. But what I'd like to do is kind of use it more as a, you know, a simulated luxury in a way. Where you are explaining concepts. Or even maybe just explaining diagrams

Also, another participant suggested that instructional design needed to take in to account the different ways people read and appropriate use of language, colour, links and animations.

Overall, it was believed that if institutions used eLearning as a tactic to recruit more students it was really important that they supported it fully through good staff development, instructional design and production support, adequate and up to date technology in classrooms, sufficient computer labs and Internet access for all students. As one person stated.

- ..you can't go in half heartedly as an institution.

This comment sums up the general feeling about what was optimal to ensure good quality eLearning. The trends which emerged in the case study will be discussed in more detail in the following chapter and aligned with findings from other studies from the literature.

Chapter Six: Discussion, Conclusions and Future Research

In this chapter, the findings of the research project will be used to answer the research questions. Limitations of the study, final recommendations and ideas for further research are also presented. The range of staff development models currently offered in each of the six partner institutions will be reported and discussed on illustrating how they prepare academic staff for eLearning with an emphasis on why some are more effective than others. Additionally, evidence is presented to demonstrate whether or not metacognitive strategies enhanced participant self-efficacy with eLearning. The, ensuing impact on course design for eLearning is covered briefly.

The research questions that guided this study were:

- What is the range of eLearning staff development models offered by New Zealand tertiary providers?

- How do SD models prepare academic staff for eLearning?
    - Are staff experiences of eLearning and levels of self-efficacy related to the type of staff development provided (ICT training versus capability-based PD or alternatives)?

- Why are some staff development models more effective than others?
    - Does the use of metacognitive strategies in professional development have an effect on self-efficacy levels of learners?
    - Does the level of self-efficacy influence staff experiences of eLearning and how they apply their knowledge to courses using online delivery.

6.1 Staff Development and Adoption of eLearning

The group under study were overall relatively experienced in and confident about with using eLearning tools and methods. They had a broad range of traditional teaching experience and to a lesser extent were familiar with eTeaching. Additionally the majority had engaged in a variety of staff development methods to support their eTeaching. There was a mix of mainly early adopters, who had been using computer technologies for some time and were willing to take risks, mainstream academic staff who were following institutional trends and were more cautious, and also a few "non-adopters" (Jacobsen, 1998, p. 5) who were opposed to the idea of eLearning for various reasons.
Burdett (2003) describes the characteristics of early and late adopters as being the respectively the difference between those who innovate and those who follow. In some cases, mainstream faculty was divided into early majority and late majority depending on the acceptance of the groups for eLearning, i.e. early majority embraced technology whereas the late majority were reluctant to engage (Mitchell, Clayton, Gower, Barr and Bright, 2005). It has also been shown that early adopters and late adopters engage with and use technology differently, that is, the former group prefer to explore and problem-solve whereas the late adopters or mainstream users want to be convinced of the benefits before using it (Hegarty, Penman, Nichols, Brown, Hayden-Clark, Gower, Kelly and Moore, 2005). Other terms have been used to describe users of technology,

for example Mitchell et al (2005), developed five classifications: embracers, modifiers, examiners, doubters and refusers. Embracers have advanced knowledge of eLearning and use it to transform teaching, modifiers understand eLearning tools, use a range and focus mainly on transmission of content, examiners have limited knowledge of eLearning and are exploring the possibilities, doubters know a little about eLearning, but are not using it and refusers are opposed to eLearning on philosophical grounds. Participants in this study fell mainly into the first three categories.

There is evidence to suggest that staff development needs to strategically target the different groups of users. For example, Wilson and Stacey (2004) believe that mainstream staff should be catered for, rather than the early adopters or innovators and Jacobsen (1998) reported there was a need for just-in-time support. In the literature, there are a number of studies confirming the need for timely and wide-ranging staff development opportunities to be provided (Hegarty et al, 2005; Mitchell et al, 2005). It has also been shown by Oliver (2004) that a number of staff development approaches should be used, not just one, and that they be used in different situations and contexts, depending on factors such as motivation, incentives, staff values and the type of support needed at the time. Additionally, Littlejohn (2004) reported a range of institutional interventions in place in the United Kingdom and the link between effective staff development in eLearning and success for staff.

6.1.1 Staff Development Models Offered by Six New Zealand Tertiary Providers

This research study has highlighted a range of eLearning staff development models currently offered by six New Zealand tertiary providers from which participants for the research project were drawn. The type of staff development on offer can be broadly categorised as formal and informal. It needs to be noted from the outset that the type of formal staff development offered by the institutions and the professional development undertaken by staff for eLearning were not always the same. For example, although most institutions provided some form of competency-based training in the form of short 'hands on' workshops focussing on the acquisition of ICT and LMS skills, there was an overwhelming trend for staff to engage in activities which were not formally recognised by the institutions. For this study, these activities were classified as informal staff development, and many were undertaken by staff in their own time. The range of formal courses and qualifications and other methods in use will be discussed in the next section.

6.1.2 Formal Staff Development

Most of the institutions had centres which provided staff training and supported staff in the development of courses for eLearning. Generally these centres offered a range of courses which the majority of participants had used to prepare for eLearning. The most cited choices related to technical online teaching and learning i.e. LMS, followed by general computing instruction e.g. Microsoft Office, then online teaching and learning instruction which covered pedagogical ideas i.e. design, tools and eTeaching and lastly specialist software instruction. Participants most favoured face-to-face, online and one-on-one modes for the courses, with a smaller number who had upskilled using formal mentoring. In some institutions this type of formal learning is offered within formal qualifications such as graduate certificates, in others it is offered as part of formal staff development.

There are a number of studies which recommend the use of mentoring as a staff development method. For example, Wilson & Stacey (2004) recommended the use of mentoring approaches by peers for the development of mainstream staff, in addition to online courses and accredited programmes. Littlejohn (2004) had this to say about workshops and mentoring: "Staff can be enabled to use tools to change practice by providing support in the form of workshops or one to one mentoring" (p. 19). In a study across a number of Australian tertiary institutions, McNaught, Phillips, Rossiter and Winn, (2000) cite a number of initiatives where mentoring was successful, and they recommended the use of mentoring to promote "a collegial atmosphere of support rather than a training regime" (p. 128). Mitchell et al (2005) demonstrated that mentors were regarded as extremely important for influencing the adoption of eLearning in New Zealand, with access to both technical and pedagogical professional development being important. McNaught et al (2000) also found that staff needed flexible approaches to staff development, not only in the type of resources offered (online and print), but also in the content covered so that both "phobics" (p. 126) and innovators were catered for regarding technology.

Although participants generally felt well served by courses with a focus on developing the technical skills required for eTeaching, many interviewed identified the need to explore educational pedagogy more fully. Although show casing seminars and seminars involving visits from experts were offered, many participants had been unable to attend due to a number of reasons. Some participants believed that the scholarship of teaching had been neglected for technology. This is reiterated in studies by Maor (2004) and Hyland (2004). In the report by Maor (2004), the pedagogy gap was addressed through the formation of a community of learners which helped staff to integrate pedagogy and technology more easily. It was believed by some participants in this current project that formal qualifications covered pedagogy, whereas the courses offered by support centres were more technical in nature.

It was found that not everyone wanted to undertake qualifications, although there was a wide range on offer across the six institutions (see Chapter Five). Just under a quarter of the participants had obtained an eLearning qualification, and a further group were in the process of either studying for one, or were using eLearning methods to study for a qualification in their discipline. Some participants found the experience of being an online student very helpful when they came to develop their own courses. Qualifications and experience as online students were mentioned by several researchers as one way for staff to gain skills for eLearning (Hartman and Truman-Davis, 2001; Oliver, 2004; Seagrave, Holt and Farmer, 2004; Wilson and Stacey, 2004, Mitchell et al, 2005).

6.1.3 Barriers - Time and Workload

One of the clearly identified barriers to formal staff development cited by many of the participants was the time commitment and the length of time required to complete especially formal programmes. Participants noted that they needed to know about the theoretical and practical components of eLearning immediately so they could teach online. Additionally, study for eLearning qualifications often competed with study for professional qualifications which were needed for the disciplines in which the lecturers had to teach. However, barriers to engagement by participants in formal staff development are not only time, but also workloads and institutional support.

The type of staff development participants were able to engage in depended on how much time they were able to spare for training or qualifications, and also on whether

they could get released from teaching commitments. There was a preference for staff development to be in "small chunks" or during non-teaching weeks. As one person stated, "time is just the hugest thing". Other studies also allude to time as a barrier to the uptake of eLearning. For example, Schifter (2000) found that lack of time release was an inhibiting factor for staff wanting to engage in asynchronous learning networks or distance education. Several other researchers also allude to time as a barrier for faculty wanting to develop the necessary skills for eTeaching (Bates, 2001; Chizmar and Williams, 2001; Wallace and Pajo, 2001; Pannan and McGovern, 2003; Hyland, 2004; Jones, 2004; Mitchell et al, 2005).

As well as time, workload was mentioned frequently by participants in this study as an inhibiting factor in the adoption of eLearning. Where staff already had heavy workloads, the time to learn new skills to use eLearning tools and methods became prohibitive. Workload concerns in this study also related to course design and development, and the extra impact on teaching time which was associated with eTeaching. In line with these concerns relating to workload and time constraints, similar issues are mentioned by other researchers as inhibiting factors for staff adopting eLearning (Betts, 1998; Berge and Muilenburg, 2000; Schifter, 2000; Chizmar and Williams, 2001; Jones, 2004; Shannon and Doube, 2004; Mitchell et al, 2005). The adoption of eLearning was not specifically examined in this study, but suffice to say, comments from the participants have confirmed findings from other studies.

As mentioned previously, institutional support was another issue cited by participants in relation to their engagement with formal staff development. There was not only a need for institutional support to enable staff to engage in staff development per se, but also support after courses had finished, i.e. just-in-time support and mentoring. In some institutions there were personnel specifically assigned to support staff with eLearning. In others, support appeared to be ad hoc with staff not sure of who to contact, therefore, they tended to approach either peers or technicians or staff development personnel. In the present study, a minority did not feel well supported by the institution even if courses were offered, because they were often unable to get to them, or they were left unsupported afterwards. Others were not well supported by their managers, therefore, were unable to engage with staff development. Still others found the bureaucracy surrounding signing up to courses prevented their participation.

There were also cases where formal interest groups had been started up, and from these interactions informal "buddy" support networks developed. Wilson and Stacey (2004) report that networks of peers were commonly used in a formal way across several tertiary institutions in Australia to promote "collaboration and learning from others" (p. 39). An holistic approach to staff development i.e. the use of a variety of methods and options for accessing appropriate staff development could be a way to address problems associated with the timing of staff training, and this approach has been recommended by others, for example, Gruba (2001).

The discussion to this point has covered mainly competency-based ICT training (face-to-face, online, one-on-one), qualifications, mentoring and just-in-time support as ways in which participants engaged with formal staff development. In this study, a gap was identified for staff development which covered pedagogy, and a need identified for a more coordinated approach to formal support following courses. The majority did undertake formal staff development even though there were difficulties associated with time, workloads and institutional support. Opportunities such as attending seminars and conferences, and receiving support from peers were also forms of staff development

undertaken by participants, and will be covered in the section on informal staff development which follows.

6.1.4 Informal Staff Development

Informal staff development activities for eLearning tended to be undertaken by the majority of participants, additional to the requirements of their academic role. These requirements include: teaching, course development, research, institutional committees and projects and professional development for the discipline in which they were teaching and administrative duties. A wide range of informal staff development opportunities were accessed by staff. The most popular were using the Internet, reading and accessing websites and personal resources, discussion with peers and working with early adopters or peers. The support of peers was regarded as very helpful by the majority of staff. They went to seek help from colleagues for a number of reasons: following formal workshops, when they "got stuck" practising the skills they had learned; for ideas about design and teaching online; to get assistance when developing materials and resources for the web; as mentors; for projects; just to "bounce ideas around"; to get help from "an expert"; to find simpler ways to do things and so on. It appeared that following initial exposure to eLearning tools and methods through training sessions and "show and tell" seminars, academic staff who then started to explore eLearning further found the help of peers invaluable. Phelps, Hase & Ellis (2005) have shown that two-way benefits result from mentorship relationships and peer support, because the exchange of information and knowledge building which occurs enhances the capability of both parties.

As part of working with peers, some participants mentioned working in teams as helpful when developing resources for eTeaching, because they did not have to be an all round expert, and could get the assistance they needed when they needed it. There are many examples in the literature where project team approaches have been used as a way to support staff and promote the adoption of eLearning (Ellis & Phelps, 2000 ; Christie, Rillero, Cleland,Wetzel, Zambo & Buss, 2001; Sim & Jones, 2002; Pearson & Koppi, 2003; Taylor, 2003; Steel, 2004). For example, Steel (2004) reports that the reliance on workshops alone created problems for staff wanting to design and use educational technology resources and integrate them in to their teaching. This researcher recommended the use of multidisciplinary team approaches so that academic staff could obtain the training and knowledge most appropriate for their needs. According to Sim and Jones (2002) project-team approaches help to foster the development of communities of practice. In this study, one or two participants mentioned they would like to engage in a community of practice, and some were already doing this as part of their involvement with interest groups. Maor (2004) also discussed the usefulness of forming communities of learners to help teaching staff integrate technology and pedagogy with the view to improving the quality of eTeaching. However, they weren't the most popular strategies as outlined in the next paragraph.

As well as project team and community of practice approaches, other informal staff development engaged in by over half the participants involved exploration of software, involvement in projects, and observation of others' online courses. Methods such as attending workshops or seminars and conferences, participating in email lists and using "how to do it" resources were just below the median in popularity. Items such as reading newsletters, engaging in Blogs, special interest groups and drop in sessions were least favoured along with accessing friends/whanau. All these informal staff development methods were selected by participants themselves as a way for them to build their capability for eLearning. In other words, they were monitoring and

regulating their own learning i.e. using metacognition (Gravill, Compeau & Marcolin, 2004), and using strategies associated with metacognitive processing to develop capability (Phelps, Hase & Ellis, 2005).

Although there were some people who preferred to have others "do it for them" the majority of the participants wanted more time to explore and experiment so they could develop their own capability rather than depending on others. A lot of support did not necessarily lead to higher confidence, and could lead to "over-dependence and lack of confidence" (Phelps, Hase & Ellis, 2005, p. 79), and the factors which influenced the uptake of skills in computer learning were complicated and variable (Phelps, Hase & Ellis, 2005). Additionally, individuals caught in competency-based training models, often failed to progress their skill-base and also needed external direction in order to do so (Phelps, Hase & Ellis, 2005). There is, however, a lot of evidence that capability-building, which comes from self-directed and metacognitive approaches, e.g. taking charge of one's own learning, reflective strategies, mentoring, teaching others, rather than just acquiring competency-based skills, leads to computer users with higher levels of self-efficacy (Decker, 1998; Jacobsen, 1998; Phelps, 2002; Phelps, Hase & Ellis, 2005).

6.1.5 Self-efficacy

In order for individuals to be able to manage their learning concerning computer technologies, they need reach a certain level of confidence in their abilities i.e. self-efficacy (Gravill, Compeau & Marcolin, 2004). There is strong evidence from this study to suggest that the majority of participants were engaging in capability-building staff development and using a wide range of learning strategies to promote their level of readiness for eTeaching with the majority of participants (70%) stating they were overall confident with using eLearning tools and methods. The high level of self-efficacy demonstrated by the majority of participants for eLearning was probably associated with their familiarity with eTeaching. On average participants had previously taught 41% of their courses using eLearning methods. Additionally, there was a relationship shown between the percentage of courses taught using eLearning tools (methods) in 2004, and the efficacy score for overall confidence using eLearning tools. These findings are indicative of the relationship between previous experience and self-efficacy, and feeling prepared.

The following statements illustrate some of the feelings around preparedness and confidence: "I feel prepared because I've done it before and wouldn't be fearful of doing it again", and "until I've done it once I'm not going to feel totally confident". For some preparedness was about previous experience, and for others it related to taking qualifications and to the workshops they had attended. However, feeling confident and prepared using technology didn't necessarily help with confidence for the educational side of eTeaching. Some participants were wary about the impact of technology on their teaching, and unsure about the benefits for students, and they tended to use basic tools. Many participants could perceive the potential of eLearning for teaching and learning, and were very interested to try different eLearning tools and methods. Several studies have obtained results which demonstrate that beliefs have an impact on the use of eLearning tools and methods. For example, it has been widely stated in the literature that when academics could see the benefits of eLearning for their students, and believed eLearning would improve their teaching, they were more likely to embrace it (Jacobsen, 1998; Inglis, Ling & Joosten, 1999; Schifter, 2000; Errington, 2001; Butler and Sellborn, 2002; Pannan & McGovern, 2003; Hyland, 2004).

There was also evidence to indicate that teaching staff who are confident using technology will approach the challenges it imposes with some alacrity and persistence and be willing to tackle problems as they arise and find ways to solve them (Decker, 1998; Kelley, Compeau & Higgins, 1999; De Montigny, Cloutier, Ouellet, Courville and Rondeau, 2001; Phelps, Ellis & Hase, 2001; Phelps & Ellis, 2002). In this study there was evidence to support these characteristics of self-efficacy. For example, the majority of participants in the study exhibited high and very high efficacy scores for five aspects of eLearning: personal efficacy, confidence using eLearning tools, and when undertaking a project to set up an online course, personal characteristics for learning new software or using eLearning tools and facilities, as well as overall confidence (see Figure 2). There was also a relationship uncovered between characteristics denoting high self-efficacy for eLearning such as: feeling at ease learning about computer technology or not being worried about making mistakes, and putting in a lot of effort to get something right along with persisting alone until it worked correctly. Additionally, confidence in their ability to teach well in a course that required them to use computer technology was associated with overall confidence. The ability to enjoy using eLearning tools and finding learning to be an eTeacher easy was another characteristic where a relationship was found for this group. Surprisingly, there was no association between overall efficacy and the ability to solve problems though efficacy scores for problem-solving on its own were mainly high. This result for the ability to problem-solve indicates a relatively capable group, and is consistent with findings elsewhere, for example, Phelps (2002) confirmed through the use of action research that problem-solving was one of the strategies involved in a metacognitive computer learning process.

There was some difficulty in demonstrating that the levels of self-efficacy for this study group related to the type of staff development provided. There was no correlation between formal and informal staff development or between formal or informal staff development and overall efficacy scores. Hence, the influence of staff development methods could not be directly related to the overall high levels of self-efficacy found in this group of participants. There was evidence, however, that this group were self-directed learners, and used both competency-based and capability-based methods of staff development, both formal and informal. This may have influenced the participants' reported high level of self-efficacy with, and adoption of, eLearning. There was also a higher percentage engaging with informal activities compared to formal staff development.

In addition, there was descriptive evidence to indicate that staff experiences with eLearning were related to the type of staff development provided. The comments and overall trends taken from the focus groups, questionnaire and interviews were overwhelmingly positive towards informal methods such as collegial support (individuals, special interest groups and mentoring), collaborative projects, seminars and conferences ('show and tell', visiting experts) and just-in-time support. For example, "learning has been easier because of one-on-one support [mentoring]", "working with a colleague was really helpful, "I like to bounce experiences off other people", working as a team is better than doing it on your own". Participants were sometimes disparaging towards formal training courses, finding they were often not at a level they needed, or did not offer what they needed, or that they could not attend due reasons such as teaching or other time commitments. For example, "I've done the course twice now and still don't feel that I've got any great grasp of it", and "formal courses would scare [some academic staff]". Overall, participants in this study were using a variety of staff development methods to prepare themselves for eLearning.

In the literature, there is strong evidence to indicate that innovative and multi-faceted staff development is needed to promote and support the adoption of eLearning (Jacobsen, 1998; Inglis, Ling & Joosten, 1999; Bates, 2000; Errington, 2001; McNaught et al, 2001;National Staff Development Council, 2001; Robinson, 2000?; Haddad and Draxler, 2002; Hegarty 2004; Hegarty et al, 2005; Mitchell et al, 2005). Additionally, methods of staff development which encouraged project-team approaches and learning situated in the context of the organisational environment, and which targeted the individual needs of academic staff, were also regarded as important by several researchers (Robinson, 1998; Seagrave, Holt & Farmer, 2004; Steel, 2004). For example, Robinson (2004) believed that a lot of training approaches dissociated learners from the context in which they were teaching in their organisations, and took the responsibility for learning away from them. Additionally, learners tended to forget skills unless they were able to practice them in context, resulting in "failed transfer of learning to real-work situations" (p. 39). Seagrave et al (2004) also referred to the importance of professional development which encouraged the use of formal peer support and sharing of experiences and practice. These researchers also suggested that academic staff would benefit if they engaged in qualifications for eLearning, which were situated within the context of the institutional culture and its strategic direction (Seagrave et al, 2004). Although several of these processes were occurring in the six institutions investigated in this project, they were of an informal nature, and a full investigation of each type was beyond the scope of this project. It would be useful if there was further research into this area i.e. informal and capability-based staff development.

6.1.6 Application of Staff Development by Participants to their Courses

In light of how staff applied the knowledge they gained from staff development to their courses, the majority of participants were using an LMS and other eLearning tools of some kind to deliver their online courses. On the whole they were confident with using eLearning tools and methods for teaching in particular email, Powerpoint, text-based materials, discussion boards, LMS and chat. These findings are consistent with research conducted by Mitchell et al (2005) in the ITP (Institutes of Technology/Polytechnics) sector. Each institution taking part in the study was using an LMS which appeared to be a driver for most staff adding eLearning delivery methods to their teaching, with the level of innovation tending to be restricted to the use of an LMS. The fact that this group of participants scored a high mean level of efficacy in their ability to solve problems indicates that they are used to experimenting with technology, even if it is largely restricted to or focussed around the use of an LMS. Participants did mention the use of some specialist software and technologies, e.g. Microsoft Producer, Macromedia Dreamweaver, Hot Potatoes, Director, and a few people were using audio and video technologies. Institutional cultures which promoted experimentation in a supportive environment have been shown to improve the level of innovation and self-efficacy and capability of staff for eLearning (Buss & McClurg, 2000; Christie et al, 2001; Hofer, 2001; Hutchinson, 2001; Phelps, Ellis & Hase, 2001; Phelps, Hase & Ellis, 2005). Institutions in this study were on the whole using ad hoc approaches to supporting experimentation with technologies other than LMS. It was not clear from this study what proportion of participants were highly innovative. Findings indicated that LMS facilities were being used for a wide range of learning activities including lectures, learning tasks, formative assessments, tutorials, quizzes, along with online discussions and projects. For example," [Discussion Board] encourages depth of reflection and deeper discussion of concepts", and "..concentrate on building an online community [using] discussion". The majority appeared to be interested or concerned about providing a high quality learning experience for their students, and in using eLearning

tools for more than "text dumping". Although some people were using strategies such as online discussions and chat and blogging enthusiastically, the students were not always as keen, particularly in using tools such as chat and blogging. A number of people were also using blended methods and acknowledged the importance of the human presence for learning and socialisation. Overall, participants were aware of the need to provide interactive learning experiences which engaged students and motivated them as learners; the importance of which has been demonstrated by a number of researchers such as Penman (2001); Nichols (2001); Muirhead & Juwah (2003), and Hegarty (2004). In addition to the general findings, the following section provides an overview of how some individuals have approached staff development for eLearning.,

6.2 Overview of Six Individual Case Studies

Each of the following examples illustrate that learning obtained from staff development had different outcomes for each person.

Participant 2 had no eTeaching experience and although he had acquired an eLearning qualification, there had been no opportunity to apply his knowledge, and he had not felt particularly confident until he got the opportunity to teach off shore using technology. Although Participant 2 had no experience with eTeaching in comparison to the majority of participants, he was regarded as an "early adopter" by peers in his area, and had taken responsibility for developing some eLearning resources. Participant 2 had demonstrated personal characteristics associated with high self-efficacy for learning new software and was positioned to develop his capability through experimentation and working with peers.

Participant 13 in comparison had undertaken little formal staff development, but was working in an area where he was exposed to the use of innovative technologies. Although Participant 13 felt confident enough to "take risks" and experiment with specialist software, and had been to courses to learn to use it, he was inhibited by not having the time to be innovative. He would have preferred to have resources built for him by a central unit. As a result he tended to fall back on traditional methods. Participant 13, however, did demonstrate a certain level of adaptability in the strategies he used for self-learning, and a high level of self-efficacy which enabled him to experiment with what he could develop for his students.

Participant 49 had not found formal staff development very helpful apart from some courses related to online teaching and learning. The reason for this was because she could not retain the skills learned in workshops unless they were used immediately. This participant found that informal strategies such as attending conference and mentoring were more appropriate, and by using these had overcome her anxiety with eLearning. Participant 49 now felt highly confident and enjoyed interacting online and in some depth with students. This participant was not a "risk taker" but was very sure about the teaching strategies she wanted to use as an eTeacher, and sought the appropriate assistance she needed to support them.

Participant 76 is a new user of eLearning tools with identifiable knowledge and skill gaps and no experience of eTeaching. Her first course was planned but was not timetabled to start until later in the year. Despite attending a number of formal courses, and utilising informal means of staff development in preparation for this change in her teaching, Participant 76 still presented with low self-efficacy in relation to online learning. This may in part be due to the fact that Participant 76 was yet to implement her prepared course. In fact, Participant 76's informal learning seemed to have led her

to believe that she could expect difficulties, but the learning she had done to date did not leave her feeling confident in her ability to cope with these difficulties. Participant 76's course had also been developed for her, but she was very unsure who would be able to support her in developing it further. Throughout her interview, Participant 76 also clearly noted that she needed to know more about the pedagogy, but that this had not been provided in any depth through the staff development she had undertaken. IT seemed likely that Participant 76 would continue to develop her competency and capability for eLearning, but the outcome would depend on a number of factors.

Participant 81 was both an experienced lecturer and also had some experience in eTeaching. This participant also had a role of administrator which meant that he felt responsible to lead in using eLearning in his area. Despite having had some experience of using eLearning, Participant 81 exhibited some of the characteristics related to low confidence, andwas the only participant in this sample to have participated in very little staff development. He had not completed any qualifications in eLearning, and had only attended a few courses focused on the learning of skills. Participant 81 was aware that there was more that he could do but like many in this study cited the lack of time as one of the barriers. Instead Participant 81 tended to utilise informal staff development as main way to increase his knowledge and he valued this as it not only validated his educational practices, but provided him with links into other sources or resources. Participant 81 recognised that these learning strategies probably did not meet all his needs, but pragmatically he opted for just in time support knowing that this was not helping him to further his knowledge of pedagogy.

Participant 91 was a both a very experienced eTeacher and committed distance educator, unlike the other participants mentioned previously. Additionally, although she had acquired a formal eLearning qualification as a distance student several years ago to prepare as an eTeacher, she described herself as cautious in the approaches she used for teaching. Overall Participant 91 was a confident user of eLearning tools and methods, but tended to use only the LMS tools she thought were necessary for the way she wanted to teach online. Participant 91 had taken several workshops on technical and pedagogical aspects of eLearning. In comparison to the other participants, Participant 91 had undertaken much formal staff development, and engaged in a number of informal strategies, and was the only participant teaching totally online. Although she was not particularly interested in experimenting with technologies, and admitted to having low technical skills, she was comfortable with using technology in her teaching and kept up to date as needed. She relied more heavily on her knowledge of pedagogy, to drive the design and development of her courses than on eLearning tools, and had found herself a comfortable niche as an eTeacher.
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6.3 Were the Research Questions Answered?

Yes the research questions were answered, and extra information was unearthed as well. The evidence gathered in this research study has demonstrated that there were a wide range of staff development strategies in use by participants, but only a small number of methods were actually offered formally. Overall, participants used a breadth of informal activities and learning strategies (see section 3.1.3) to prepare themselves for eLearning, and in the process had engaged in metacognitive strategies to plan and access the learning they needed. There was no definitive evidence to demonstrate that one type of staff development was any more effective than another type, rather it has become apparent that a variety of staff development methods and learning strategies are needed to prepare academic staff for eLearning. Also it is not possible to state which specific

metacognitive strategies, or particular type of staff development, directly enhanced self-efficacy for eLearning, or the effect on course design and development.

There is sufficient evidence, however, to indicate that a combination of both competency-based and capability-based strategies in particular for staff development in eLearning are advised. For complex environments such as eLearning environments, research has shown there is a need for more complex models of learning, for example, Phelps, Hase and Ellis (2005) describe capability-based learning as more functional in the long term, because it deals with complexities when applied to computer learning. They also state that capable computer learners tend to function in what is called the "edge of chaos", and are more pro-active in their adaptation to a new environment. Phelps et al (2005) recommend the use of reflective journals and other metacognitive strategies to promote what they refer to as "divergent pathways" (p. 12), and to help individuals "gain insight into the significant impacts on their learning" (p. 14). Where individuals remain on a competency-based pathway, they are likely to "stagnate" (p. 186) in their learning and will continue to require external stimuli to gain new skills (Phelps, 2002). Certainly the majority of participants in the present study appeared to be proactive in their approaches to keeping abreast with eLearning developments.

Other factors which emerged from this study relate to some of the problems and challenges which faced participants when they engaged with eLearning. For example:

- Most people were unsure of the appropriate pedagogies to use for eLearning.
- Institutional support in the way of incentives.
- Time release for staff development and course development.
- Prioritising eLearning within existing roles.
- Workloads for eTeaching.
- Technical support.
- Support for design and development of course materials.
- Provision of adequate equipment and software.

These issues were outside the brief of this project, but mirror the findings of many other studies reviewed by Mitchell et al (2005) and Hegarty et al (2005), and as such warrant further investigation. Additionally, participants wanted to have time to be able to explore and trial technologies which supported the type of teaching they wanted to provide rather than having to fit their teaching to the technology provided. Essentially, this group of participants were very dedicated and experienced teachers who wanted to provide quality learning experiences for their students, and enjoy what they were doing. They wanted time to explore eLearning and keep up to date so they could continue to teach effectively. Additionally, they wanted to be involved in decision-making and be supported appropriately, so they could move forward and keep abreast with the changes which were occurring in education.

6.4 Limitations of the research

This was a case study involving six institutions in the New Zealand tertiary sector, and as such is merely a snapshot of a situation. Although the findings may mirror trends elsewhere, they cannot be used to predict outcomes either in the six institutions or elsewhere, or to explain causal effects.

The self-efficacy part of the questionnaire, was a modified form of other self-efficacy questionnaires which had proven reliability and validity, e.g. Phelps (2002). The sample

used for pre-testing the self-efficacy part of the questionnaire was very small (n= 9) due to the time of year (just before a major holiday), and as such definitive reliability and validity for the questionnaire could not be statistically ascertained from the pre-test. Another limitation was the number of participants who responded to the online questionnaire (n = 82). This number was too small to ascertain statistical internal criterion validity, however, a professional judgement re this type of validity was made by a professional consultant. Only a small proportion of academic staff involved with eLearning in the six institutions responded to the survey, therefore indepth statistical data could not be obtained. Numbers were adequate to determine statistical correlations between data sets, and estimations of frequency, mean and median.

A larger number of interviews were planned (10 per institution), but given the time and funding limitations these numbers were limited to five per institution. Due to the unavailability of some staff in one institution, the total participants interviewed ended up being 27 rather than 30, or 60 as originally envisaged.

Although a large amount of descriptive data has been extracted and analysed for themes, time and funding limitations have not enabled all themes to be analysed in-depth to determine the frequency with which each theme occurred.

6.5 Conclusions

This research evolved into a complex study providing rich and very interesting data. The majority of participants demonstrated high self-efficacy for eLearning, had some experience in eTeaching, and had attended both formal staff development workshops as well as engaging in a variety of informal staff development strategies. The outcome of the project has provided answers to the research questions, but as could be expected even more questions have arisen which require further investigation. There are four main findings from this project:

1. The staff development models in use across six tertiary institutions in New Zealand are very similar. There is a predominance of competency-based training workshops on offer using both predominantly face-to-face and online delivery methods combined with one-on-one sessions and mentoring. These are generally focussed around the LMS in use by the institution. All institutions offer some form of qualification related to teaching and eLearning skills. Just-in-time support is also provided on a regular basis by support staff. Some show casing seminars and seminars involving visits from experts were also offered.

2. Predominantly participants were engaging in what was defined as informal staff development due to a variety of factors. These included factors such as the fact that the participants interests were wider than what formal staff development had to offer, as well as time and workload constraints associated with eTeaching. As a result participants were utilising metacognitive strategies to build their own capability for eTeaching some in their own time. Where project teams were used for course development, they were generally an informal arrangement.

3. Existing formal staff development models in the six institutions sampled are not adequate to assist staff to fully develop their capability and potential for eLearning. They are merely providing a beginning competency for eLearning. Formal staff development does not extend to the use of many of the informal

approaches that participants used.

4. The findings of this project were consistent with research elsewhere in the New Zealand tertiary sector, for example, Mitchell et al, 2005, in relation to factors impacting on staff who engage with eLearning and some of the impediments which may affect adoption of eLearning, e.g. time and adequate support. Additionally, the findings mirror recommendations in the literature regarding the need for varied approaches to staff development and the need to build capability, as well as barriers for staff to eLearning (Jacobsen, 1998; Inglis, Ling & Joosten, 1999; Bates, 2000; Errington, 2001; McNaught et al, 2001;National Staff Development Council, 2001; Robinson, 2001; Wallace & Pajo, 2001; Haddad and Draxler, 2002; Hegarty 2004; Hegarty et al, 2005; Mitchell et al, 2005; Phelps et al, 2005).

6.6 Implications for Further Study

Several themes and factors emerged from this study which need to be examined in more depth and across a wider number of TEOs in New Zealand. Some of these suggestions are listed below:

- Investigate the implications of time and workload on engagement with staff development for eLearning, and the ensuing impact of these factors on both the development of quality materials and course activities and eTeaching.
- Use action research to explore the use of a capability-based approach to staff development e.g. project team approaches.
- Use complexity theory to examine the relationship between informal staff development, metacognitive strategies and existing capability of tertiary teaching staff for eLearning.
- Analyse themes from this research project in more detail to determine the frequency of occurrence.
- Investigate some of the problems and challenges highlighted by participants in this study such as institutional support, prioritising eLearning (in comparison to requirements for role such as research), technical support, support for design and development of course materials, provision of adequate equipment and software, and appropriate pedagogies for eLearning.

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APPENDIX - A : FOCUS GROUP QUESTIONS

Focus Group Questions

1. What type of *formal* staff development support is offered at your institution to prepare you for eLearning?

   Have participants describe each fully, as we cannot assume that we all use the same terminology for the same learning activities.

   (courses/workshops and staff development as well as that might occur through mentoring or facilitating. The type of staff development included here is formally recognised, part of workload, renumerated possibly but may or may not be driven by SD).

2. What type of *informal* staff learning is engaged in by staff when preparing for eLearning?

   Have participants describe each fully as above. (For example, the informal learning that occurs when an 'early adopter' passes on or encourages their colleagues to engage in eLearning, but is not formally recognised, not a recognised part of workload, not renumerated, may or may not be driven by Head of School, Dean or staff development)

3. What types of strategies for learning have you used for your own learning, or are encouraged to use through formal or informal learning (for example – computing courses, online journals, logs of readings, practice)

   Please note: The researchers will be provided with a range of types of models to encourage full discussion, but we don't want to put words into people's mouths either! Focus group sessions will be expected to take one hour, but researchers can be flexible with this. The emphasis is on finding out the information needed to progress the research.

APPENDIX - B : QUESTIONNAIRES

1. Questionnaires used for Validity Testing

This questionnaire is being used to test the validity of the ALET questionnaire.
Taken from: Phelps, R. (2002). Mapping the Complexity of Computer Learning:
Journeying Beyond Teaching for Computer Competence to Facilitating Computer
Capability. Unpublished PhD, Southern Cross University, Lismore. Available at:
http://ids.lis.net.au/renata/index.htm

Please answer the following questions:

Feelings

Please respond to the following five questions using the following scale, where 1= strongly disagree and 7= strongly agree.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

1. I am confident about my ability to do well in a course that requires me to use computer technology	1 2 3 4 5 6 7
2. I feel at ease learning about computer technology	1 2 3 4 5 6 7
3. I am the type to do well with computer technology	1 2 3 4 5 6 7
4. The thought of using computers is not frightening	1 2 3 4 5 6 7
5. I do not feel threatened by the impact of computer technology	1 2 3 4 5 6 7
6. I am not worried about "breaking" computers	1 2 3 4 5 6 7
7. I feel comfortable about my ability to work with computer technology	1 2 3 4 5 6 7
8. Overall I don't ever feel anxious about using computers	1 2 3 4 5 6 7

Please respond to the following five questions using the following scale, where 1= strongly disagree and 7= strongly agree.

	Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree
1. I like working with computers	1 2 3 4 5 6 7
2. Once I get on the computer I find it hard to stop	1 2 3 4 5 6 7
3. I would choose to use a computer in my spare time	1 2 3 4 5 6 7
4. I prefer to use a computer to write my assignments	
5. I would choose to use computers in my teaching	1 2 3 4 5 6 7
6. Overall, I like using computers	1 2 3 4 5 6 7

Attribution

This section of the survey is designed to help you understand the reasons you attach to particular outcomes when using computers.

Six imaginary scenarios are presented below. For each you are asked to indicate the most likely reason why the particular outcome has occurred. You will then be asked to further describe this reason which you have listed as either:

- something to do with yourself or something outside your control;
- something likely to occur in the future, or not; and
- something that affects you generally or only in this situation.

For instance, say I was to imagine a situation where I bought a piece of furniture (say a computer desk) - one of those ones which comes in a box. I spend hours trying to put it together, but it just won't work. I am asked to write down one possible reason why this might happen. I might respond that I think it is because the instructions are really difficult to understand. In this case I might respond that I see this as mostly due to others (2) and that it might occur reasonably frequently in the future (6). I probably will feel that this "reason" does not affect other areas of my life (1).

Please respond to the following 6 scenarios (and one general questions) below:

1. Imagine that you are asked to produce an assignment using a computer. When you are marked on your assignment you receive a low mark for presentation and layout. Write down one possible reason why this might happen.

a)	To what extent is this reason due to something about you or something about other people or circumstances?	Totally due to others	1	2	3	4	5	6	7	Totally due to me
b)	In the future will this cause be present?	Never present	1	2	3	4	5	6	7	Always Present?
c)	Is this cause something that affects just this type of situation or does it influence other areas of your life?	Just this situation	1	2	3	4	5	6	7	All situations

2. Imagine that you are asked to locate some information on the World Wide Web and find exactly what you are looking for first go. Write down one possible reason (or cause) why this might happen

			1	2	3	4	5	6	7	
a)	To what extent is this reason due to something about you or something about other people or circumstances?	Totally due to others	1	2	3	4	5	6	7	Totally due to me
b)	In the future will this cause be present?	Never present	1	2	3	4	5	6	7	Always Present?
c)	Is this cause something that affects just this type of situation or does it influence other areas of your life?	Just this situation	1	2	3	4	5	6	7	All situations

Imagine that you purchase a new computer program to use with your students in the classroom. You cannot get the software to work. Write down one possible reason why this might happen

			1	2	3	4	5	6	7	
a)	To what extent is this reason due to something about you or something about other people or circumstances?	Totally due to others	1	2	3	4	5	6	7	Totally due to me
b)	In the future will this cause be present?	Never present	1	2	3	4	5	6	7	Always Present?
c)	Is this cause something that affects just this type of situation or does it influence other areas of your life?	Just this situation	1	2	3	4	5	6	7	All situations

3. Imagine that you send an e-mail to a friend however they cannot read the e-mail. Write down one possible reason why this might happen

			1	2	3	4	5	6	7	
a)	To what extent is this reason due to something about you or something about other people or circumstances?	Totally due to others	1	2	3	4	5	6	7	Totally due to me
b)	In the future will this cause be present?	Never present	1	2	3	4	5	6	7	Always Present?
c)	Is this cause something that affects just this type of situation or does it influence other areas of your life?	Just this situation	1	2	3	4	5	6	7	All situations

4. You teach a lesson to your students while on Practicum which incorporates computers. The lesson is a fabulous success and your supervising teacher is most impressed. Write down one possible reason why this might happen

			1	2	3	4	5	6	7	
a)	To what extent is this reason due to something about you or something about other people or circumstances?	Totally due to others	1	2	3	4	5	6	7	Totally due to me
b)	In the future will this cause be present?	Never present	1	2	3	4	5	6	7	Always Present?
c)	Is this cause something that affects just this type of situation or does it influence other areas of your life?	Just this situation	1	2	3	4	5	6	7	All situations

5. Imagine that your friend is having trouble doing something on their computer and asks you for assistance. You are able to solve their problem with very little difficulty. Write down one possible reason why this might happen.

			1	2	3	4	5	6	7	
a)	To what extent is this reason due to something about you or something about other people or circumstances?	Totally due to others	1	2	3	4	5	6	7	Totally due to me
b)	In the future will this cause be present?	Never present	1	2	3	4	5	6	7	Always Present?
c)	Is this cause something that affects just this type of situation or does it influence other areas of your life?	Just this situation	1	2	3	4	5	6	7	All situations

When things in your life generally go well for you it is because…

_____

		Totally due to others	1	2	3	4	5	6	7	Totally due to me
a)	To what extent is this reason due to something about you or something about other people or circumstances?	Totally due to others	1	2	3	4	5	6	7	Totally due to me
b)	In the future will this cause be present?	Never present	1	2	3	4	5	6	7	Always Present?

6. When things in your life generally go badly for you it is because…

_____

		Totally due to others	1	2	3	4	5	6	7	Totally due to me
a)	To what extent is this reason due to something about you or something about other people or circumstances?	Totally due to others	1	2	3	4	5	6	7	Totally due to me
b)	In the future will this cause be present?	Never present	1	2	3	4	5	6	7	Always Present?

Thank-you for your time.
Please return to the eLearning Leader or Coordinator at *your* institution by:

2. Online Questionnaire – Starts next page…

Questionnaire for TeLRF[10] project called: *Approaches and implications of e-learning adoption on academic staff efficacy and working practice: A comparative study (ALET)*

Please answer all questions. The questions relate to the use of e-learning tools and methods in your teaching and are presented in two parts. Questions in part A involve self-efficacy (confidence) and those in part B examine staff development. The following definitions will help you to understand the intent of the questions.

Definitions of e-teaching and e-learning

In this project, e-teaching and e-learning are defined as the use of multimedia technologies (e.g. Internet-based, CDROM technologies, video, audio, teleconference) resources for teaching and learning respectively.

General Information:

Age: Gender:

Occupation or role: Years teaching:

Years e-teaching:

State % of courses you taught using e-learning tools (methods) in 2004:

State % of courses you will teach using e-learning tools (methods) in 2005:

If you are currently undertaking study for a qualification which encompasses e-learning, please name it here:

Please list the qualifications you have obtained in the area of e-learning here:

Table 1

Please respond to the following questions using the scale below.

1	2	3	4	5
Strongly disagree		Neither agree nor disagree		Strongly agree
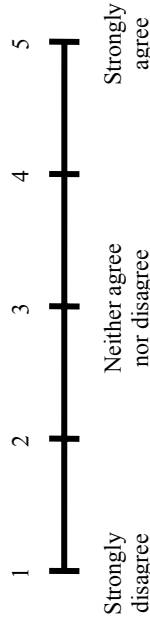
Circle one:
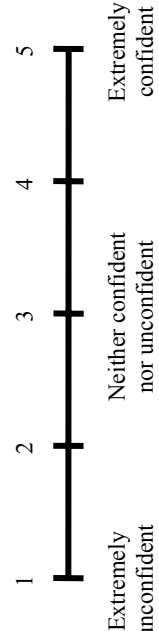
1. I am confident about my ability to teach well in a course that requires me to use computer technology.	1	2	3	4	5
2. I feel at ease learning about computer technology.	1	2	3	4	5
3. I am concerned about the impact of computer technology on my teaching.	1	2	3	4	5
4. I am not worried about making mistakes using computer technologies.	1	2	3	4	5
5. I feel anxious about using e-learning tools.	1	2	3	4	5
6. The thought of using e-learning methods for teaching is uncomfortable.	1	2	3	4	5
7. Overall I consider that using e-learning tools enhances my teaching.	1	2	3	4	5
8. Learning how to be an e-teacher is easy.	1	2	3	4	5
9. I enjoy using e-learning tools.	1	2	3	4	5

Comments:

Table 2

Please respond to the following questions using the scale below to indicate your level of confidence *using* e-learning tools :

1	2	3	4	5
Extremely unconfident		Neither confident nor unconfident		Extremely confident
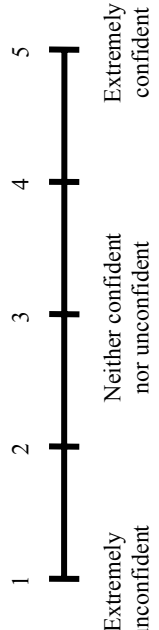
Circle one:

1.	earning Management Systems e.g. Blackboard	1	2	3	4	5	not used
2.	Text-based information or material - online	1	2	3	4	5	not used
3.	Discussion Board	1	2	3	4	5	not used
4.	PowerPoint	1	2	3	4	5	not used
5.	Chat	1	2	3	4	5	not used
6.	Email	1	2	3	4	5	not used
7.	Quizzes	1	2	3	4	5	not used
8.	Creating web pages	1	2	3	4	5	not used
9.	e-journals/e-portfolios/blogs (weblogs)	1	2	3	4	5	not used
10.	Teleconferences (audioconferences)	1	2	3	4	5	not used
11.	Simulations/animations	1	2	3	4	5	not used
12.	Audio in digital material	1	2	3	4	5	not used
13.	Video streaming	1	2	3	4	5	not used
14.	Video conferencing	1	2	3	4	5	not used

Add own e-learning tools to *other*   **Circle one:**

15.	Other -	1	2	3	4	5	not used
16.	Other -	1	2	3	4	5	not used

Comments:

Table 3

Imagine you are given a project to set up your course for online delivery. Please respond to the following questions using the scale below. Treat each question independently and state how confident you would be….

1	2	3	4	5
Extremely unconfident		Neither confident nor unconfident		Extremely confident

Circle one:

1.	…if there was no one around to tell you what to do as you go	1	2	3	4	5
2.	…if you had only an instruction manual for reference	1	2	3	4	5
3.	…if you could call someone for help if you got stuck	1	2	3	4	5
4.	…if someone else had helped you get started	1	2	3	4	5
5.	…if you had a lot of time to complete the project	1	2	3	4	5
6.	…if there was someone giving you step by step instructions	1	2	3	4	5

Comments:

Table 4

Please respond to the following questions using the scale below. In learning new software (computer applications) or using e-learning tools and facilities, I am more likely to…

1	2	3	4	5
Extremely unlike me		Neither like nor unlike me		Extremely like me
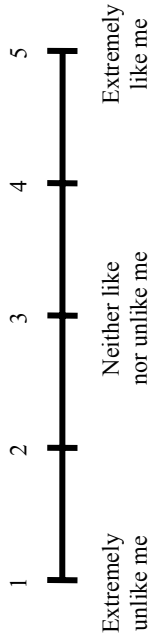
Circle one:

		1	2	3	4	5
1.	…expect that I will experience many problems	1	2	3	4	5
2.	…doubt my ability to solve the problems that may arise	1	2	3	4	5
3.	…need to ask others for help	1	2	3	4	5
4.	…try and persist on my own until it works correctly	1	2	3	4	5
5.	…give up quickly if it doesn't work	1	2	3	4	5
6.	…put a lot of effort into getting it right	1	2	3	4	5
7.	…ask someone else immediately if it doesn't work straight away	1	2	3	4	5
8.	…get someone else to do it for me or to fix it	1	2	3	4	5
9.	…spend extra time trying to understand what to do	1	2	3	4	5
10.	…get frustrated and annoyed at lack of progress	1	2	3	4	5

Table 5

Overall, how confident are you in using e-learning tools and methods in your teaching?

1	2	3	4	5
Extremely unconfident		Neither confident nor unconfident		Extremely confident
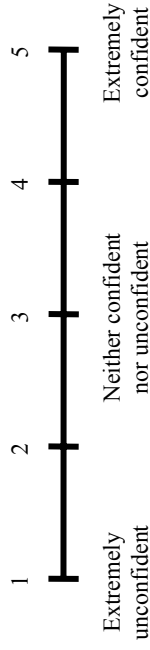
Circle one:

1	2	3	5	5

Comments:

Thank you for your time answering the questions. Your assistance is much appreciated.

Comments:

What type of staff development have you undertaken in preparation for e-learning?

This section of the questionnaire is to find out about the type of learning you have engaged in to develop your knowledge and skills with **e-learning** (you could consider anything you have done in the last 10 years).

The questionnaire is divided in to four parts:
1. Formal staff development; 2. Informal staff development; 3. Learning strategies you have used; 4. Application of staff development.
Note: Staff development and professional development are equivalent for the purposes of this questionnaire.

1. Formal Staff Development – Part A: In the boxes tick the type of instruction and delivery method.
  Definition: Courses/workshops as well as staff development that might occur through mentoring or facilitating. The type of staff development included here is formally recognised, part of your workload, remunerated possibly and may or may not be driven by staff developers.

A. Staff development you have undertaken at your institution in preparation for e-teaching	How was this staff development **delivered** when you took the instruction? **Fill in the appropriate boxes with the number of times the instruction was taken for each category e.g. general computing instruction – delivered – online – no. of times - 4 etc.**					
	Online	Face to face	One on one support	Mixed mode	Mentoring model	Other
General computing instruction e.g. Microsoft Office, email, Internet						
Online teaching and learning guidance/instruction – technical (e.g. how to set up resources on Blackboard)						
Online teaching and learning guidance/instruction – pedagogical (e.g. how to facilitate teaching and learning)						
Specialist software instruction e.g. Blackboard, Flash, Dreamweaver						
Other (eg as a student) Please specify:						

Please comment: _____

Formal Staff Development – Part B: In the boxes tick the type of courses and delivery method used.

B. Staff development you have undertaken with other organisations in preparation for e-teaching	How was this staff development delivered when you took the instruction? Fill in the appropriate boxes with the number of times the instruction was taken for each category e.g. general computing instruction – delivered – online – no. of times - 4 etc.					
	Online	Face to face	One on one support	Mixed mode	Mentoring model	Other
General computing instruction e.g. Microsoft Office, email, Internet						
Online teaching and learning guidance/instruction – technical (e.g. how to set up resources on Blackboard)						
Online teaching and learning guidance/instruction – pedagogical (e.g. how to facilitate teaching and learning)						
Specialist software instruction e.g. Blackboard, Flash, Dreamweaver						
Other (eg as a student) Please specify:						

Please comment: _____

2. Informal Staff Development

Definition: informal learning is any learning that takes place outside of structured or contracted learning situations. It is not formally recognised, may not be a recognised part of workload, is not remunerated, and may or may not be driven by Head of School/Department, Dean or Staff Developers.

Tick the appropriate boxes that apply to the informal learning you have engaged in.

Drop in sessions	☐	Special interest groups	☐
Conferences	☐	Workshops/seminars	☐
Working with early adopters/peers	☐	"how to do it" resources	☐
Reading/websites/personal resources	☐ ☐	Friends/whanau	☐
General internet use	☐	Exploration of software	☐
Newsletters	☐	Discussion with peers	☐
Email lists	☐	Blogs (weblogs)	☐
Involvement in projects	☐	Workshops/seminars	☐
Observation of others' online courses	☐	Other	☐

Please comment: _____

_____

3. What type of learning strategies do you use to help yourself to develop skills for e-learning?

Please consider the following scenario: Your manager has said that you must learn how to use a new e-learning method and develop expertise in the method to aid your students' learning. What learning strategies would you use to familiarise yourself with the method and to make sure you are a confident and competent practitioner?

Tick the appropriate boxes to indicate the learning strategies you have used.

Utilise a trial and error approach	☐	Apply knowledge in a problem-based or scenario-based context	☐
Compile a portfolio	☐	Access web-based resources	☐
Maintain a reflective journal	☐	Access text-based resources	☐
Engage in a web-log (blogging)	☐	Communicate with an existing practitioner	☐
Undertake a tutorial	☐	Seek the help of a mentor	☐
Apply the method in a real situation	☐	Engage in staff development activities	☐
Observe someone else	☐	Other	☐

Please describe: _____

_____

4. Application of staff development

Describe one or two examples of how formal and/or informal staff development has shaped your e-teaching.

Formal:

Informal:

Thank you for taking the time to fill in this questionnaire.

APPENDIX - C : INTERVIEW QUESTIONS

Generic Interview Questions

Use all generic questions and other questions based on the profile of the person you are interviewing.

1. Can you please describe how you use eLearning tools and methods in teaching e.g. LMS, courses taught, communication methods, resources and tools in use.
2. Please explain why overall you feel *unconfident* OR *confident* OR *neither confident nor unconfident* about using eLearning tools or methods. (choose appropriate for particular profile.)
3. What support do you believe is provided in your institution for staff development?
4. Describe a situation where you had a challenge when setting up or using eLearning tools

   a. What arose?
   b. How did you deal with it?
   c. What support did you have?
   d. What would have helped?

5. To what extent do you feel prepared to be an e-teacher?
6. How are you able to apply what you learn through SD to the design and development of your courses?
7. What would be your advice to others re staff development for eTeaching?
8. Can you elaborate on the learning strategies you have chosen in the questionnaire:
   a. List here

   i. Are these strategies adequate for you needs?

   ii. What else would you like to use?

9. Is there anything else you would like to add?

Efficacy Data

1. Data Relating to Categories of Questions

Categories of Questions Related to fficacy in eLearning (n=82)	Efficacy Score			% Frequency of Responses				
				Likert Scale				
Personal Efficacy and Feelings	Mean	Median	Mode	1	2	3	4	5
confidence to teach well	4.1	4	5	0	6	17	33	44
at ease learning	4.2	4	5	0	7	10	33	50
concerned about impact*	3.3	3	3	24	22	26	13	15
not worried about mistakes	3.6	4	4	2	22	17	30	28
anxious using tools*	3.9	2	1	43	26	16	13	2
thought of using is uncomfortable*	4.2	2	1	48	32	15	5	1
tools enhance teaching	3.9	4	4	2	7	17	39	34
learning is easy	2.8	3	3	11	33	37	12	7
enjoy using tools	3.9	4	4	5	4	22	39	30
				Likert Scale				
eLearning Tools	*Not used*	Mean	Median	Mode	1	2	3	4	5
LMS	23	3.0	4	4	2	7	5	45	17
text-based	15	3.5	4	4	0	7	4	48	27
Discussion Board	22	3.2	4	4	1	5	10	32	30
PowerPoint	15	3.7	4	5	4	1	4	32	45
Chat	24	2.9	4	4	5	7	13	28	22
email	16	4.0	5	5	2	0	0	17	65
Quizzes	29	2.6	3	4	5	9	7	32	18
Web pages	27	2.1	2	0	20	18	5	17	13
e-journals	37	1.8	2	0	13	18	11	11	10
Teleconference	32	2.3	3	0	7	11	12	21	17
Simulations	34	2.0	2	0	10	21	10	11	15
Audio	41	1.6	1	0	12	21	10	7	9
Video streaming	45	1.3	1	0	15	20	11	2	7
Video conferencing	39	1.7	1	0	13	18	13	4	12
Setting up an Online Course		Mean	Median	Mode	1	2	3	4	5
no help as go		2.9	3	4	16	21	27	30	6
only instruction manual		3.1	3	4	10	24	23	33	10
call someone for help		4.1	4	4	1	11	6	44	38
help getting started		4.1	4	4	0	6	15	46	33
lot of time		4.3	5	5	2	5	7	34	51
step by step instructions*		1.9	5	5	2	7	21	16	54

Categories of Questions Related to Efficacy in eLearning	Efficacy Score			% Frequency of Responses				
				Likert Scale				
Characteristics using Tools	**Mean**	**Median**	**Mode**	**1**	**2**	**3**	**4**	**5**
expect problems*	2.9	3	4	10	22	28	32	9
doubt ability to solve problems*	3.6	2	2	18	46	18	15	2
ask others for help*	2.5	4	4	4	13	28	39	16
persist on own	3.6	4	4	2	9	28	46	15
give up quickly*	4.0	2	2	37	40	13	7	2
lot of effort	4.1	4	4	1	9	6	49	35
ask immediately for help*	3.1	3	2	7	35	27	26	5
someone else to fix*	3.6	2	2	23	38	23	10	6
spend extra time to understand	4.0	4	4	0	7	9	61	23
get frustrated at lack of progress!	-	3	3	10	20	33	26	12
Overall Confidence	**Mean**	**Median**	**Mode**	**1**	**2**	**3**	**4**	**5**
overall, how confident using eLearning tools and methods	3.8	4	4	4	9	18	48	22

Table D-1: Frequency of Formal Staff Development at Own or Other Institution (n=82)

Note: * indicates questions where likert responses were reversed to calculate the efficacy score. Mean efficacy score, is related to efficacy not the mean likert response. ! indicates that this question was eliminated from efficacy scoring

2. Staff Development Data

Number of Sessions	**Own Institution**	**Other Institution**
0	12	46
1 to 5	25	21
6 to 10	9	10
11 to 15	10	3
16 to 20	5	0
21 to 25	4	1
26 to 30	2	1
31 to 35	1	0
36 to 40	2	0
41 to 45	0	0
46 to 50	0	0
51 to 55	1	0
56 to 60	0	0
61 to 65	1	0

Table D-2 : Frequency of Formal Staff Development at Own or Other Institution (n=82)

Different Modes and Types of Formal Staff Development at Own Institution (n=82)

Frequency of General Computing Instruction

% Freq	Online	F2F	1on1	mixed mode	mentoring
0	87	55	82	90	91
1	5	17	5	2	2
2	4	6	6	4	1
3	0	7	1	4	2
4	1	4	4	0	0
5	1	4	0	0	2
6	0	1	0	0	0
7	0	1	0	0	0
8	0	0	1	0	0
9	0	0	0	0	0
10	2	5	1	0	0

Frequency of Technical Online Teaching and Learning Instruction

% Freq	Online	F2f	1on1	mixed mode	mentoring
0	82	48	68	90	90
1	7	21	7	5	4
2	6	11	6	5	4
3	1	9	4	0	0
4	2	4	4	0	0
5	0	2	6	0	1
6	0	2	0	0	0
7	0	0	0	0	0
8	0	2	1	0	1
9	0	0	0	0	0
10	1	1	4	0	0

Frequency of Pedagogical Online Teaching and Learning Instruction

% Freq	Online	F2f	1on1	mixed mode	Mentoring
0	85	71	91	93	96
1	5	16	1	5	0
2	6	7	0	1	2
3	1	1	4	0	0
4	1	1	2	1	0
5	0	4	0	0	1
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	1	0	1	0	0

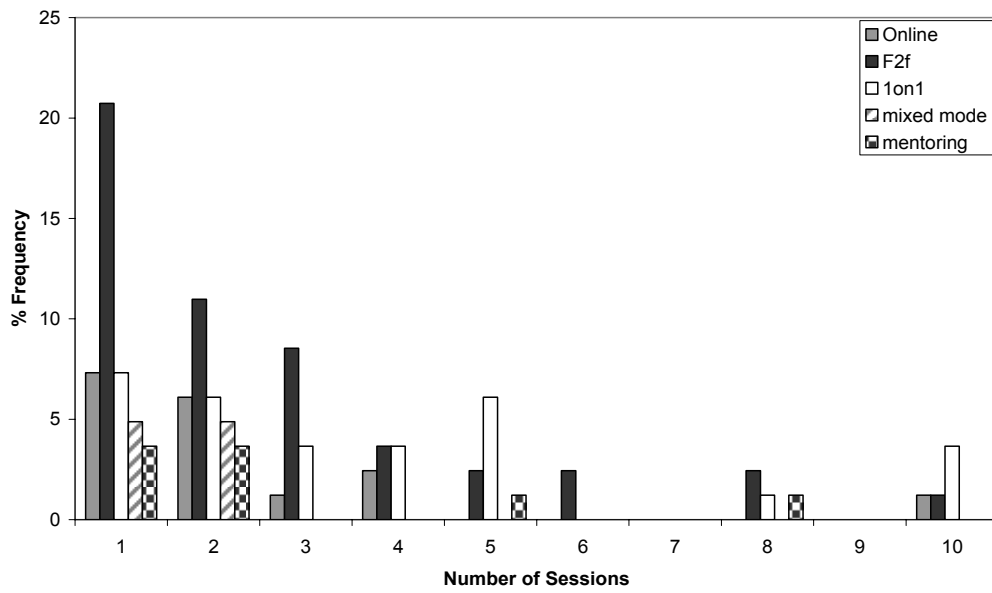|	Frequency of Specialist Software Instruction				
% Freq	**Online**	**F2f**	**1on1**	**mixed mode**	**Mentoring**
0	89	65	85	98	96
1	4	15	2	2	1
2	4	11	5	0	0
3	0	2	2	0	0
4	2	2	1	0	0
5	0	4	1	0	0
6	0	0	1	0	0
7	0	0	0	0	0
8	0	0	0	0	1
9	0	0	0	0	0
10	1	1	1	0	1

Table D-3: Different Modes and Types of Formal Staff development at Own Institution (n=82)

Figure D-1: Frequency of General Computing Instruction (n=82)
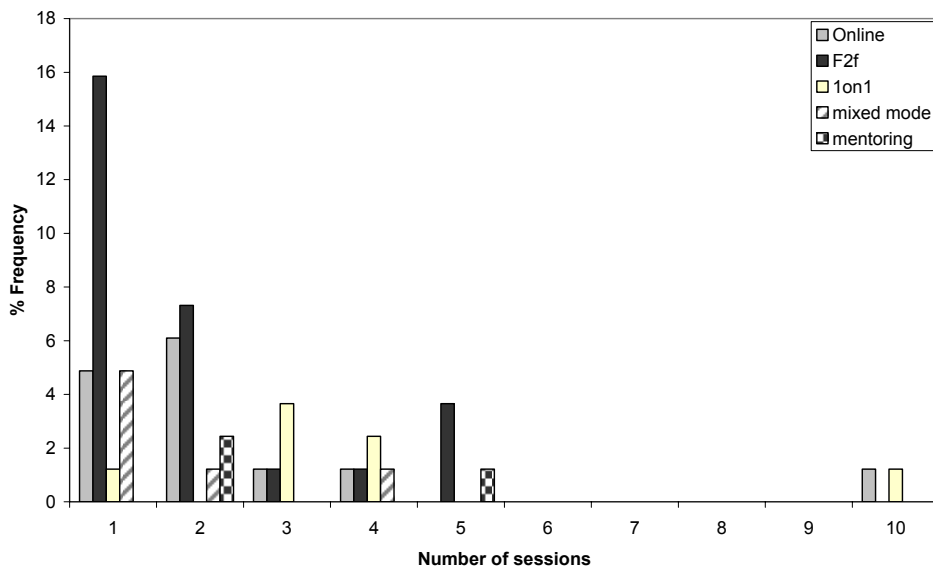

Frequency of General Computing Instruction (n=82)
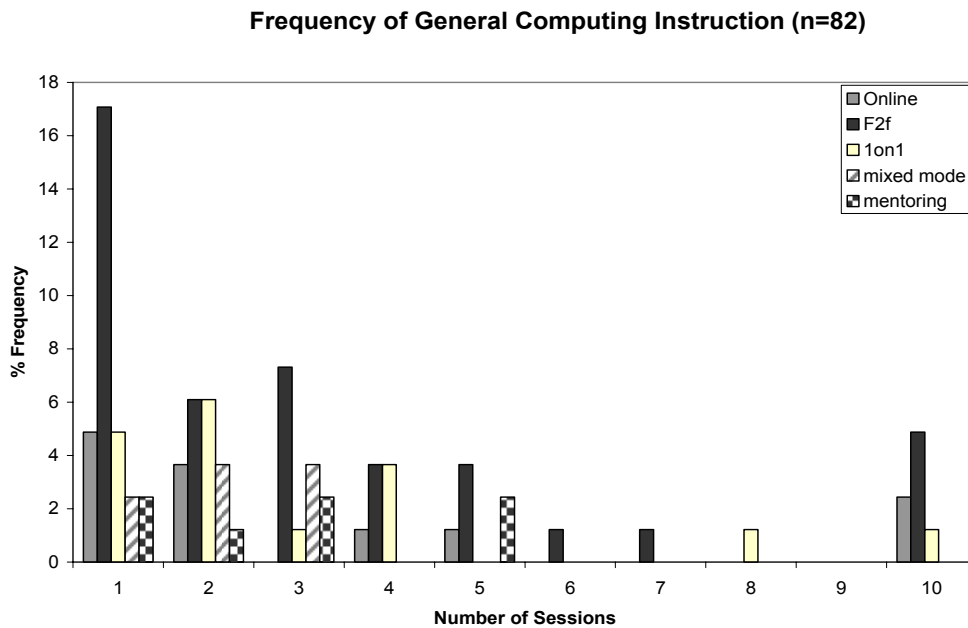
Figure D-2: Frequency of Technical Online Teaching and Learning Instruction (n-82)

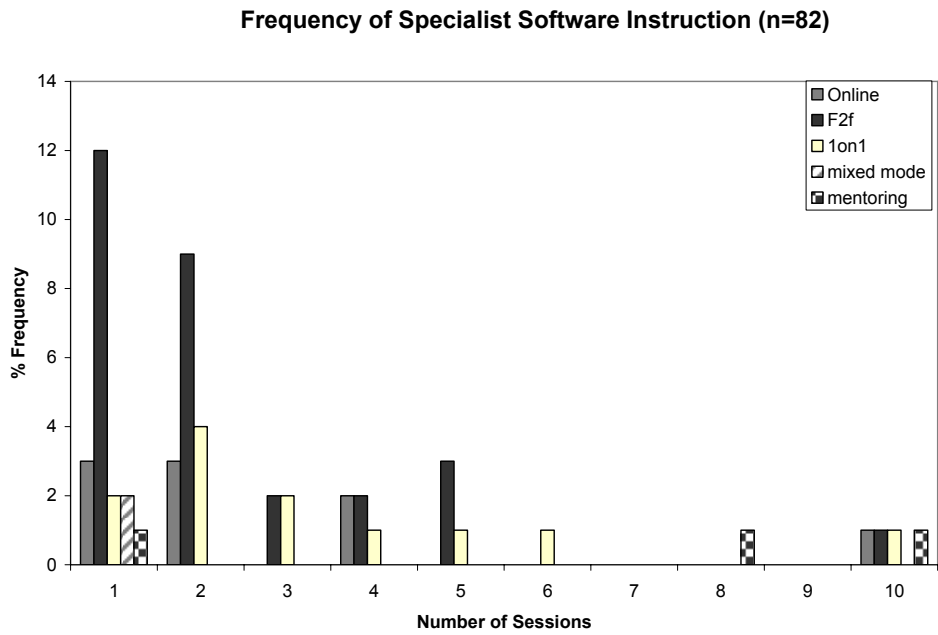Frequency of Technical Online Teaching and Learning Instruction (n=82)

Figure D-3: Frequency of Pedagogical Online Teaching and Learning Instruction (n=82)

Frequency of Pedagogical Online Teaching and Learning Instruction (n=82)

Figure D-4: Frequency of Specialist Software Instruction (n=82)

Frequency of Specialist Software Instruction (n=82)

Informal Staff Development (n=82)	Frequency
Drop in sessions	28
Special interest groups	22
Conferences	39
Workshops/seminars	41
Working with early adopters/peers	52
how to do it resources	36
Reading/websites/personal resources	61
Friends/whanau	29
General internet use	62
Exploration of software	49
Newsletters	25
Discussion with peers	59
Email lists	38
Blogs (weblogs)	8
Involvement in projects	45
Observation of others' online courses	42

Table D-4: Frequency of choice for different types of informal staff development.

Strategies	Frequency
Apply knowledge in a problem-based or scenario-based context	35
Utilise a trial and error approach	59
Compile a portfolio	7
Access web-based resources	58
Maintain a reflective journal	11
Access text-based resources	47
Engage in a web-log (blogging)	4
Communicate with an existing practitioner	64
Undertake a tutorial	48
Seek the help of a mentor	41
Apply the method in a real situation	51
Engage in staff development activities	54
Observe someone else	48
Median	**48**

Table D-5: Types of Learning Strategies for eLearning Skill Development